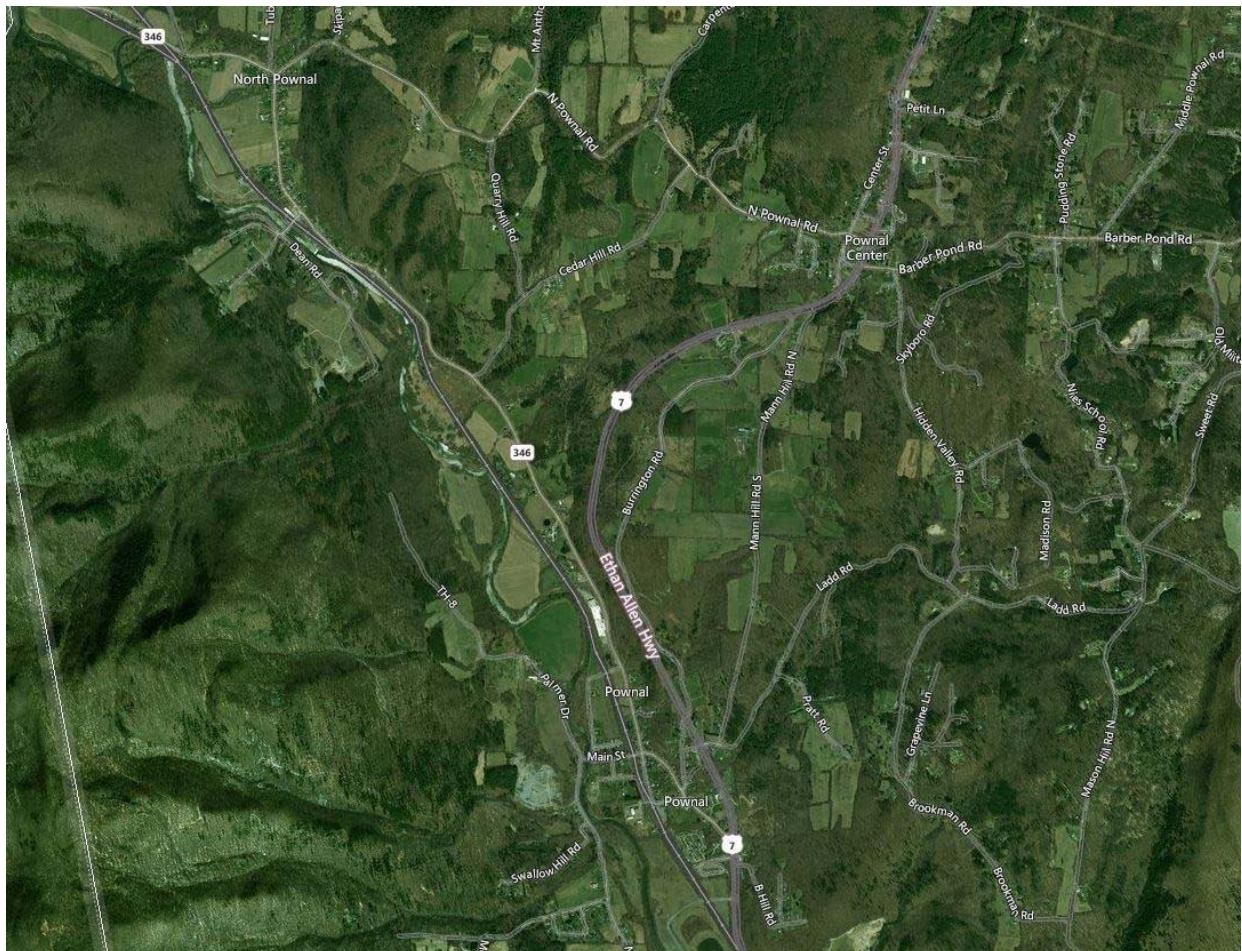


# REPORT

September 2017

PFAS SUMMARY REPORT  
Pownal, Vermont

**Prepared for:**  
Vermont Department of Environmental  
Conservation



## TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY .....	ES-1
TABLE OF CONTENTS .....	i
LIST OF FIGURES .....	ii
LIST OF TABLES .....	ii
LIST OF APPENDICES .....	ii
1.0 INTRODUCTION .....	1-1
1.1 Site Description .....	1-1
1.2 Site Investigation Activities .....	1-1
1.3 Contaminants of Concern .....	1-2
2.0 WATER SUPPLY WELL DATA PRESENTATION .....	2-1
2.1 Drinking Water Supply Well Quality Data .....	2-1
2.1.1 Sampling Location Selection and Contact Methods .....	2-1
2.1.2 Sample Collection Methods .....	2-1
2.1.3 Water Quality Results .....	2-2
2.1.1 Quality Assurance and Quality Control Results .....	2-3
2.2 Additional Groundwater Quality Results .....	2-3
2.2.1 Warren Wire/General Cable .....	2-3
2.2.2 Former Pownal Tannery .....	2-3
2.2.3 Pownal Center Area Public Water Supplies .....	2-4
2.3 PFAS Distribution in Groundwater .....	2-4
2.3.1 PFAS in Shallow Wells .....	2-4
2.3.2 PFAS in Bedrock Wells .....	2-4
2.4 Point of Entry Treatment Systems .....	2-4
3.0 CONCEPTUAL SITE MODEL .....	3-1
3.1 Surficial Geology .....	3-1
3.2 Bedrock Geology .....	3-1
3.3 Hydrology .....	3-2
3.4 Potential Contaminant Sources and Release Mechanisms .....	3-3
3.4.1 Former Warren Wire/General Cable .....	3-3
3.4.2 Former Warren Wire Plant #3 .....	3-3
3.4.3 Pownal Tannery Site .....	3-4
3.4.4 Former Barlow Gravel Pit/Town Dump Site .....	3-4
3.4.5 Former Dodge Farm Dump Site .....	3-4
3.5 Summary of PFAS Fate and Transport .....	3-4
4.0 CONCLUSIONS .....	4-1

5.0 LIMITATIONS ..... 5-3

6.0 REFERENCES ..... 6-4

**FIGURES**

Figure 1 ..... Site Plan

Figure 2 ..... Site Topography

Figure 3 ..... PFOA & PFOS Concentrations All Water Supply Wells

Figure 4 ..... PFAS in Overburden Aquifer

Figure 5 ..... PFAS in Bedrock Aquifer

Figure 6 ..... POET Schematic

Figure 7 ..... Surficial Geology

Figure 8 ..... Bedrock Geology

**TABLES**

Table 1 ..... Select PFAS in Drinking Water

Table 2 ..... POET Systems Water Quality

Table 3 ..... QA/QC Sample Results

**LIST OF APPENDICES**

Appendix A ..... Standard Operating Procedure

Appendix B ..... Water Supply Well Sampling Database

Appendix C ..... Compiled Laboratory Result Sheets

Appendix D ..... Previous Report Excerpts

Appendix E ..... Pownal Fire District #2 Well Treatment/Replacement Memorandum

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## EXECUTIVE SUMMARY

In response to the discovery of water supply well contamination with perfluoroalkyl substances (PFAS) in Bennington, Vermont in 2016, the Vermont Department of Environmental Conservation (VTDEC) performed research into other potential PFAS users throughout the state. The VTDEC identified the former Warren Wire/General Cable facility in Pownal as a former user of PFAS compounds. The Warren Wire/General Cable facility is located several hundred feet west of the Pownal Fire District #2 (PFD#2) municipal water source. The VTDEC sampled PFD#2 in early March 2016. The results of the initial sampling and analysis of PFD#2 revealed the PFAS perfluorooctanoic acid (PFOA) at a concentration above the Groundwater Quality Standard (GWQS) of 20 parts per trillion (ppt, ng/L). The VTDEC contracted Weston & Sampson to assist in investigating the extent of groundwater contamination to water supply wells in the Pownal area. The VTDEC requested that the current owners of the former Warren Wire/General Cable facility, American Premier Underwriters (APU) perform a comprehensive investigation of PFAS use and distribution at their facility.

Initial sampling and analysis of private water supplies within 1 mile of the Warren Wire/General Cable facility area was expanded as elevated levels of PFAS were continuing to be found towards the north of the facility. The VTDEC also identified several additional potential PFAS use and/or disposal areas in the region and requested sampling of several private water supplies in these areas. A total of 156 drinking water supply wells in the Pownal area have been analyzed for the presence of PFAS by VTDEC and EPA contractors. Fourteen (14) private water supply wells have reported the sum concentration of PFOA and perfluorooctane sulfonate (PFOS) exceeding 20 ppt. One of these residences was connected to PFD#2 and Weston & Sampson coordinated the installation of point of entry treatment (POET) systems at the 10 residences requesting treatment. The POET systems consist of granular activated carbon filtration with ultraviolet disinfection. Periodic maintenance and sampling of the POET systems is ongoing.

Concurrently, APU completed a detailed investigation of PFAS occurrence at the Warren Wire/General Cable facility and coordinated installation of a granular activated carbon filtration system on PFD#2. The EPA performed PFAS sampling of existing monitoring wells at the Pownal Tannery Superfund Site in North Pownal and a limited investigation of PFAS conditions at the so-called Warren Wire Plant #3 in Pownal Center.

This summary report has been generated to: present the PFAS related data collected by Weston & Sampson to date; provide a conceptual site model discussing PFAS data collected throughout the area of interest; and make recommendations for additional data collection necessary to fully delineate the PFAS source(s) and impacts in Pownal.

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## 1.0 INTRODUCTION

Weston & Sampson, on behalf of the Vermont Department of Conservation (VTDEC) has prepared this summary report detailing the ongoing investigation into perfluoroalkyl and polyfluoroalkyl substances (PFAS) contamination in Pownal, Vermont. A summary of drinking water supply sampling, treatment systems installations, and operations on individual water supplies, as well as a conceptual site model (CSM) of PFAS release, fate, and transport are presented. Recommendations for data collection to fill data gaps are included.

### 1.1 Site Description

The Town of Pownal is located in Bennington County, Vermont. It includes the villages of Pownal, North Pownal, and Pownal Center. **Figure 1** shows the area of interest for this study. The villages of Pownal and North Pownal are located along the Hoosic River in the Hoosic Valley, a northwest trending valley that extends into the Taconic Mountains to the west. The Hoosic River flows northwest through the Pownal area to Hoosic Falls, New York. Pownal Center is located significantly uphill of the Hoosic Valley approximately 1.5 miles east of the Hoosic River.

In 2010 (the last census) Pownal had a population of approximately 3,500 people. The main population is centered around the three village centers. E911 address locations are also shown on **Figure 1** depicting the population density of the area. Several public water supply wells are located in the Pownal village area. Pownal Fire District #2, Well #1 (PFD#2) serves the majority of the single-family homes and a mobile home park (MHP) in Pownal Village. The Green Mountain MHP in Pownal Village and the Cozy Meadow MHP in Pownal Center are served by their own public water supply wells. The remaining residences are served by individual shallow dug or drilled bedrock water supply wells. The service area of Pownal Fire District #2 and the MHPs are shown on **Figure 1**.

Much of the area of interest is served by the Pownal Wastewater Treatment Plant (WWTF) located in North Pownal. The wastewater collection system primarily serves users in Pownal Village and those aligned along Route 346 into North Pownal. The residences not connected to the wastewater collection system are served by individual soil based on-site septic systems.

### 1.2 Site Investigation Activities

Due to concerns raised by PFAS contamination identified in Bennington, Vermont, the VTDEC performed research into other potential PFAS users throughout the state. The VTDEC identified the former Warren Wire/General Cable facility in Pownal as a former user of PFAS compounds. The Warren Wire/General Cable facility is located several hundred feet west of the PFD#2 municipal water source. The VTDEC sampled PFD#2 in early March 2016. The results of the initial sampling and analysis of PFD#2 revealed the PFAS perfluorooctanoic acid (PFOA) at a concentration above the Vermont Health Advisory of 20 parts per trillion (ppt, ng/L). The VTDEC contracted Weston & Sampson to assist in investigating the extent of groundwater contamination to water supply wells in the Pownal area. Concurrently the VTDEC requested that the current owners of the former Warren Wire/General Cable facility, American Premier Underwriters (APU), perform a comprehensive investigation of PFAS use and distribution at their facility.

Weston & Sampson and the VTDEC coordinated contacting, scheduling, sampling, laboratory analysis, and notification of results with all private water supply well users within 1 mile of the former Warren Wire/General Cable facility. The area of interest was expanded farther into the North Pownal area due to PFAS detections in this direction beyond the initial 1 mile sampling radius. To date, 138 private drinking

water wells have been sampled and analyzed at least once for the presence of for PFAS by Weston & Sampson. An additional 16 water supply wells have been sampled by EPA contractors.

As a result of persistent PFAS concentrations above the GWQS concentrations Weston & Sampson was also contracted to coordinate installation, start up, and maintenance of point of entry treatment (POET) systems at 10 residences.

Weston & Sampson has collected and analyzed a sludge sample from the WWTF for the presence of PFAS.

Weston & Sampson also provided a preliminary engineering feasibility assessment report regarding the potential installation of granular activated carbon treatment on, and/or replacement of, PFD#2 Well #1. This report was presented in April 2016 and is not discussed in this summary report.

### 1.3 Contaminants of Concern

The contaminants of concern in Pownal are PFAS, primarily perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). PFAS are class of fluorochemicals manufactured for their unique chemical stability and surface-tension lowering properties. Following several decades of commercial use, PASs have been discovered to be globally distributed, persistent environmental contaminants. Evidence of in vivo toxicity, and the occurrence of PFAS in the blood of general populations, has created public health concern.

PFOA was used to manufacture products that resist heat and chemical reactions, and repel oil, stains, grease, and water. PFAS are used as an aqueous dispersant agent for Gore-Tex®, Teflon® and stain resistant coating of materials. PFOS was a primary component of aqueous film forming foams (AFFF) used in firefighting and as odor suppressants. The carbon fluoride bonds in these long chain compounds are the strongest in nature. As such, PFAS are extremely resistant to chemical and biologic degradation. PFAS are also formed through the abiotic and biotic degradation of fluorotelomer alcohols.

PFOA and PFOS are solids which are extremely water soluble. They bond weakly with organic carbon. Adsorption to clay and iron minerals of the soil skeleton is also reported at suitable pH. Overall, the PFAS sorption capacity of non-carbon rich soils is minimal. Our experience indicates that soils reporting non-detectable concentrations of PFAS via standard EPA 537 analyses routinely yield Synthetic Precipitation Leaching Procedure (SPLP) extract concentrations of PFAS above the 20 ppt GWQS.

For fate and transport in the environment analyses, the majority of fully fluorinated PFAS including PFOS and PFOA are considered to be completely stable and flow unimpeded with advective groundwater flow. This resiliency has lead to the presence of PFAS throughout water globally.

PFOA and PFOS are considered potential carcinogens and bioaccumulate in the blood serum of humans. Inhalation of dusts and ingestion of contaminated water and food are the primary exposure routes to humans. Accumulation in the liver, kidneys, and blood serum occur. Increased incidents of testicular and bladder cancers are also reported. After ceasing exposure, the PFAS are slowly excreted without being degraded.

The VTDOH has set a GWQS level for drinking water of 20 parts per trillion (ppt), for the sum of PFOA and PFOS. A preliminary PFOA screening level for direct contact with soil has been set at 300 parts per billion (ppb).

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## 2.0 WATER SUPPLY WELL DATA PRESENTATION

### 2.1 Drinking Water Supply Well Quality Data

#### 2.1.1 Sampling Location Selection and Contact Methods

Since March of 2016, Weston & Sampson has performed sampling of drinking water supply wells throughout the Pownal Village, North Pownal, and Pownal Center areas. Water quality samples were collected based upon several different criteria as the project progressed. The selection criteria are briefly described below. In all instances, the VTDEC approved all the locations prior to samples being collected.

Initially Weston & Sampson gathered the names of all property owners within 1 mile of the former Warren Wire/General Cable facility from the Town tax records. Letters were sent to each property owner identified requesting access for sample collection and providing contact information. In addition, Weston and Sampson provided an on-line sampling request form which allowed for digital sampling requests. Sample collection requests from residents were screened by Weston & Sampson to determine if they were within the area of interest and presented to the VTDEC for approval. Not all water supply wells in the area of interest have been sampled as some residents did not request and/or did not desire sampling of their well.

The VTDEC also requested sampling of specific locations associated with other potential PFAS source locations. The other potential PFAS sources included a former landfill on Maple Grove Road, the former Warren Wire Plant #3 location in Pownal Center, and locations downgradient of the former Warren Wire owner's farmstead on Cedar Hill Road, where off-specification product was reportedly dumped.

As the analytical data was received it was reviewed for exceedances of the 20 ppt sum PFOA & PFOS concentration. If exceedances, or near exceedances, were noted, the sampling area was expanded to other nearby residences. Only one new water supply well location has been sampled since November 2016.

Upon receipt of the laboratory data it would be incorporated into a database, checked for quality assurance and quality control (QA/QC), and presented in tabular form to the VTDEC. A form letter was also generated by either the VTDEC or Weston & Sampson to notify the residents of the results.

#### 2.1.2 Sample Collection Methods

Water supply samples were collected using the Weston & Sampson Standard Operating Procedure for PFAS sampling included in **Appendix A**. Samples were obtained prior to any water treatment or filtration equipment if possible. Typically, samples were collected from the spigot at the base of the pressure tank. Prior to obtaining the sample, the cold water was run for at least 10 minutes in the kitchen sink at a flow of 1-3 gallons per minute (fully open). During the purging time an inventory of uses and materials near the sample location was taken. A trip blank provided by the laboratory was also poured from one bottle into another within the sampling area. With the 10 minute purging complete and the kitchen tap still running, the sample was collected in HDPE plastic 250 ml capacity bottles provided by the laboratory with TRIZMA preservative. Blind duplicate samples were also collected every tenth sample location.

Sampling of the POET systems (discussed in **Section 2.4**) occurs using the same purging method with samples collected first from the effluent, middle, and finally the influent sample ports. This ensured that PFOAs were not introduced into the sampling environment

The details of the residence location, owner contact information, sampling times, materials inventory and use in the sampling area, well construction details (if available), gps location of the well, and water treatment system details were all entered into a digital data collection form on a tablet for downloading into a comprehensive database.

The samples were shipped on ice to Northern Lake Services (NLS) laboratory for analysis via EPA Method 537 Modified. Initially 6 PFAS were reported. Subsequently, NLS has begun reporting 12 PFAS. Detection limits for the PFAS have also decreased since initiation of the project. Initially the trip blanks collected at every sample location were analyzed only if positive results were reported in the primary sample PFAS. However, analysis of the trip blanks was ceased as we have never seen PFAS reported in these samples at this Site (or several others). Trip blank samples continue to be collected, but they are not analyzed unless deemed necessary.

### 2.1.3 Water Quality Results

The digitally collected field sampling data have been compiled with the laboratory results into an Excel spreadsheet included in **Appendix B**. A summary of select PFAS compound results for each 911 address sampled is included as **Table 1**. This table presents the reported concentrations for PFOA, PFOS, and perfluoroheptanoic acid (PFHpA). These three PFAS were the most common reported. Additional PFAS have been quantified as the laboratory detection limits have decreased and the number of compounds reported has increased. However, these additional PFAS have not been tabulated as they are typically reported as “estimated” values due to the low concentrations present. Laboratory report sheets have been presented to the VTDEC previously as the data was received. The data sheets are included in **Appendix C**.

Weston & Sampson have sampled a total of 138 water supply wells to date, some numerous times. The sum concentration of PFOA and PFOS exceed 20 ppt at 14 residences. Concentrations of PFOA and PFOS between the reporting limit and 20 ppt are reported at 25 locations. Non-detect readings were obtained from 99 sample locations. The primary PFAS quantified in the water supplies is PFOA. The maximum concentrations reported are approximately 80 ppt PFOA at water supplies immediately north of the Warren Wire/General Cable facility in Pownal and in several water supplies in the Dean and Murphy Road area in North Pownal. PFOS is reported at concentrations less than 10 ppt on Murphy Lane, Dean Road, and Route 346 in North Pownal. At 3137 Route 346 and 72 Murphy Lane in North Pownal PFOS is reported at 30.9 ppt and 94.8 ppt, respectively. The only other water supply with PFOS greater than 10 ppt is at 192 Pratt Road in Pownal at 27.3 ppt.

The areal distribution of the sum of PFOA and PFOS concentrations in all water supply wells sampled is shown on **Figure 3**. Exceedances of the GWQS concentration are located surrounding the former Warren Wire/General Cable facility and in North Pownal adjacent to and downstream of the Hoosic River dam. Further discussion of the distribution of PFAS in the area of interest is presented in **Section 2.3**.

### 2.1.1 Quality Assurance and Quality Control Results

A summary of QA/QC sample analysis results and comparison to the primary samples at each location is included as **Table 3**. The relative percent difference (%RPD) has been calculated for each sampling location quantifying PFAS. The %RPD is a measure of the precision of reproducibility of sampling and analysis technique. Acceptable %RPD for water is <30%. The %RPD for samples with PFAS concentrations above the reporting limits were all <15%. Samples with PFAS reported as “estimated” (between the reporting limit and the method detection limit) had %RPDs <29%. The QA/QC data indicate the data collected is suitably precise to support the conclusion of this report.

## 2.2 Additional Groundwater Quality Results

Several hazardous waste sites are located within the area of interest. These include the Warren Wire/General Cable facility, the Former Pownal Tannery (Mill Building, former lagoons and lagoon sludge landfill), the Barlow Gravel Pit, and Quality Motors all in North Pownal. Groundwater samples have been collected and analyzed for PFAS at the Warren Wire/General Cable facility and the Pownal Tannery former lagoon and sludge landfill sites in 2016. The EPA also sampled several public water supply wells in the Pownal Center area. The PFAS data collected is briefly discussed below. Pertinent report excerpts are included in the referenced appendices. Full reports are available from the VTDEC records.

### 2.2.1 Warren Wire/General Cable

At the Warren Wire/General Cable facility, groundwater sampling was performed from discrete interval sampling points, previously existing monitoring wells, and newly installed groundwater monitoring wells by Unicorn Management Consultants, LLC (UMC) as part of a comprehensive site investigation for PFAS. Additional media sampling including soil, sediment, surface water, and remnant floor drain materials was also performed. UMC presented the sample analysis data in a Phase I and Phase II Remedial Investigation Report (RIR) on April 14, 2017. **Appendix D** contains excerpts of the UMC RIR showing sampling locations and summary data tables.

### 2.2.2 Former Pownal Tannery

The EPA sampled several monitoring wells associated with the former Pownal Tannery Superfund site former lagoon and lagoon sludge landfill. The location of the former lagoons and sludge landfill are shown on **Figure 1**. The monitoring wells are completed in overburden soils and bedrock at both the landfill and lagoon areas. The EPA contractor presented a memorandum summarizing the sample collection and analytical results on June 16, 2016. The memorandum is included in **Appendix E**. PFAS were identified in both the landfill and lagoon areas.

The PFOA & PFOS concentration in the monitoring well to the northeast of the former lagoons was the highest observed at 247 ppt. Several additional PFAS were also identified in this well. Other monitoring wells surrounding the lagoon area contained PFAS at reduced concentrations ranging from 5 to 34 ppt. The bedrock monitoring well at the lagoon area reported non-detect concentrations for all reported PFAS.

Shallow monitoring wells in the sludge landfill area reported PFOA and PFOS summed concentrations between 2 and 12 ppt. PFOS was only reported in one monitoring well. The bedrock well associated with the landfill was free of detectable concentrations of PFAS.

### 2.2.3 Pownal Center Area Public Water Supplies

The VTDEC reported to Weston & Sampson that the EPA collected samples from four public water supply wells in the Pownal Center area. The samples were collected from the Pownal Elementary School, Oak Hill Children's School, Pownal Town Office, and Lameman's MHP (aka Cozy Corners MHP). No PFAS were reported above detection limits in any of these bedrock water supply well samples.

## 2.3 PFAS Distribution in Groundwater

Information collected during water supply well sampling and the available groundwater quality data from the Warren Wire/General Cable facility and former Pownal Tannery sites have been compiled for use in Geographic Information System (GIS) software to plot the data spatially. Several maps have been generated to visually assess the PFAS distribution throughout the area of interest.

### 2.3.1 PFAS in Shallow Wells

The sum of PFOA and PFOS concentrations in water supply wells and monitoring wells completed in the overburden are shown on **Figure 4**. The area of highest concentrations of PFAS is on and near the Warren Wire/General Cable facility in Pownal. PFAS concentrations upwards of 200 ppt are noted. All exceedances of the 20 ppt GWQS in this area are located on the east side of the Hoosic River.

Two shallow drinking water supply wells with concentrations near or slightly above the 20 ppt GWQS are located distal to the former Warren Wire/General Cable facility (192 Pratt Road and 100 Ladd Road). As indicated above, PFOS is a significant contributor at the 192 Pratt Road water supply. The remote and isolated nature of these two exceedances implies they are potentially impacted by a different PFAS source than the one impacting the shallow groundwater at the Warren Wire/General Cable facility.

A second area with shallow groundwater PFAS concentrations above 20 ppt exists in the North Pownal area near the former Pownal Tannery landfill and lagoon areas. Exceedances are present on both sides of the Hoosic River in this area and are as high as 247 ppt.

### 2.3.2 PFAS in Bedrock Wells

The sum of PFOA and PFOS concentrations in water supply wells and monitoring wells completed in the bedrock are shown on **Figure 5**. The majority of the bedrock wells are free of PFAS, with the exception of one well on Church Street in Pownal, all the PFAS detections were reported in the North Pownal area. The only GWQS exceedances in bedrock are reported on Dean Road. The highest sum of PFOA and PFOS in bedrock is 45 ppt.

## 2.4 Point of Entry Treatment Systems

APU and UMC designed and installed a granular activated carbon treatment system on the PFD#2 Well #1 to remove PFAS. This system has effectively removed PFAS from the PFD#2 distribution system. A new water supply source location is currently being investigated to replace PFD#2 Well #1. The VTDEC instructed Weston & Sampson to coordinate the installation of point of entry treatment systems at all residences with PFAS greater than 20 ppt not served by PFD#2. Ten of the 14 residences with exceedances agreed to installation of the POET system. The residents at 594 Route 346 and 31 White

Birch Lane were connected to the PFD#2 distribution system. The owners of 1277 Route 346 and 72 Murphy Lane declined installation of a POET. POETS were installed at the following addresses:

201 Dean Road	260 Dean Road
323 Dean Road	393 Dean Road
499 Dean Road	192 Pratt Road
1235 Route 346	3137 Route 346
3164 Route 346	3199 Route 346

A schematic of the POET systems is included as **Figure 5**. Each POET is comprised of a particulate filter followed by 2 high pressure vessels containing 2 cubic feet of Filtersorb 400 granular activated carbon connected in series. A post GAC filter, totalizing meter, and ultra violet disinfection lamp complete the system. Each POET was installed after any water softening system already in place at the residence. The POETs were installed by Culligan or Vermont Water Treatment.

Once installed, each POET was operated without resident consumption for at least 1 week. An initial POET sample round was then performed. Samples from the inlet, midpoint (between carbon beds), and effluent sample ports were collected. Each sample was analyzed for PFAS via EPA Method 537 modified. The effluent sample was also analyzed for arsenic. Previous experience with Filtersorb 400 indicated that a "spike" in arsenic concentrations occurs on POET system start up. Each POET had arsenic concentrations below the Vermont Drinking Water Standard and non-detect levels of PFAS after 1 week of operation. Residents were informed and could begin utilizing the treated water for drinking.

Routine POET sampling has continued on a quarterly basis for PFAS analyses. Quarterly sampling is only performed on the influent and midpoint locations to assure no breakthrough has occurred. A summary table of sampling results is included as **Table 2**. To date, no PFAS have been identified in the midpoint locations.

Routine maintenance of the POETs is being performed by Culligan and includes quarterly particulate change, annual ultraviolet lamp replacement, and carbon replacement as needed determined by PFAS monitoring.

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### 3.0 CONCEPTUAL SITE MODEL

The following conceptual site model (CSM) has been developed for the Pownal Village, North Pownal, and Pownal Center area of interest to present our understanding of the potential release mechanisms and processes controlling the fate and transport of the PFAS identified to date. The CSM incorporates information collected from numerous sources regarding the geology, hydrogeology, geomorphologic history, and PFAS use and presence throughout the area of interest. Sources for the information utilized to develop the CSM are included in the **Section 5**. In addition to these specific sources we have utilized our experiential knowledge developed over more than 30 years of investigating contaminated sites in New England and our direct experience with PFAS sites in southwestern Vermont and Massachusetts.

#### 3.1 Surficial Geology

The Pownal area of interest is located in the Hoosic River valley between the Green and Hoosic Mountains and the Taconic Mountains. The relatively narrow valley bottom extends through the area from the southeast to the northwest. The valley bottom elevation ranges from approximately 540 feet above mean sea level (amsl) in Pownal to 500 feet amsl in North Pownal. The surficial geology of the valley bottom is dominated by post glacial alluvium deposited by the Hoosic and the many small tributaries feeding from the east and west valley wall flanks. **Figure 7** presents the surficial geology and PFAS water quality from overburden wells. The eastern valley bottom margins adjacent to steep sloped flanks contain pockets of fluvial gravel. The eastern valley margins adjacent to tributaries tend to have glaciolacustrine silt and sand deposits emplaced during the retreat of the ice sheets. These deposits are located on the southern sides of the tributary valleys. The eastern flank of the valley is dominated by exposed bedrock to the top of the scarp. As the topography flattens, a thin veneer of till is seen overlaying the bedrock.

Western flank slopes are less steep and are dominated by till. One exception is an area of fluvial gravel and lake sands just south of North Pownal. These deposits are located in the area immediately north of a significant constriction in the valley width. This allowed for a buildup of higher energy water laid deposits that is nearly 100 feet above the current valley floor. This gently north sloping deposit has been down cut by the Hoosic River and is currently used as a sand and gravel resource.

The permeability of the surficial deposits results in high groundwater yields. Sand and gravel wells in the valley have extremely high yields (>100 gallons per minute). The point permeability/hydraulic conductivity testing performed by UMC as part of their investigation is not expected to provide results reflective of the bulk hydraulic conductivity of the overburden materials. The depositional environment resulting in the permeable deposits requires bulk permeability testing, such as trench tests, to accurately determine the aquifer's hydraulic characteristics. It is our experience that point permeability tests in this type of overburden generally underestimate the bulk hydraulic conductivity by an order of magnitude.

#### 3.2 Bedrock Geology

The area of interest is underlain by complex series of folded and faulted bedrock formations of the Middlebury Synclinorium. Members of the Walloomsac, Bull and Bascom Formations are present and are composed of various types of shale, phyllite, dolostone and dolomitic limestone. The bedrock geologic map presented on **Figure 8** shows the bedrock types and complex array of faults and fractures in the area. The narrowest portion of the Hoosic valley is in North Pownal where the Hoosic crosses the thrust fault of the Bascom Formation dolostone and the limestone of the Bull and Nassau Formation.

The Hoosic flows along the fault line in this area, over the former Pownal Tannery mill dam and begins meandering several hundred feet to the northwest as the overburden deposits thicken.

### 3.3 Hydrology

The Hoosic River flows through the area of interest, downcutting through the lacustrine sediments and depositing alluvium. The sinuous nature of the rivers meandering path is indicative of its flow through these overburden materials. As mentioned above, the straightest portion of the rivers path coincides with the area which has exposed bedrock associated with the thrust fault in North Pownal. The very narrow valley bottom represents a groundwater discharge zone for the bedrock slopes located to the east and west. Upward flow out of the bedrock into the sands and gravels of the valley bottom is anticipated. Due to the highly permeable nature of the overburden materials, the Hoosic River is anticipated to fluctuate between a gaining and losing condition. During periods of high recharge (spring) it likely receives groundwater discharge. However, during times of low recharge the river may discharge to the surrounding groundwater regime.

Due to the permeability of the overburden, regional groundwater flow is anticipated to be sub parallel to the river and topography of the valley floor. Groundwater flow directions will also be affected by the variability in overburden character caused by the meandering river changing the depositional regime through time. "Braiding" of coarse and fine-grained layers of soil will occur during glacial retreat resulting in a complex 3-dimensional web of permeable water lain overburden deposits. Near the valley margins groundwater is expected to be flowing directly away from the bedrock scarps as the hydraulic head from the bedrock above will dominate in this area.

The dynamics of river recharge and discharge will be dramatically affected in the area surrounding the former Pownal Tannery dam in North Pownal. The impoundment of water behind the dam will cause the river to consistently discharge to the overburden, and at this location into the bedrock, where it will flow around/under the dam. This will be a localized condition; however, this impact is significant due to the narrowness of the valley at this location.

UMC reports groundwater flowing from the north and from the south onto the Warren Wire/General Cable property and then converging and discharging to the west into the Hoosic River. The monitoring well array located to the north of the Warren Wire/General Cable facility appears hydraulically isolated from the Warren Wire/General Cable area. This is due to their large distance for the Warren Wire/General Cable facility and their location adjacent to a large farm pond. In addition, the landform between the Warren Wire/General Cable facility and the southern monitoring wells is a unique terrace which may be impacting shallow overburden recharge. If the 2 southern monitoring well related groundwater elevations are not incorporated, the groundwater contours at the Warren Wire/General Cable facility would show groundwater flow from the south sub parallel to the Hoosic. Beneath the Warren Wire/General Cable site the groundwater then flows due west towards the Hoosic. This is likely due to the river meandering very close to the exposed bedrock scarp on the east side of the valley.

The vertical hydraulic gradients reported in the UMC RIR have been reviewed in relation to the CSM. The vertical gradients reported between the shallow, intermediate and deep monitoring wells are all relatively small. A gradient of  $<0.01$  ft./ft. is essentially neutral. The majority of the vertical gradients measured on the Warren Wire/General Cable site were upward. South of the Warren Wire/General Cable facility a downward gradient between the shallow and intermediate wells is noted. This may be due to the retention pond nearby or active use and drawdown caused by PFD#2 Well 1. Downward vertical

gradients in the monitoring wells north of the Warren Wire/General Cable facility are likely reflective of the presence of the large pond nearby recharging the shallow groundwater from above. Overall, the vertical groundwater gradients imply that the overburden soils in the Warren Wire/General Cable facility area are all relatively permeable. No evidence of a confined aquifer condition is seen.

In the North Pownal area, the same type of vertical hydraulic gradients are expected away from the dam where the valley floor is as wide and flat as near the Warren Wire/General Cable facility. Near the dam, vertical gradients are difficult to predict due to the exposed bedrock, the interactions caused by the river discharging into the aquifer upstream of the dam and the river gaining from the aquifer immediately downstream of the dam.

### 3.4 Potential Contaminant Sources and Release Mechanisms

Several potential sources of PFAS releases have been identified in the area of interest. The uses and potential release mechanisms for each are discussed in the following sections. Each of the potential source locations identified are located on **Figure 2**.

#### 3.4.1 Former Warren Wire/General Cable

The Warren Wire/General Cable facility is a known user of PFAS. The Warren Wire/General Cable facility was constructed in the late 1940s. The Warren Wire/General Cable facility produced Teflon™-coated wires for high temperature applications beginning in the 1950s. In 1963 the facility was sold to the General Cable Company (General Cable), who also produced Teflon™-coated wire. Manufacturing continued at the facility until 1986. The Teflon™ coating process used by Warren Wire/General Cable included the use of PFAS. Potential PFAS release sources from the Warren Wire/General Cable facility include:

- UMC RIR indicates that the facility stored large volumes of materials in above ground storage tanks and silos throughout the property. Materials handling and transfer could result in releases to the ground surface and/or storm water collection system.
- Atmospheric discharge from drying and sintering ovens which heated and set the Teflon™ coating to the substrate materials. This process is known to drive PFAS off the substrate into the air discharged through stacks. No treatment devices are reported to have been in place at the Warren Wire/General Cable plant. Atmospheric transport of PFAS as particulate and dissolved in water vapor has been documented to result in ground surface deposition along prevailing wind directions miles from the release point.
- “Stack Fires” are reported to have occurred. Overheating and combustion of Teflon™ will release PFAS to the atmosphere.
- PFAS contaminated materials are reported as still present in floor drains suspected of discharging directly to the Hoosic River. PFOA, PFOS and several additional PFAS were shown to readily leach from these materials. Releases to the floor drains result in PFAS discharge to the Hoosic River.

#### 3.4.2 Former Warren Wire Plant #3

Warren Wire/General Cable operated a small facility on Center Street in Pownal Center referred to as the “Teflon Shop”. Actual activities performed at the facility are unknown. The building was removed in the early 1970s and only a concrete pad remains. Recent investigation of soil and groundwater conditions has revealed PFAS in surface water, soils and shallow groundwater. PFOA was detected in groundwater

at concentrations upwards of 300 ppt. The wetlands on site also report PFOA >20 ppt. The wetlands do not appear to have an active outflow, potentially resulting in continual infiltration of contaminated waters into the underlying till and bedrock.

### 3.4.3 Pownal Tannery Site

The Pownal Tannery site is the location of a former hide tanning and finishing facility located south of the village center of North Pownal on the east side of the Hoosic River adjacent to the dam. This facility operated from the early 1930s until 1988. Although no indication of PFAS use has been reported at the Pownal Tannery specifically, PFAS have been used in the leather tanning and treatment industry. If PFAS were part of the leather treatment processes at the Pownal Tannery they could have been released into the area of interest in the following manner:

- Atmospheric discharge from drying ovens
- Mishandling and/or dumping at the mill building
- Wastewater discharge and infiltration at the former lagoon systems
- Leaching from lagoon sludges landfilled on Dean Road
- Leaching from leather scraps landfilled at the former Barlow gravel pit "Town Dump" site.
- Use of odor controlling foams during lagoon sludge excavation and landfilling. Odor controlling foams are known to contain PFAS in complex formulations. Until recently, PFOS was one of the primary PFAS present in odor controlling foams.

### 3.4.4 Former Barlow Gravel Pit/Town Dump Site

The former Town Dump site is located approximately 1,200 feet west of the Former Pownal Tannery sludge landfill. A small (1.5 acre) solid waste landfill operated at this site for several years in the 1960s and 1970s. The landfill received tannery wastes along with domestic solid waste from nearby residences. PFAS may be leaching from this area if the tannery wastes deposited here contained PFAS. As indicated above it is not known if PFAS use occurred at the Pownal Tannery. The groundwater monitoring wells present at this site have not been sampled for PFAS.

### 3.4.5 Former Dodge Farm Dump Site

The Dodge Farm at 549 Cedar Hill Road is located between the Warren Wire/General Cable facility and Pownal Center. It has been anecdotally reported by the current owners that this property was previously owned by the founder of Warren Wire. The current owners indicate that they have found several dumping areas around the farm that contain "melted" wire bundles and other debris from the former wire manufacturing facility. PFAS are likely present in this debris and may be leaching into soils and groundwater. Three wells were sampled at the property. The bedrock water supply wells for the house and barn were free of PFAS contamination. However, the shallow irrigation well at the southwest corner of the property contained 7.72 ppt PFOA.

## 3.5 Summary of PFAS Fate and Transport

Utilizing the information available at this time the following contaminant release, fate, and transport model has been formulated.

Decades of manufacturing utilizing PFAS has occurred at the Warren Wire/General Cable facility. PFAS were released to the environment via 1) airborne discharge from drying and sintering ovens, 2) wastewater discharges to the Hoosic River and likely the on-site wastewater dispersal system and 3) spills associated with materials handling and disposal. The PFAS released appears to be dominated by PFOA. Airborne PFAS were transported some distance from the facility prior to settling to the soils surface via dry (particulate) or wet (water vapor condensation) deposition. Wastewaters and spills placed PFAS directly to the shallow soils beneath the site. Precipitation infiltrating through contaminated soils transported the PFAS vertically downward to the shallow water table with little or no retardation or sorption to the sandy gravels in the area.

Once in the groundwater, the PFAS contaminants flow advectively with groundwater. Directly beneath the Warren Wire/General Cable facility groundwater flows to the northwest and discharges to the Hoosic River. PFAS concentrations in the shallow aquifer are highest beneath the Warren Wire/General Cable facility and decrease with distance to both the north and south. Shallow groundwater flow directions at the south end of the Warren Wire/General Cable facility are significantly influenced by the former operation of the Warren Wire/General Cable water supply well and the PFD#2 water supply well, both of which are completed in the sand and gravel overburden. The cones of groundwater depression created by these wells during their operation draw contaminated groundwater deeper into the overburden aquifer materials. The Warren Wire/General Cable facility well has not been operated in several decades. However, PFD#2 well operation has been continual since its installation in the late 1990s. This results in continued PFAS transport deeper into the aquifer and effectively draws PFAS contamination "upgradient" of the Warren Wire/General Cable facility. Therefore, dissolved PFAS concentrations are present through the entire thickness of the overburden aquifer surrounding the Warren Wire/General Cable facility. PFAS impacted shallow groundwater has also migrated downgradient of the Warren Wire/General Cable facility to the northwest and to the west impacting several water supply wells above the 20 ppt GWQS.

PFAS discharged directly to the Hoosic River will flow downstream during times when the river is "gaining" groundwater. When the river is "losing" into the groundwater, PFAS will migrate into the overburden materials. A limited amount of the PFAS will sorb to the soil skeleton and be transported along groundwater flow paths, likely sub parallel to the river. This mechanism of surface water distributing PFAS out of the river and back into the overburden will be most prevalent near the dam in North Pownal. The impoundment of surface water forces the river to "lose" water to the surrounding soils. At the dam in North Pownal, surface waters will also directly enter the bedrock aquifer. The current PFAS source to surface water at the Warren Wire/General Cable facility is likely minor. However, during the active production years discharge volumes of PFAS laden wastewaters to the Hoosic were likely significant. This could have resulted in PFAS contamination observed in the overburden and bedrock aquifers in the dam area currently observed.

A potential contributing source of the PFAS contamination in the North Pownal aquifers is the use and discharge of PFAS during Pownal Tannery operations. IF PFAS were utilized in leather treatment, airborne and wastewater discharges would have occurred causing shallow soil contamination throughout the impacted area. In addition, long term leaching of PFAS from the lagoons, sludge landfill, and wastes in the former Town Dump could be occurring. The presence of PFOS in in this area may indicate that PFAS were introduced into the area via the odor suppressing foams used during Tannery remediation efforts.

Impacted shallow and bedrock water supply wells on the south side of the river are noted directly northwest of the sludge landfill and hydraulically downgradient of the former Town Dump. Contaminated shallow groundwater flow in this area follows the topography and likely discharges directly to the Hoosic.

On the east side of the Hoosic, PFAS impacts are primarily noted in the shallow aquifer with the highest concentrations seen immediately surrounding the former Tannery lagoons. On this side of the river groundwater will flow subparallel to the river and potentially towards the large number of shallow water supply wells utilizing the aquifer. However, the complex interaction of the impounded portion of the Hoosic River with the shallow and bedrock aquifers is not adequately understood to confidently indicate what the migration characteristics of the PFAS are in this area.

The Warren Wire Plant #3 area clearly indicates PFAS release occurred at this facility. PFOA concentrations in shallow groundwater in this area are some of the highest seen in the area of interest. Release mechanisms at this facility are unknown but can be assumed to be similar to the main Warren Wire/General Cable plant. Contaminated shallow groundwater appears to flow to the east and a small drainage. The glacial till observed at depth appears to have prevented bedrock aquifer impacts in this area.

The source of the PFAS impacts in the 2 shallow water supply wells along Cedar Hill Road may be attributed to airborne deposition from the Warren Wire/General Cable facility and/or the Warren Wire Plant #3 operations. Leaching of PFAS from the purported waste Warren Wire/General Cable materials at the Dodge Farm may also be a contributing source. The shallow groundwater in the Dodge Farm area will flow along contour through the to the southwest towards the Hoosic valley.

The character of the PFAS detected in the Pratt Road and Ladd Road shallow water supply wells is distinctly different than the remainder of the area of interest. The presence of PFOS at higher concentrations than PFOA is not observed in other locations. None of the identified potential sources appear to have the ability to result in these impacts.

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#### 4.0 CONCLUSIONS

The following conclusions are based upon our current understanding of the PFAS related data collected in the Pownal area to date:

- 1) PFAS were utilized and released from the former Warren Wire/General Cable facility at 1007 Route 346 in Pownal, Vermont from the 1950s through late 1980s. PFAS were released via stack emissions and liquid discharges. Impacts to the soil, surface water and groundwater in the area of the facility have resulted in contamination of the PFD#2 and several nearby water supply wells (overburden and bedrock) at concentrations above the Vermont Health Advisory for the sum of PFOA and PFOS. The primary PFAS present is PFOA, with intermittent detections of other PFAS compounds including PFOS. The extent of initial airborne PFAS transport prior to deposition is unknown. Residual materials in floor drains within the facility are contaminated with PFAS and could still be releasing PFAS into the environment. The extent of soil, shallow groundwater and bedrock aquifer contamination resulting from the releases at the 1007 Route 346 Warren Wire/General Cable facility are not fully defined and could extend to the northern extent of contamination identified to date.
- 2) The surficial geology of the Hoosic River valley will allow for transport of PFAS contaminated groundwater large distances from the point of release. Valley bottom deposits are dominated by highly transmissive sands and gravels. The hydrologic interactions between the Hoosic River and shallow groundwater have not been defined. The geologic setting implies that the Hoosic River is both a “gaining” and a “losing” stream depending upon location in the valley and runoff conditions. PFAS directly released into the river at the Warren Wire/General Cable facility may have resulted in contaminated surface water being discharged into the groundwater regime, thereby contaminating the soils and groundwater significant distances downstream of the release.
- 3) Several potential PFAS contaminant sources exist in the North Pownal area. These include the former Pownal Tannery (tannery operations, sludge landfill, lagoon area, and odor suppressing foams used during remediation activities), the former Town Dump at the former Barlow Gravel Pit, and potential historical discharge of Warren Wire/General Cable contaminated surface water into the groundwater surrounding the dam. The PFAS contaminants in this area are present in both overburden and bedrock water supply and monitoring wells. The PFAS present include PFOA and PFOS. The complex hydrogeologic and hydrologic conditions in this area require additional investigation to determine which of the multiple potential sources of release(s) are contributing to the PFAS impacts observed to date.
- 4) PFAS releases at the Warren Wire Plant #3 site in Pownal Center have resulted in significant impact to surface water and shallow groundwater throughout the property. This location has been referred to as the “Teflon™ Shop” by individuals familiar with the history of the area. The operations and methods of release at this facility are unknown. However, historical photographs appear to indicate the presence of a material silo and/or exhaust stack on the north corner of the building previously on site. Bedrock water supply wells in the area immediately surrounding Plant #3 do not contain quantifiable concentrations of PFAS. The

fine-grained soils and underlying till at the site appear to have limited migration of PFAS into the bedrock aquifer. The horizontal extent of PFAS contamination in soil, surface water or groundwater has not been delineated at this location.

- 5) The source and extent of PFAS impacts observed in shallow water supply wells at, and downgradient of, the Dodge Farm along Cedar Hill Road are unknown. There are anecdotal reports of Warren Wire/General Cable related waste dumping on the Dodge Farm. These materials, if present, could potentially be leaching PFAS into the overburden aquifer. Other potential sources of PFAS deposition in this area include airborne transport for the Warren Wire/general Cable facility on Route 346 and/or airborne and surface water borne transport from the Plant #3 location in Pownal Center.
- 6) The source and extent of PFAS contamination in two water supply wells on Pratt and Ladd Roads are unknown. The equal ratio of PFOS and PFOA concentrations reported in the 72 Pratt Road water supply well is unique in the entire Pownal area of interest.
- 7) The 10 POET systems installed on private water supply wells throughout the area of interest are working as designed and reducing PFAS concentrations to none detected limits.

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## 5.0 LIMITATIONS

This Phase II ESA was prepared exclusively for the use of the Vermont Department of Environmental Conservation. The conclusions provided by Weston & Sampson in this report are based solely on the information reported in this document. Future investigations, and/or information that were not available to Weston & Sampson at the time of this investigation may result in a modification of the conclusions stated in this report.

Should additional information become available concerning this Site or neighboring properties that could directly impact the Site in the future; that information should be made available to Weston & Sampson for review so, if necessary, conclusions presented in this report may be modified. The conclusions of this report are based on Site conditions observed by Weston & Sampson personnel at the time of the investigation, information provided by the users and information provided by federal, state and local agencies. This report has been prepared in general accordance with accepted engineering and environmental assessment practices. No other warranty, expressed or implied, is made.

## 6.0 REFERENCES

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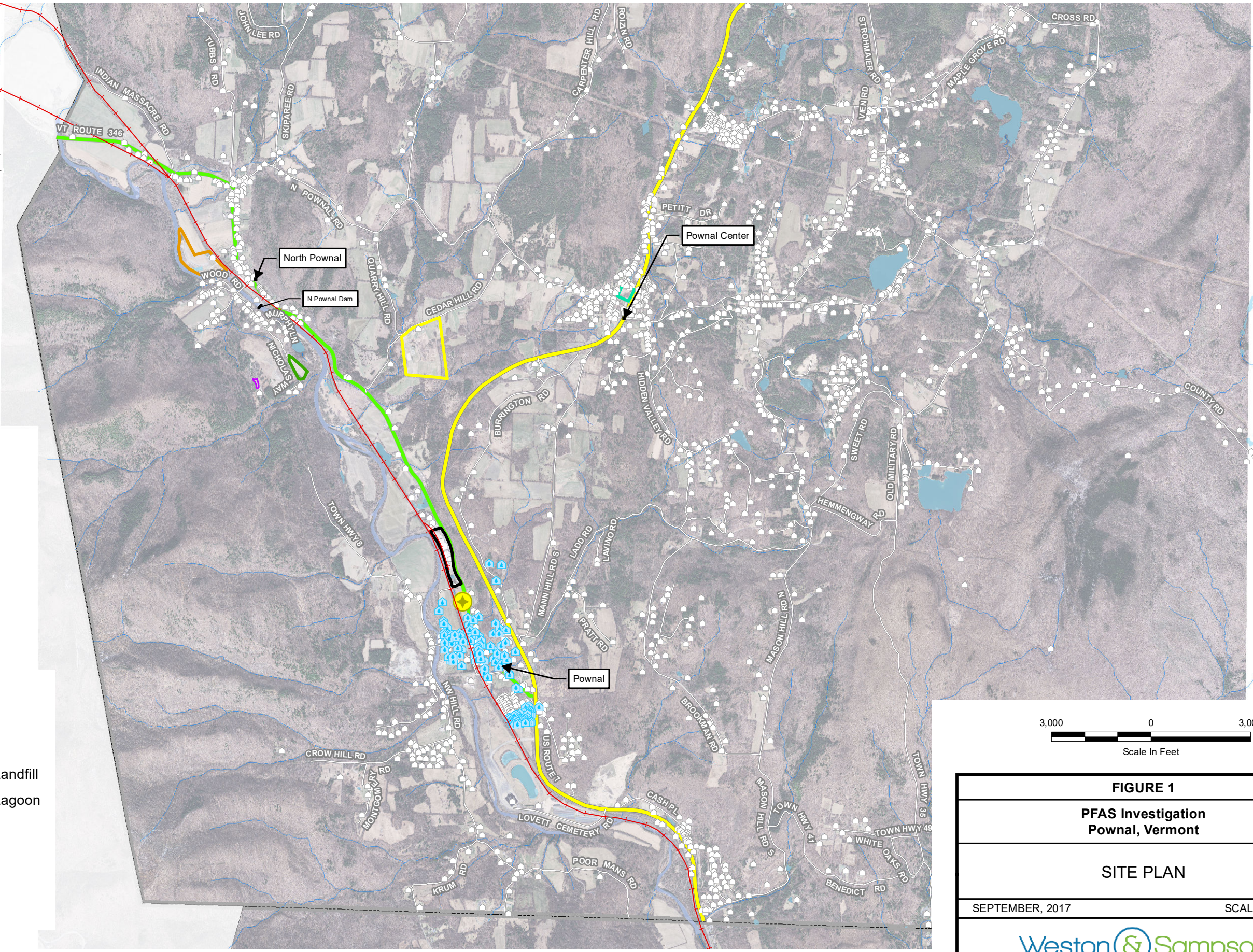
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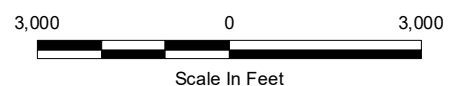
## FIGURES




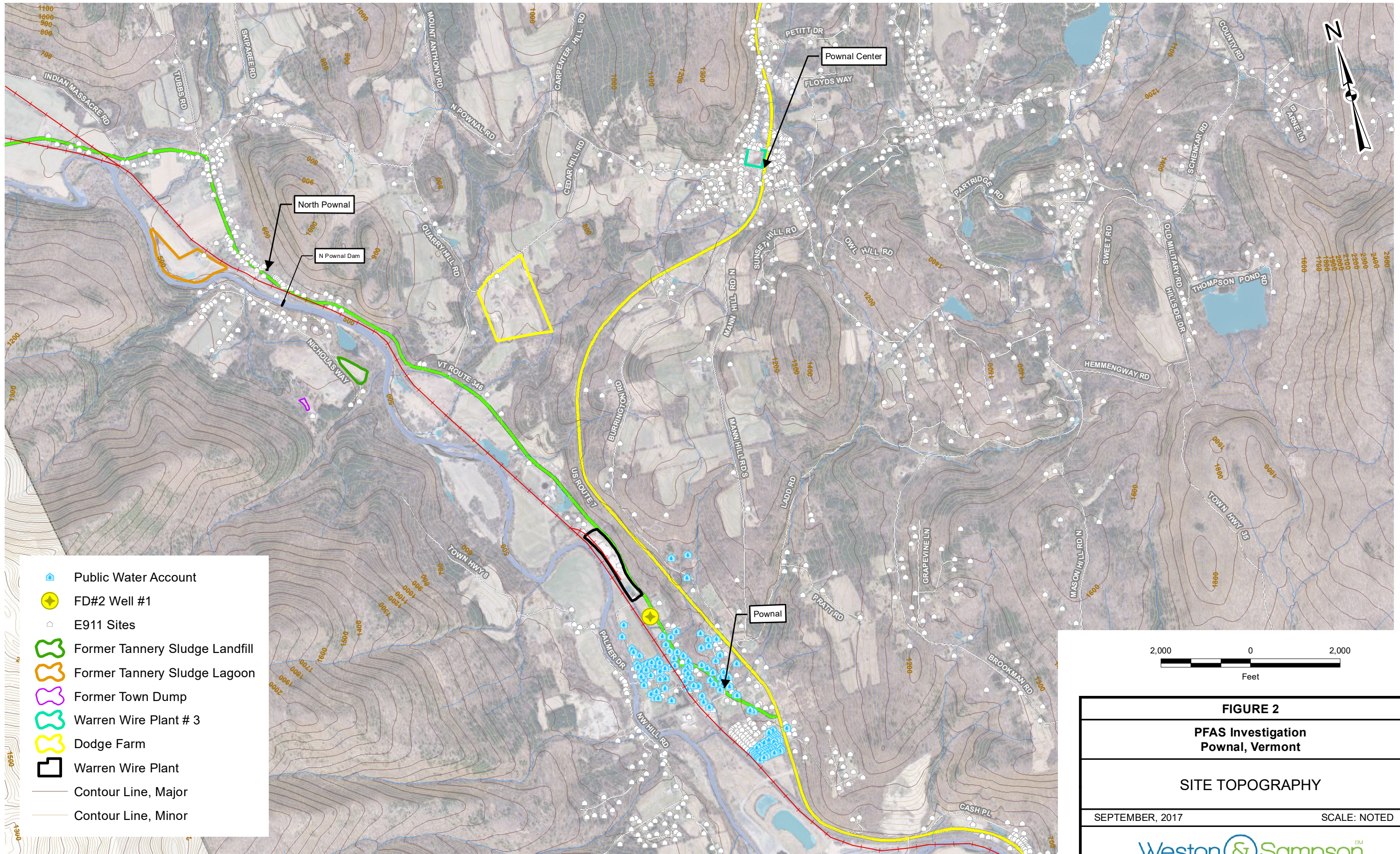
NEW YORK



-  Public Water Account
-  FD#2 Well #1
-  E911 Sites
-  Former Tannery Sludge Landfill
-  Former Tannery Sludge Lagoon
-  Former Town Dump
-  Warren Wire Plant # 3
-  Dodge Farm
-  Warren Wire Plant



<b>FIGURE 1</b>	
<b>PFAS Investigation Pownal, Vermont</b>	
<b>SITE PLAN</b>	
SEPTEMBER, 2017	SCALE: NOTED
	



- Public Water Account
- FD#2 Well #1
- E911 Sites
- Former Tannery Sludge Landfill
- Former Tannery Sludge Lagoon
- Former Town Dump
- Warren Wire Plant # 3
- Dodge Farm
- Warren Wire Plant
- Contour Line, Major
- Contour Line, Minor



**FIGURE 2**  
**PFAS Investigation**  
**Pownal, Vermont**

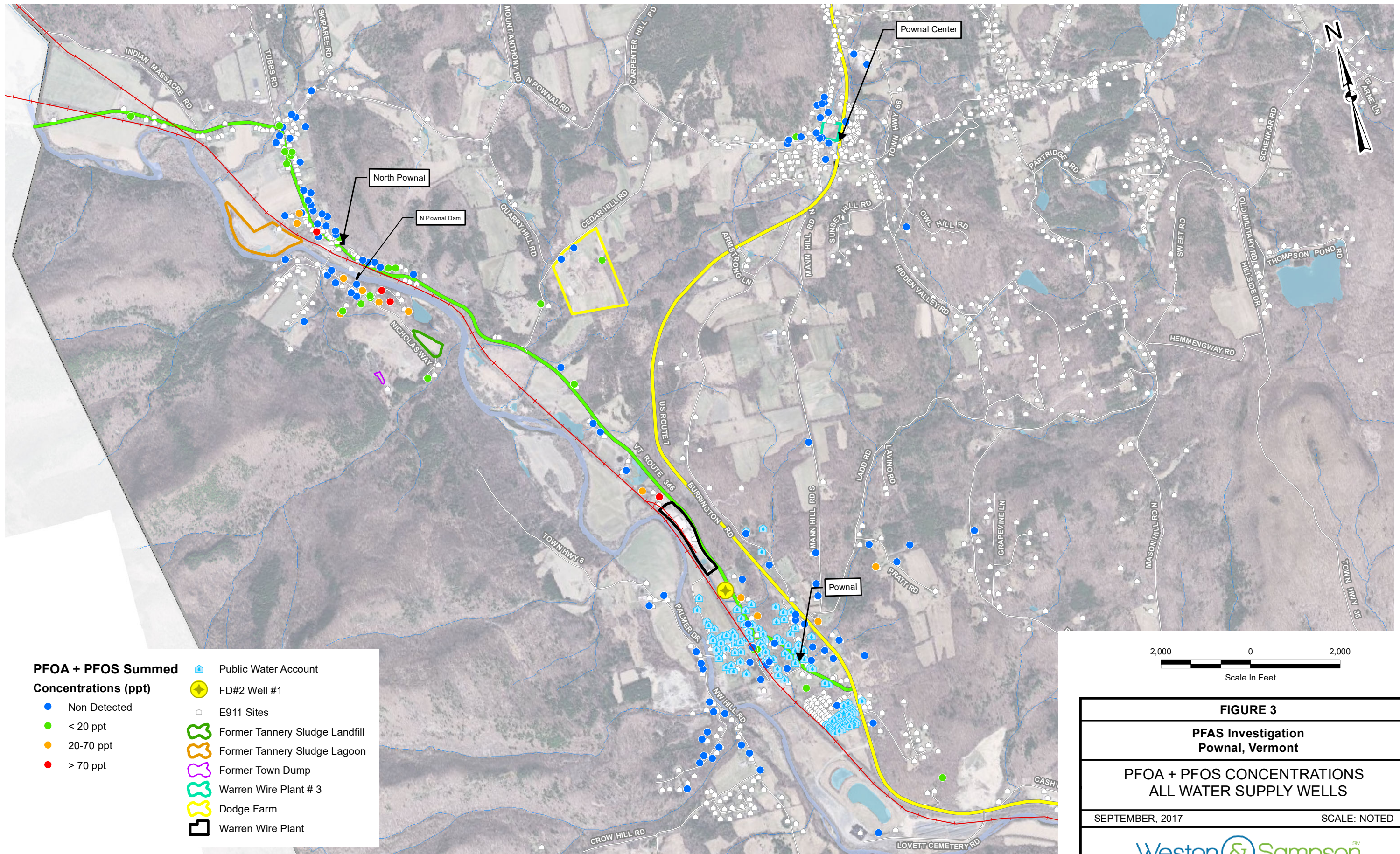
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**SITE TOPOGRAPHY**

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SEPTEMBER, 2017 SCALE: NOTED

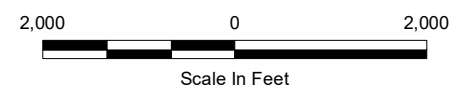
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**PFOA + PFOS Summed Concentrations (ppt)**

- Non Detected
- < 20 ppt
- 20-70 ppt
- > 70 ppt

▲ Public Water Account  
 ● FD#2 Well #1  
 □ E911 Sites  
 Former Tannery Sludge Landfill  
 Former Tannery Sludge Lagoon  
 Former Town Dump  
 Warren Wire Plant # 3  
 Dodge Farm  
 Warren Wire Plant

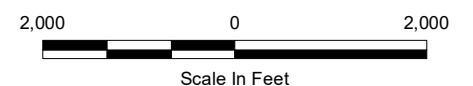
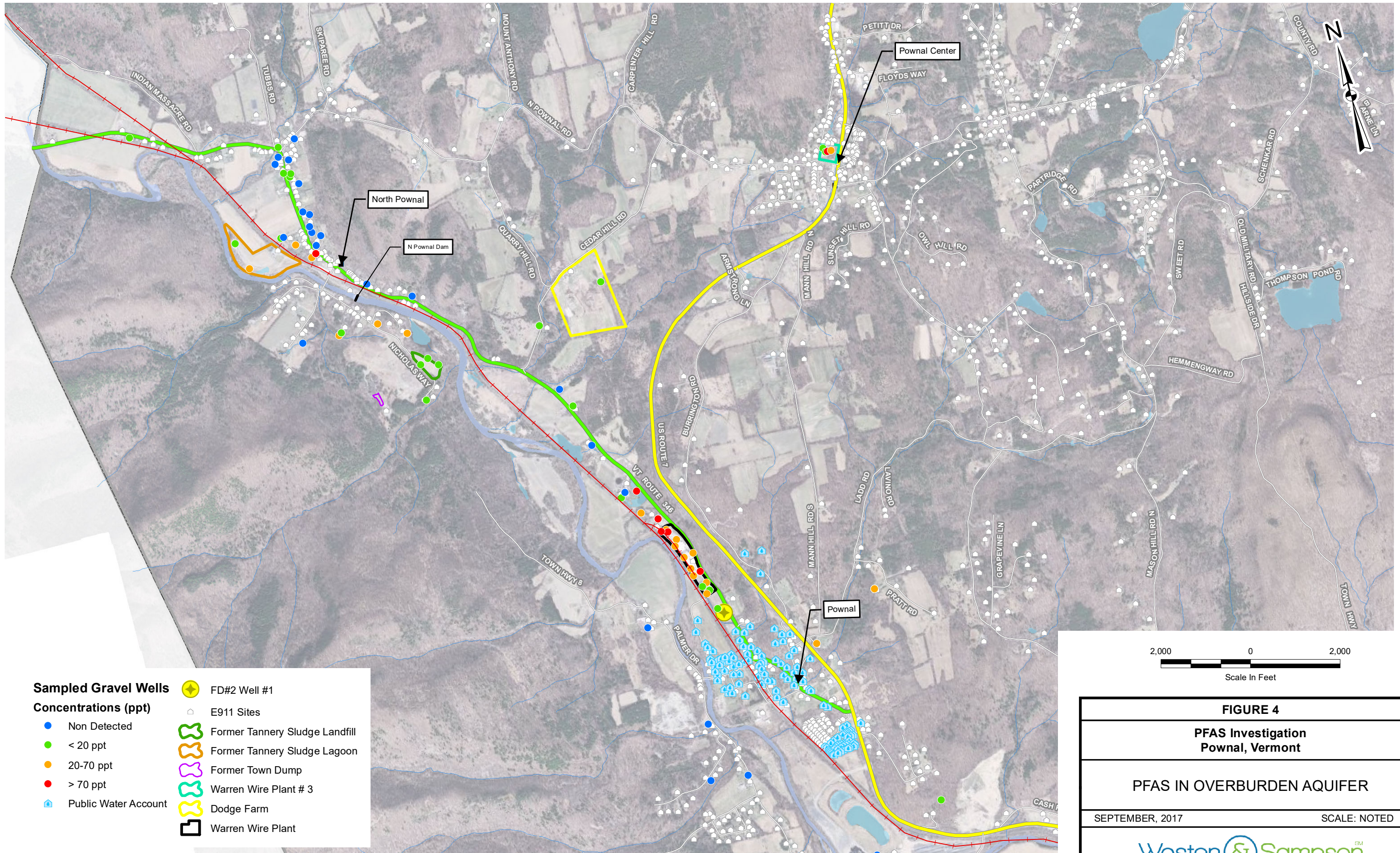


**FIGURE 3**

**PFAS Investigation  
Pownal, Vermont**

**PFOA + PFOS CONCENTRATIONS  
ALL WATER SUPPLY WELLS**

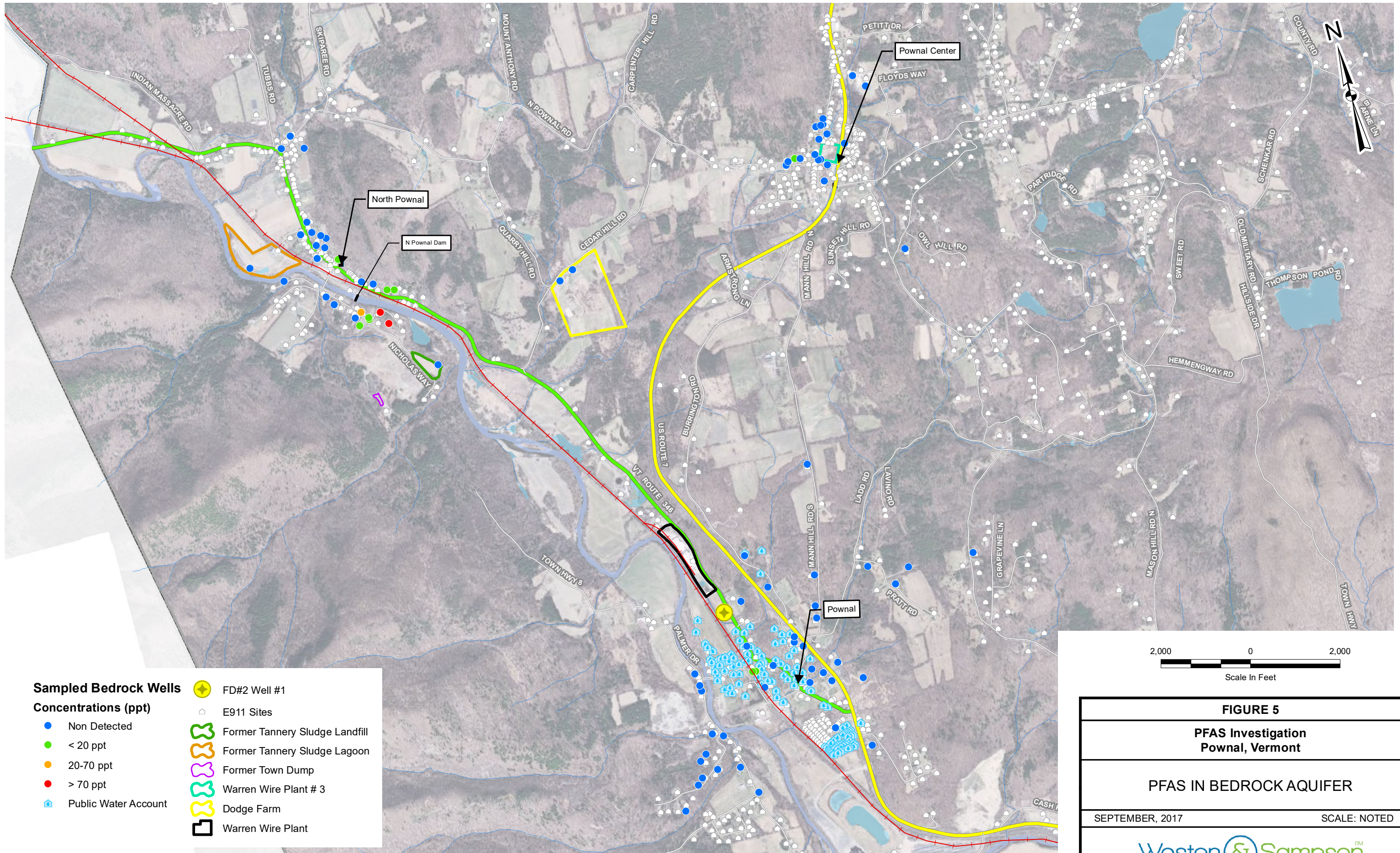
SEPTEMBER, 2017 SCALE: NOTED



**FIGURE 4**  
**PFAS Investigation**  
**Pownal, Vermont**

**PFAS IN OVERBURDEN AQUIFER**

SEPTEMBER, 2017 SCALE: NOTED



**Sampled Bedrock Wells**

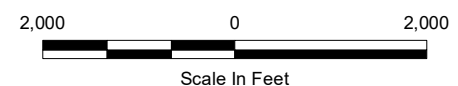
- ⊕ FD#2 Well #1
- △ E911 Sites

**Concentrations (ppt)**

- Non Detected
- < 20 ppt
- 20-70 ppt
- > 70 ppt
- ⊕ Public Water Account

**Other Features:**

- Former Tannery Sludge Landfill
- Former Tannery Sludge Lagoon
- Former Town Dump
- Warren Wire Plant # 3
- Dodge Farm
- Warren Wire Plant



**FIGURE 5**

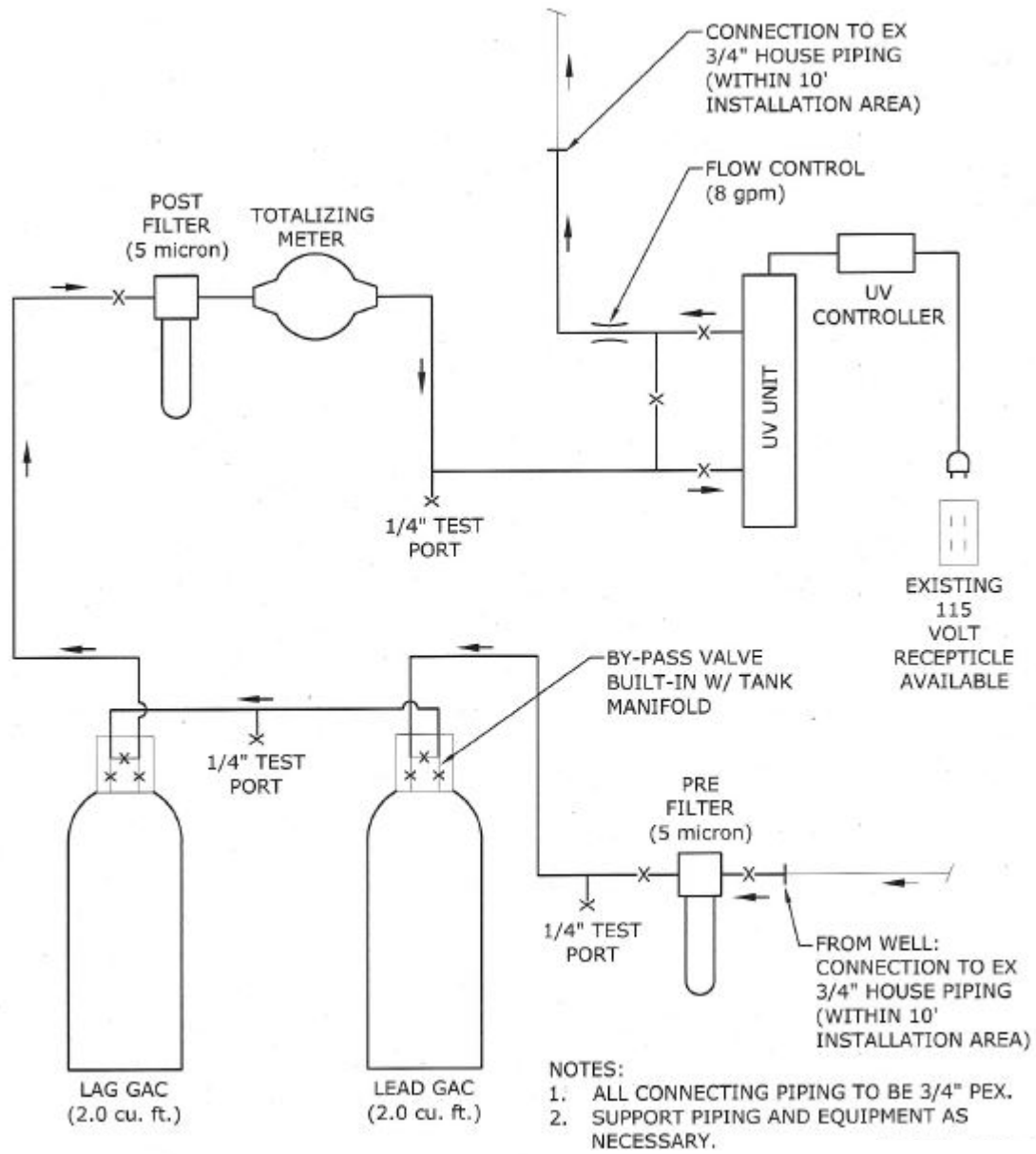
**PFAS Investigation  
Pownal, Vermont**

**PFAS IN BEDROCK AQUIFER**

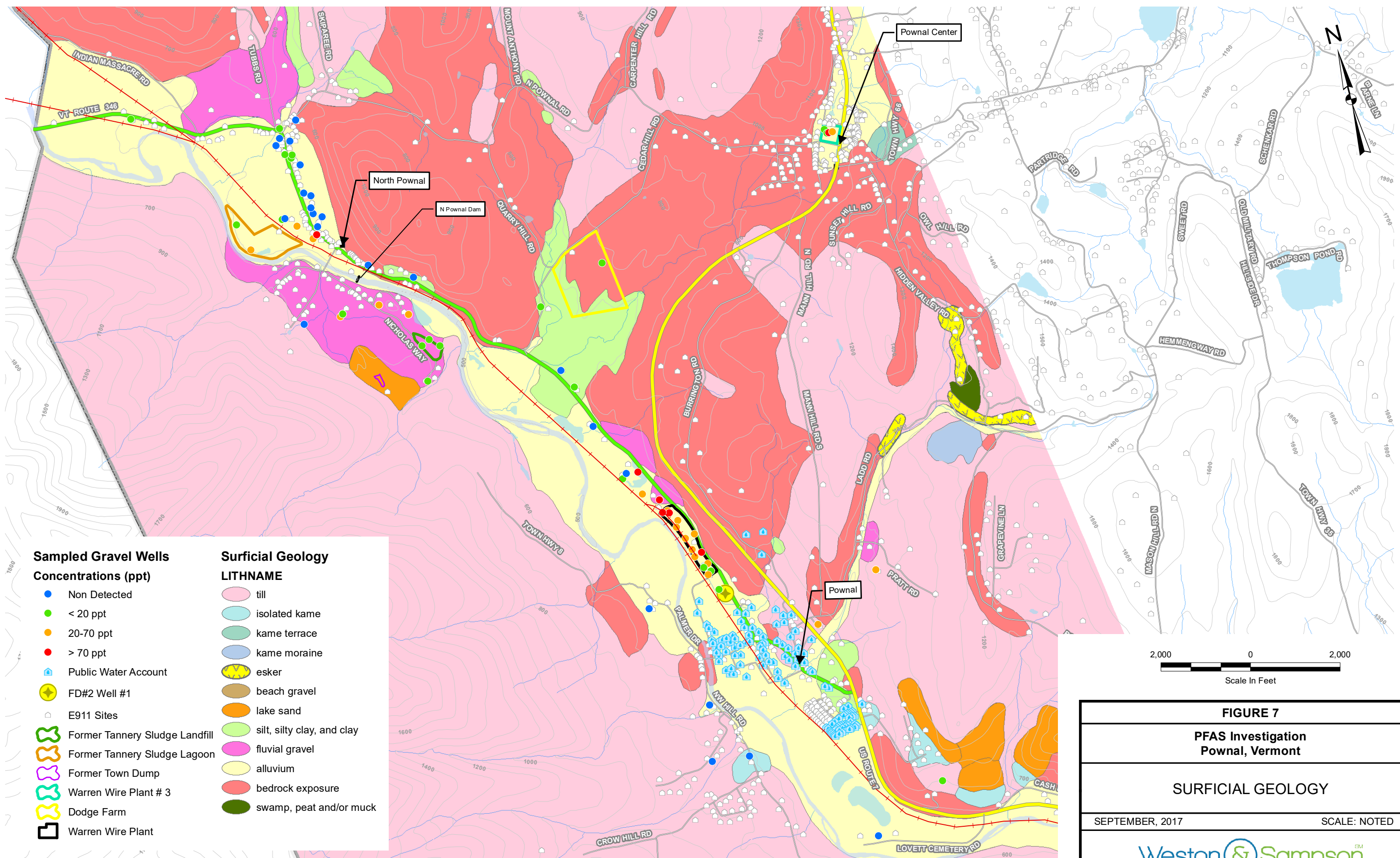
SEPTEMBER, 2017 SCALE: NOTED

**Weston & Sampson**<sup>SM</sup>

FIGURE 6  
POET SCHEMATIC



From C.T. Male 2016

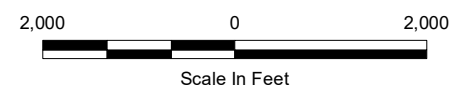


**Sampled Gravel Wells Concentrations (ppt)**

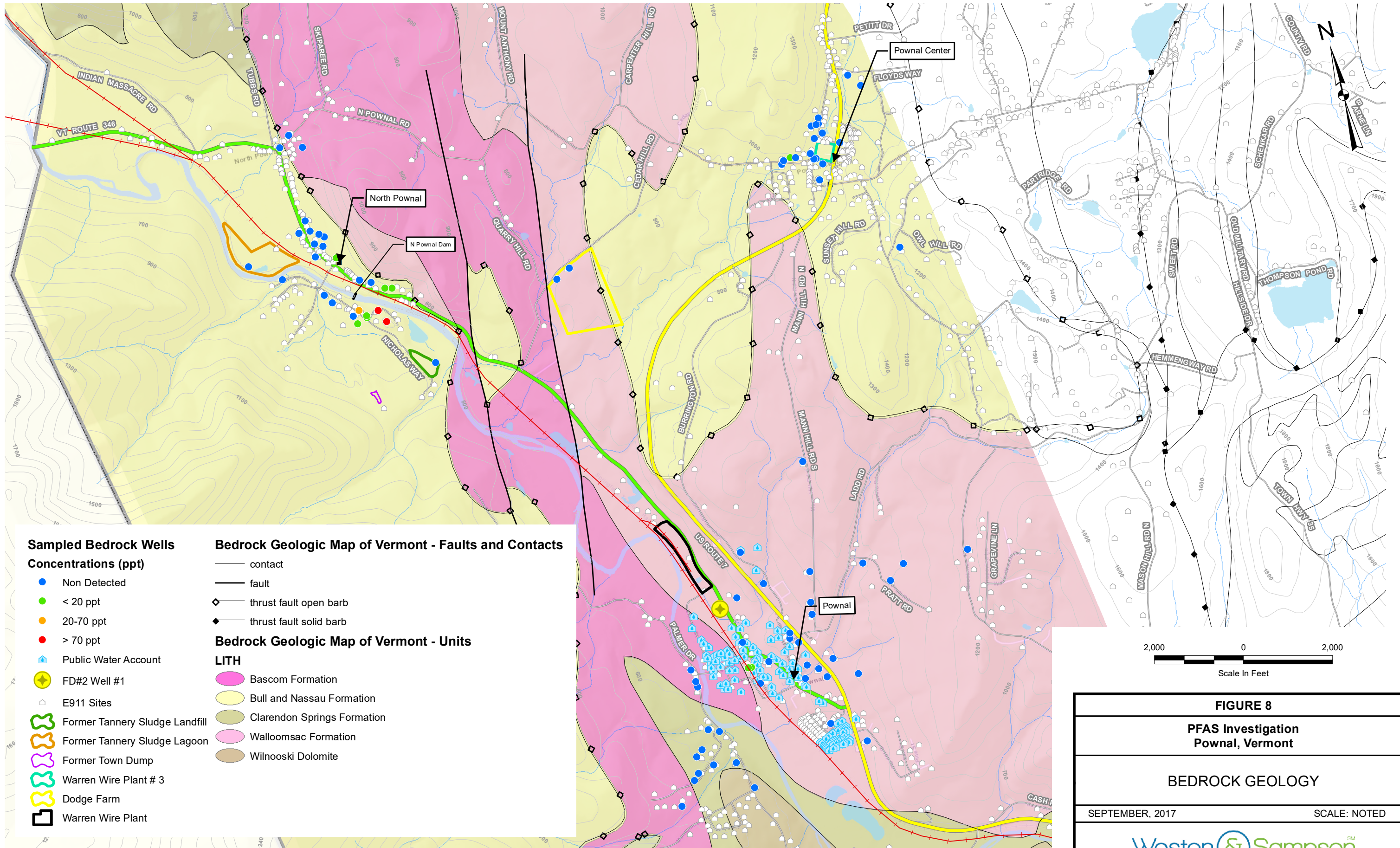
- Non Detected
- < 20 ppt
- 20-70 ppt
- > 70 ppt
- ⓘ Public Water Account
- ⊕ FD#2 Well #1
- ⊠ E911 Sites
- ⊞ Former Tannery Sludge Landfill
- ⊞ Former Tannery Sludge Lagoon
- ⊞ Former Town Dump
- ⊞ Warren Wire Plant # 3
- ⊞ Dodge Farm
- ⊞ Warren Wire Plant

**Surficial Geology LITHNAME**

- till
- isolated kame
- kame terrace
- kame moraine
- esker
- beach gravel
- lake sand
- silt, silty clay, and clay
- fluvial gravel
- alluvium
- bedrock exposure
- swamp, peat and/or muck



**FIGURE 7**  
**PFAS Investigation**  
**Pownal, Vermont**  
**SURFICIAL GEOLOGY**  
 SEPTEMBER, 2017 SCALE: NOTED  
 Weston & Sampson<sup>SM</sup>



**FIGURE 8**  
**PFAS Investigation**  
**Pownal, Vermont**

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**BEDROCK GEOLOGY**

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SEPTEMBER, 2017 SCALE: NOTED

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**Weston & Sampson**<sup>SM</sup>

TABLE

**TABLE 1  
SELECT PFAS IN DRINKING WATER  
POWNAI, VERMONT  
(ng/L)**

Street Number	Street Name	Sample Date	PFOA	PFOS	SUM PFOA & PFOS	PFHpA
	Alta Garden MHP	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
465	Brookman Road	05/11/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
157	Burrington Road	04/04/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
398	Burrington Road	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
233	Cedar Hill Road	08/15/16	7.72	ND/<3.8	<11.52	ND/<1.0
549	Cedar Hill Road	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
549	Cedar Hill Road	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
549	Cedar Hill Road	03/30/16	7.19	ND/<13.	<20.19	ND/<3.3
171	Church Street	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
186	Church Street	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
191	Church Street	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
257	Church Street	03/30/16	13.8	ND/<7.9	<21.7	ND/<3.3
257	Church Street	01/11/17	7.62	ND/<3.8	<11.42	ND/<1.0
283	Church Street	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
51	Dean Road	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
51	Dean Road	03/29/16	12.6	ND/<7.9	<20.5	ND/<2.8
174	Dean Road	11/10/16	ND/<2.3	ND/<3.8	ND/<6.1	ND/<1.0
187	Dean Road	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
201	Dean Road	06/23/16	19.5	ND/<7.9	<27.4	ND/<2.8
		12/07/16	<b>21.4</b>	ND/<2.2	<b>&lt;23.6</b>	2.41 J
		03/16/17	<b>23.6</b>	ND/<1.7	<b>&lt;25.3</b>	2.56 J
		06/28/17	<b>32.4</b>	3.31 J	<b>35.71 J</b>	2.94
244	Dean Road	07/15/16	ND/<4.4	ND/<7.9	ND/<12.3	ND/<2.8
260	Dean Road	07/15/16	<b>28.9</b>	ND/<7.9	<b>&lt;36.8</b>	ND/<2.8
		11/21/16	9.35	ND/<2.2	<11.55	ND/<1.0
		03/16/17	11.3	ND/<1.7	<13.	0.86 J
		06/28/17	13.2	ND/<1.7	<14.9	0.94 J
270	Dean Road	06/09/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
281	Dean Road	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
306	Dean Road	11/10/16	ND/<2.3	ND/<3.8	ND/<6.1	ND/<1.0
323	Dean Road	11/10/16	<b>22.7</b>	ND/<3.8	<b>&lt;26.5</b>	1.43 J
		03/16/17	17.8	ND/<1.7	19.5	ND/<0.8
		04/11/17	9.24	ND/<1.7	<10.94	ND/<0.8
		06/28/17	<b>41.4</b>	6.06	<b>47.46</b>	3.65
338	Dean Road	11/11/16	6.78 J	ND/<3.8	10.58 J	ND/<1.0
355	Dean Road	11/10/16	15.6	ND/<3.8	<19.4	1.43 J
		01/11/17	12.3	ND/<3.8	<16.1	1.17 J
393	Dean Road	11/10/16	<b>21.6</b>	ND/<3.8	<b>&lt;25.4</b>	2.28 J
		03/16/17	<b>23.2</b>	ND/<1.7	<b>&lt;24.9</b>	2.2 J
		06/28/17	<b>22</b>	2.03 J	<b>24.03</b>	2.52 J
499	Dean Road	11/10/16	<b>39.7</b>	5.16 J	<b>44.86</b>	4.52
		03/16/17	<b>50.7</b>	4.76 J	<b>55.46</b>	7.54
		04/11/17	<b>86.8</b>	7.99	<b>94.79</b>	11.9
		06/28/17	ND/<1.2	ND/<1.7	ND/<2.9	ND/<0.8
		06/28/17	<b>47.1</b>	5.62	<b>52.72</b>	4.67
536	Dean Road	06/23/16	13	ND/<7.9	<20.9	ND/<2.8
		01/11/17	19.6	ND/<3.8	<23.4	1.87 J
239	Furlong Road	08/15/16	ND/<2.3	ND/<3.8	ND/<6.1	ND/<1.0
1	Green Mountain MHP	03/30/16	<b>22.7</b>	ND/<13.	<b>&lt;35.7</b>	ND/<3.3
22	Ladd Road	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
23	Ladd Road	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
100	Ladd Road	03/30/16	15.6	ND/<7.9	<23.5	ND/<2.8
		01/11/17	19.5	ND/<3.8	<23.3	1.95 J

Notes:

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ND/< - None Detected at Indicated Detection Limit

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J - Estimated Concentration

**TABLE 1  
SELECT PFAS IN DRINKING WATER  
POWNAI, VERMONT  
(ng/L)**

Street Number	Street Name	Sample Date	PFOA	PFOS	SUM PFOA & PFOS	PFHpA
703	Ladd Road	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
47	Mann Hill Road South	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
97	Mann Hill Road South	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
245	Mann Hill Road South	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
720	Maple Grove Road	04/04/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
880	Maple Grove Road	04/04/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
72	Murphy Lane	07/15/16	11. J	9.41 J	<b>20.41 J</b>	ND/<2.8
		01/11/17	<b>80.3</b>	94.8	<b>175.1</b>	12
175	Murphy Lane	06/23/16	13	ND/<7.9	<20.9	ND/<2.8
		01/11/17	19.5	ND/<3.8	<23.3	1.76 J
313	Nicholas Way	11/11/16	4.33 J	ND/<3.8	<8.13	ND/<1.0
79	North Pownal Road	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
82	North Pownal Road	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
110	North Pownal Road	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
225	North Pownal Road	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
2705	North Pownal Road	04/27/16	7.02	ND/<13.	<20.02	ND/<3.3
10	NW Hill Road	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
28	NW Hill Road	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
46	NW Hill Road	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
196	NW Hill Road	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
244	NW Hill Road	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
306	NW Hill Road	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
454	NW Hill Road	04/27/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
498	NW Hill Road	04/04/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
555	NW Hill Road	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
32	Oak Hill School Road	03/31/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
149	Orchard Street	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
33	Palmer Drive	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
278	Palmer Drive	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
317	Palmer Drive	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
60	Pratt Road	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
173	Pratt Road	04/27/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
192	Pratt Road	03/29/16	12.8	15.1	<b>27.9</b>	ND/<2.8
		11/21/16	14.1	16.8	<b>30.9</b>	2.95 J
		03/16/17	14.7	18.9	<b>33.6</b>	2.34 J
		06/28/17	19.7	<b>27.3</b>	<b>47.0</b>	3.26
235	Pratt Road	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
141	Purcell Dugway	04/27/16	7.23	ND/<13.	<20.23	ND/<3.3
252	Route 346	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
253	Route 346	03/30/16	8.3	ND/<13.	<21.3	ND/<3.3
293	Route 346	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
437	Route 346	03/30/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
565	Route 346	04/27/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
594	Route 346	03/29/16	<b>44.2</b>	ND/<13.	<b>&lt;57.2</b>	5.9
714	Route 346	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
1235	Route 346	03/29/16	<b>66.2</b>	ND/<13.	<b>&lt;79.2</b>	4.34
		11/21/16	<b>86.2</b>	ND/<2.2	<b>&lt;88.4</b>	5.25
		03/16/17	<b>84.9</b>	ND/<1.7	<b>&lt;86.6</b>	5.55
		06/28/17	<b>88.8</b>	ND/<1.7	<b>&lt;90.5</b>	5.29
1277	Route 346	04/27/16	<b>43.2</b>	ND/<13.	<b>&lt;56.2</b>	4.27
1467	Route 346	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
1607	Route 346	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
1647	Route 346	04/27/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3

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**TABLE 1  
SELECT PFAS IN DRINKING WATER  
POWNAI, VERMONT  
(ng/L)**

Street Number	Street Name	Sample Date	PFOA	PFOS	SUM PFOA & PFOS	PFHpA
1834	Route 346	03/29/16	16.2	ND/<7.9	<24.1	ND/<2.8
		01/11/17	14.1	ND/<3.8	<17.9	ND/<1.0
1940	Route 346	03/29/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
2670	Route 346	04/27/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
2752	Route 346	12/07/16	17.7	ND/<2.2	<19.9	ND/<1.0
2808	Route 346	06/23/16	7.47	ND/<13.	<20.47	ND/<3.3
2828	Route 346	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
2868	Route 346	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
2898	Route 346	06/09/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
2910	Route 346	06/22/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3042	Route 346	11/22/16	3.74 J	ND/<3.8	<7.54 J	ND/<1.0
3052	Route 346	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3076	Route 346	06/09/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3100	Route 346	11/10/16	ND/<2.3	ND/<3.8	ND/<6.1	ND/<1.0
3115	Route 346	11/10/16	2.44 J	ND/<3.8	<6.24 J	ND/<1.0
3126	Route 346	11/10/16	ND/<2.3	ND/<3.8	ND/<6.1	ND/<1.0
3137	Route 346	06/23/16	15.8	11.3	27.1	ND/<2.8
		11/21/16	16	10.9	26.9	1.39 J
		03/17/17	60.8	14.4	75.2	10.2
		06/28/17	74.1	30.9	105	8.28
3138	Route 346	06/08/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3164	Route 346	06/08/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
		06/08/16	32.8	ND/<13.	<45.8	5.24
		11/21/16	ND/<2.2	ND/<2.2	ND/<4.4	ND/<1.0
		03/16/17	7.29	2.42 J	<9.71 J	1.11 J
		06/28/17	1.6 J	ND/<1.7	<3.3 J	ND/<0.8
3176	Route 346	06/08/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
		08/15/16	8.04	4.82 J	12.86 J	ND/<1.0
3199	Route 346	04/27/16	24.9	ND/<13.	<37.9	ND/<3.3
		08/15/16	20.4 J	7.86 J	28.26 J	2.48
		11/21/16	11.4	ND/<2.2	<13.6	ND/<1.0
		03/16/17	33.5	9.35	42.85	3.52
		06/28/17	17.7	7.72	25.42	1.68 J
3227	Route 346	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3239	Route 346	11/10/16	16.5	7.58 J	24.08	1.83 J
3244	Route 346	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3244	Route 346	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3260	Route 346	06/09/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3261	Route 346	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3266	Route 346	01/11/17	ND/<2.3	ND/<3.8	ND/<6.1	ND/<1.0
3310	Route 346	06/28/17	ND/<1.2	ND/<1.7	ND/<2.9	ND/<0.8
3324	Route 346	06/08/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3437	Route 346	04/27/16	8.6	ND/<13.	<21.6	ND/<3.3
3438	Route 346	06/22/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3454	Route 346	12/07/16	6.13 J	ND/<2.2	<8.33 J	ND/<1.0
3474	Route 346	06/22/16	7.66	ND/<13.	<20.66	ND/<3.3
3494	Route 346	06/09/16	7.47	ND/<13.	<20.47	ND/<3.3
3503	Route 346	06/09/16	7.77	ND/<13.	<20.77	ND/<3.3
3535	Route 346	06/09/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3554	Route 346	06/23/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3573	Route 346	06/09/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
3610	Route 346	04/27/16	ND/<6.7	ND/<13.	ND/<19.7	ND/<3.3
4251	Route 346	08/15/16	5.84 J	ND/<3.8	<9.64 J	ND/<1.0

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**TABLE 2  
POET SYSTEMS WATER QUALITY  
POWNAI, VERMONT  
(ng/L)**

Address	Location	Compound					
				<b>6/23/16</b>	<b>12/7/2016</b>	<b>3/16/2017</b>	<b>6/28/2017</b>
201 Dean Road	Influent	PFOA		19.5	<b>21.4</b>	<b>23.6</b>	<b>32.4</b>
		PFHpA		ND/<2.8	2.41 J	2.56 J	2.94
		PFOS		ND/<7.9	ND/<2.2	ND/<1.7	3.31 J
	Midpoint	PFOA			ND/<2.2	ND/<1.2	ND/<1.2
		PFHpA			ND/<1.0	ND/<0.8	ND/<0.8
		PFOS			ND/<2.2	ND/<1.7	ND/<1.7
	Effluent	PFOA			ND/<2.2		
		PFHpA			ND/<1.0		
		PFOS			ND/<2.2		
	Maintenance?						<b>7/30/2017</b>
							Filter Change
				<b>7/15/16</b>	<b>11/21/16</b>	<b>3/16/2017</b>	<b>6/28/2017</b>
260 Dean Road	Influent	PFOA		<b>28.9</b>	9.35	11.3	13.2
		PFHpA		ND/<2.8	ND/<1.0	0.86 J	0.94 J
		PFOS		ND/<7.9	ND/<2.2	ND/<1.7	ND/<1.7
	Midpoint	PFOA			ND/<2.2	ND/<1.2	ND/<1.2
		PFHpA			ND/<1.0	ND/<0.8	ND/<0.8
		PFOS			ND/<2.2	ND/<1.7	ND/<1.7
	Effluent	PFOA			ND/<2.2		
		PFHpA			ND/<1.0		
		PFOS			ND/<2.2		
	Maintenance?						<b>7/30/2017</b>
							Filter Change
				<b>11/10/16</b>	<b>3/16/2017</b>	<b>4/11/2017</b>	<b>6/28/2017</b>
323 Dean Road	Influent	PFOA		<b>22.7</b>	17.8	9.24	<b>41.4</b>
		PFHpA		1.43 J	ND/<0.8	ND/<0.8	3.65
		PFOS		ND/<3.8	ND/<1.7	ND/<1.7	6.06
	Midpoint	PFOA			ND/<1.2	ND/<1.2	ND/<1.2
		PFHpA			ND/<0.8	ND/<0.8	ND/<0.8
		PFOS			ND/<1.7	ND/<1.7	ND/<1.7
	Effluent	PFOA			2.03 J	ND/<1.2	
		PFHpA			ND/<0.8	ND/<0.8	
		PFOS			ND/<1.7	ND/<1.7	
	Maintenance?						<b>7/30/2017</b>
							Filter Change
				<b>11/10/16</b>	<b>3/16/2017</b>	<b>4/11/2017</b>	<b>6/28/2017</b>
393 Dean Road	Influent	PFOA			<b>21.6</b>	<b>23.2</b>	<b>22</b>
		PFHpA			2.28 J	2.2 J	2.52 J
		PFOS			ND/<3.8	ND/<1.7	2.03 J
	Midpoint	PFOA				ND/<1.2	ND/<1.2
		PFHpA				ND/<0.8	ND/<0.8
		PFOS				ND/<1.7	ND/<1.7
	Effluent	PFOA				ND/<1.2	
		PFHpA				ND/<0.8	
		PFOS				ND/<1.7	
	Maintenance?						<b>7/30/2017</b>
							Filter Change
				<b>11/10/16</b>	<b>3/16/2017</b>	<b>4/11/2017</b>	<b>6/28/2017</b>
499 Dean Road	Influent	PFOA		<b>39.7</b>	<b>50.7</b>	<b>86.8</b>	<b>47.1</b>
		PFHpA		4.52	7.54	11.9	4.67
		PFOS		5.16 J	4.76 J	7.99	5.62
	Midpoint	PFOA				ND/<1.2	ND/<1.2
		PFHpA				ND/<0.8	ND/<0.8
		PFOS				ND/<1.7	ND/<1.7
	Effluent	PFOA				ND/<1.2	ND/<1.2
		PFHpA				ND/<0.8	ND/<0.8
		PFOS				ND/<1.7	ND/<1.7
	Maintenance?						<b>7/30/2017</b>
							Filter Change

Notes:

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**TABLE 2  
POET SYSTEMS WATER QUALITY  
POWNAI, VERMONT  
(ng/L)**

Address	Location	Compound						
				<b>3/29/16</b>	<b>11/21/16</b>	<b>3/16/2017</b>	<b>6/28/2017</b>	
192 Pratt Road	Influent	PFOA		12.8	14.1	14.7	19.7	
		PFHpA		ND/<2.8	2.95 J	2.34 J	3.26	
		PFOS		15.1	16.8	18.9	<b>27.3</b>	
	Midpoint	PFOA			ND/<2.2	ND/<1.2	ND/<1.2	
		PFHpA			ND/<1.0	ND/<0.8	ND/<0.8	
		PFOS			ND/<2.2	ND/<1.7	ND/<1.7	
	Effluent	PFOA			ND/<2.2			
		PFHpA			ND/<1.0			
		PFOS			ND/<2.2			
	Maintenance?						<b>7/30/2017</b>	
							Filter Change	
				<b>3/29/16</b>	<b>11/21/16</b>	<b>3/16/2017</b>	<b>6/28/2017</b>	
1235 Route 346	Influent	PFOA		<b>66.2</b>	<b>86.2</b>	<b>84.9</b>	<b>88.8</b>	
		PFHpA		4.34	5.25	5.55	5.29	
		PFOS		ND/<13.	ND/<2.2	ND/<1.7	ND/<1.7	
	Midpoint	PFOA			ND/<2.2	ND/<1.2	ND/<1.2	
		PFHpA			ND/<1.0	ND/<0.8	ND/<0.8	
		PFOS			ND/<2.2	ND/<1.7	ND/<1.7	
	Effluent	PFOA			ND/<2.2			
		PFHpA			ND/<1.0			
		PFOS			ND/<2.2			
	Maintenance?						<b>7/2/2017</b>	
							Filter Change	
				<b>6/23/16</b>	<b>11/21/16</b>	<b>3/16/17</b>	<b>6/28/2017</b>	
3137 Route 346	Influent	PFOA		15.8	16	<b>60.8</b>	<b>74.1</b>	
		PFHpA		ND/<2.8	1.39 J	10.2	8.28	
		PFOS		11.3	10.9	14.4	<b>30.9</b>	
	Midpoint	PFOA			ND/<2.2	ND/<1.2	ND/<1.2	
		PFHpA			ND/<1.0	ND/<0.8	ND/<0.8	
		PFOS			ND/<2.2	ND/<1.7	ND/<1.7	
	Effluent	PFOA			ND/<2.2			
		PFHpA			ND/<1.0			
		PFOS			ND/<2.2			
	Maintenance?						<b>7/30/1/17</b>	
							Filter Change	
				<b>6/8/16</b>	<b>11/21/16</b>	<b>3/16/2017</b>	<b>6/28/2017</b>	
3164 Route 346	Influent	PFOA		<b>32.8</b>	ND/<2.2	7.29	1.6 J	
		PFHpA		5.24	ND/<1.0	1.11 J	ND/<0.8	
		PFOS		ND/<13.	ND/<2.2	2.42 J	ND/<1.7	
	Midpoint	PFOA			ND/<2.2	ND/<1.2	ND/<1.2	
		PFHpA			ND/<1.0	ND/<0.8	ND/<0.8	
		PFOS			ND/<2.2	ND/<1.7	ND/<1.7	
	Effluent	PFOA			ND/<2.2			
		PFHpA			ND/<1.0			
		PFOS			ND/<2.2			
	Maintenance?						<b>7/30/1/17</b>	
							Filter Change	
				<b>4/27/16</b>	<b>8/15/16</b>	<b>11/21/16</b>	<b>3/16/2017</b>	
3199 Route 346	Influent	PFOA		<b>24.9</b>	<b>20.4 J</b>	11.4	<b>33.5</b>	
		PFHpA		ND/<3.3	2.48	ND/<1.0	3.52	
		PFOS		ND/<13.	7.86 J	ND/<2.2	9.35	
	Midpoint	PFOA				ND/<2.2	ND/<1.2	ND/<1.2
		PFHpA				ND/<1.0	ND/<0.8	ND/<0.8
		PFOS				ND/<2.2	ND/<1.7	ND/<1.7
	Effluent	PFOA				ND/<2.2		
		PFHpA				ND/<1.0		
		PFOS				ND/<2.2		
	Maintenance?						<b>8/31/2017</b>	
							Filter Change	

Notes:

Bold - Concentration Above Vermont Health Advisory Limit of 20 parts per trillion PFOS PFOA  
 ND/< - None Detected at Indicated Detection Limit  
 J - Estimated Concentration

**TABLE 3**  
**QA/QC SAMPLE RESULTS**  
**POWNAI, VERMONT**  
**(ng/L)**

Street Number	Street Name	Sample Date	PFOA	PFOA Duplicate	RPD %	PFHpA	PFHpA Duplicate	RPD %	PFOS	PFOS Duplicate	RPD %
317	Palmer Drive	3/29/2016	ND/<6.7	ND/<6.7		ND/<3.3	ND/<3.3		ND/<13.	ND/<13.	
1607	Route 346	3/29/2016	ND/<6.7	ND/<6.7		ND/<3.3	ND/<3.3		ND/<13.	ND/<13.	
283	Church Street	3/30/2016	ND/<6.7	ND/<6.7		ND/<3.3	ND/<3.3		ND/<13.	ND/<13.	
549	Cedar Hill Road	3/30/2016	ND/<6.7	ND/<6.7		ND/<3.3	ND/<3.3		ND/<13.	ND/<13.	
454	NW Hill Road	4/27/2016	ND/<6.7	ND/<6.7		ND/<3.3	ND/<3.3		ND/<13.	ND/<13.	
3176	Route 346	6/8/2016	ND/<6.7	ND/<6.7		ND/<3.3	ND/<3.3		ND/<13.	ND/<13.	
3503	Route 346	6/9/2016	7.77	7.74	<b>0%</b>	ND/<3.3	ND/<3.3		ND/<13.	ND/<13.	
3227	Route 346	6/23/2016	ND/<6.7	ND/<6.7		ND/<3.3	ND/<3.3		ND/<13.	ND/<13.	
3137	Route 346	6/23/2016	15.8	15.1	<b>5%</b>	ND/<2.8	ND/<3.3		11.3	ND/<13.	<b>14%</b>
244	Dean Road	7/15/2016	ND/<4.4	ND/<4.4		ND/<2.8	ND/<2.8		ND/<7.9	ND/<7.9	
3199	Route 346	8/15/2016	20.4 J	19.7	<b>3%</b>	2.48	2.29 J	<b>8%</b>	7.86 J	7.63 J	<b>3%</b>
323	Dean Road	11/10/2016	22.7	22.2	<b>2%</b>	1.43 J	1.32 J	<b>8%</b>	ND/<3.8	ND/<3.8	
3115	Route 346	11/10/2016	2.44 J	2.7 J	<b>10%</b>	ND/<1.0	ND/<1.0		ND/<3.8	ND/<3.8	
3199	Route 346	11/21/2016	11.4	9.82	<b>15%</b>	ND/<1.0	ND/<1.0		ND/<2.2	ND/<2.2	
3137	Route 346	11/21/2016	16	16.1	<b>1%</b>	1.39 J	1.31 J	<b>6%</b>	10.9	9.7	<b>12%</b>
3454	Route 346	12/7/2016	6.13 J	7.69	<b>23%</b>	ND/<1.0	ND/<1.0		ND/<2.2	ND/<2.2	
72	Murphy Lane	1/11/2017	80.3	76	<b>6%</b>	12	11.5	<b>4%</b>	94.8	83.8	<b>12%</b>
1235	Route 346	3/16/2017	84.9	83	<b>2%</b>	5.55	5.14	<b>8%</b>	ND/<1.7	ND/<1.7	
323	Dean Road	3/16/2017	2.03 J	2.72 J	<b>29%</b>	ND/<0.8	ND/<0.8		ND/<1.7	ND/<1.7	
201	Dean Road	6/28/2017	32.4	37.9	<b>16%</b>	2.94	3.27	<b>11%</b>	3.31 J	4.0 J	<b>19%</b>

Notes:

Bold - Concentration Above Vermont Health Advisory Limit of 20 parts per trillion PFOS PFOA

ND/< - None Detected at Indicated Detection Limit

J - Estimated Concentration

## APPENDIX A

SOP 16: Standard Operating Procedure for Water Supply Sampling for Perfluorinated Compounds	
Purpose:	Water supply water sampling from a pre-existing sample port/tap for laboratory analysis for the presence of perfluorinated compounds (PFCs).
Applicable for:	Water supply sampling while in the field for laboratory analysis via EPA Method 537.
Not applicable for:	Soil, surface water, and groundwater samples.

PREREQUISITES	MATERIALS NEEDED
None, unless otherwise noted by Project Engineer.	<ul style="list-style-type: none"> <li>✓ Sampling Plan</li> <li>✓ Slotted Pliers and Padding</li> <li>✓ Laboratory provided bottles and blanks</li> <li>✓ Field notebook</li> <li>✓ Sampling Sheet and/or iPad with appropriate iDataCollect Form</li> <li>✓ Nitrile gloves</li> <li>✓ Cooler and ice</li> </ul>

PROCEDURE
<ol style="list-style-type: none"> <li>1) Sampler must assure that no potential PFC containing materials are utilized during sampling. No materials containing Teflon, Goretex, or other waterproofing can be utilized while sampling. Extra care to assure clothing, storage containers, and sampling equipment does not contain potential PFC sources must be taken.</li> <li>2) Initiate cold water flow from a convenient tap at approximately 2 to 3 gallons per minute for at least 10 minutes. This purging location does not have to be the same as the sampling location. The intent is to purge sufficient water from the piping from the well to the pressure tank to cause "fresh" well water to enter the system. The preferred sampling port will be located on the bottom of the pressure tank.</li> <li>3) Write the sample point descriptor (i.e. EP 1) on each of the remaining empty bottles with indelible ink (Sharpie).</li> <li>4) Don gloves.</li> <li>5) The Method 537 Sample Kit is comprised of 4 containers. Locate the full bottle, marked "blank water" and the empty bottle clearly marked "field blank." Carefully uncap each bottle. This is best done with one person holding the bottles firmly and the other uncapping both bottles and maintaining the caps upright while the next step is performed. Dispense the content of the full "blank water" bottle into the empty "field blank" bottle. Recap both bottles.</li> </ol>

- 6) Locate the sampling spigot/tap to be utilized. It is preferred that the sample be obtained from the bottom of the pressure tank. If this is not possible the next best location is between to pressure tank and any treatment (particulate filter, water softener, etc). Samples should only be obtained from locations downstream of treatment if no other option exists. If a sink tap is use, aerators/screens must be removed.
- 7) Flush the first 8 to 12 ounces of water from the sample tap prior to collecting the sample. This will minimize the presence of rust/sediment that may have accumulated in the tap due to lack of use. Adjust sample tap flow to ensure slow, constant flow of less than ½ gallon per minute. Carefully fill one of the bottles to near the top. Do not overflow the bottles during sample collection. Securely recap the bottle. Fill and recap, repeating this process with the other empty bottle. Place all bottles in a zip top bag.
- 8) Record all relevant information and observations about the sample location including an inventory of potential PFC containing items in the area nearby the sampling point, if any exist.
- 9) Complete the chain-of-custody form.
- 10) Place bottles in the shipping container, add cooler blocks and packing materials sufficient to keep samples cool and protected from damage during shipping.
- 11) Place COC in a Ziplok bag and place atop the samples prior to sealing shipping container.

## APPENDIX B

**WATER SUPPLY WELL SAMPLING DATABASE  
POWNAL, VERMONT**

Street Number	Street Name	City	Water Supply Type	Well Depth	Sample Date	Time Purging Started	Sample Time	Sample ID	Water Softener	Water Softener Type	Water Softener Discharge Location	Water Filter	Water Filter Type	Sample Location
0	Alta Garden MHP	Pownal	Drilled Bedrock	170	3/29/2016	11:27:00	11:38:00	10329161138	No			Yes	Other	Other
465	Brookman Road	Pownal	Drilled Bedrock		5/11/2016	17:30:00	17:40:00	20511161740	Yes		Septic	Yes	Sediment	Pressure Tank Spigot
157	Burrington Road	Pownal	Drilled Bedrock	400	4/4/2016	17:03:00	17:08:00	60404161708	No			Yes	Sediment	Other
398	Burrington Road	Pownal	Drilled Bedrock	650	3/29/2016	18:55:00	19:05:00	10329161905	Yes	Culligan	Septic	Yes	Sediment	Pressure Tank Spigot
233	Cedar hill road	Pownal	Shallow	30	8/15/2016	14:00:00	14:10:00	70815161410	No			No		Kitchen Faucet
549	Cedar Hill Road	Pownal	Drilled Bedrock		3/30/2016	14:04:00	14:14:00	10330161414	Yes	Culligan	Septic	Yes	Sediment	Pressure Tank Spigot
549	Cedar Hill Road	Pownal	Drilled Bedrock	260	3/30/2016	14:13:00	14:23:00	10330161423	No			No		Pressure Tank Spigot
549	Cedar Hill Road	Pownal	Shallow		3/30/2016	8:00:00	14:43:00	10330161435	No			No		Outside Spigot
171	Church Street	Pownal	Unknown		3/30/2016	9:47:00	9:57:00	10330161057	No			Yes	Sediment	Pressure Tank Spigot
186	Church Street	Pownal	Unknown		3/30/2016	15:52:00	16:02:00	10330161602	No			Yes	Sediment	Pressure Tank Spigot
191	Church Street	Pownal	Drilled Bedrock		3/29/2016	16:49:00	16:59:00	50329161659	No			Yes	Other	Pressure Tank Spigot
257	Church Street	Pownal	Drilled Bedrock	279	3/30/2016	10:41:00	10:51:00	10330161051	Yes	GE Smartwater	Dedicated Field	Yes	Sediment	Pressure Tank Spigot
257	Church Street	Pownal	Drilled Bedrock	279	1/11/2017	16:57:00	17:07:00	70111171707	Yes			Yes	Sediment	Pressure Tank Spigot
283	Church Street	Pownal	Unknown		3/30/2016	10:13:00	10:23:00	10330161023	Yes	Plumber tag o	Unknown	No		Kitchen Faucet
51	Dean Road	North Pownal	Unknown		3/29/2016	14:40:00	14:34:00	40329161434	No			No		Other
51	Dean Road	North Pownal	Unknown		3/29/2016	14:40:00	14:40:00	40329161440	No			No		Other
174	Dean Road	North Pownal	Drilled Bedrock		11/10/2016	12:05:00	12:15:00	91110161215	No			No		Kitchen Faucet
187	Dean Road	Pownal	Unknown		6/23/2016	17:45:00	17:55:00	70623161755	Yes	Macclean		Yes	Sediment	Pressure Tank Spigot
201	Dean Road	Pownal	Unknown		6/23/2016	17:33:00	17:43:00	70623161743	No			No		Outside Spigot
201	Dean Road	North Pownal	Unknown		12/7/2016	12:45:00	12:55:00	71207161255	Yes			Yes	Sediment	Other
201	Dean Road	North Pownal	Unknown		12/7/2016	12:55:00	13:05:00	71207161305	Yes			Yes	Sediment	Other
201	Dean Road	North Pownal	Unknown		12/7/2016	13:05:00	13:15:00	71207161315	Yes			Yes	Sediment	Other
201	Dean Road	North Pownal	Unknown		3/16/2017	17:35:00	17:45:00	70316171745	Yes			Yes	Sediment	POET influent
201	Dean Road	North Pownal	Unknown		3/16/2017	17:45:00	17:55:00	70316171755	Yes			Yes	Sediment	POET middle
201	Dean Road	North Pownal	Unknown		6/28/2017	11:42:00	11:52:00	70628171152	No			Yes	Sediment	POET middle
201	Dean Road	North Pownal	Unknown		6/28/2017	11:32:00	11:42:00	70628171142	No			Yes	Sediment	Pressure Tank Spigot
244	Dean Road	North Pownal	Drilled Bedrock		7/15/2016	11:40:00	11:50:00	70715151150	Yes	Waterx		Yes	Sediment	Pressure Tank Spigot
260	Dean Road	North Pownal	Shallow	15	7/15/2016	11:00:00	11:10:00	70715161110	No			Yes	Sediment	Pressure Tank Spigot
260	Dean Road	North Pownal	Shallow		11/21/2016	11:00:00	11:10:00	71121161110	Yes			Yes	Sediment	Other
260	Dean Road	North Pownal	Shallow		11/21/2016	11:10:00	11:20:00	71121161120	Yes			Yes	Sediment	Other
260	Dean Road	North Pownal	Shallow		11/21/2016	11:20:00	11:30:00	71121161130	Yes			Yes	Sediment	Other
260	Dean Road	North Pownal	Shallow		3/16/2017	15:15:00	15:25:00	70316161525	Yes			Yes	Sediment	POET influent
260	Dean Road	North Pownal	Shallow		3/16/2017	15:25:00	15:35:00	70316171535	Yes			Yes	Sediment	POET middle
260	Dean Road	North Pownal	Shallow		6/28/2017	14:50:00	15:00:00	70628171500	Yes			Yes	Sediment	POET middle
260	Dean Road	North Pownal	Shallow		6/28/2017	14:40:00	14:50:00	70628171450	Yes			Yes	Sediment	POET influent
270	Dean Road	North Pownal	Unknown		6/9/2016	8:45:00	8:55:00	70609160855	No			Yes	Sediment	Kitchen Faucet
281	Dean Road	Pownal	Unknown		6/23/2016	16:40:00	16:50:00	70623161650	No			No		Kitchen Faucet
306	Dean Road	North Pownal	Drilled Bedrock		11/10/2016	11:39:00	11:49:00	91110161149	Yes	Macclean		Yes	Sediment	Pressure Tank Spigot
323	Dean Road	North Pownal	Drilled Bedrock		11/10/2016	13:30:00	13:40:00	71110161340	No			No		Other
323	Dean Road	North Pownal	Drilled Bedrock		3/16/2017	17:00:00	17:10:00	70316171710	No			No		POET influent
323	Dean Road	North Pownal	Drilled Bedrock		3/16/2017	17:10:00	17:20:00	70316171720	No			No		POET middle
323	Dean Road	North Pownal	Drilled Bedrock		3/16/2017	17:20:00	17:30:00	70316171730	No			No		POET effluent
323	Dean road	North Pownal	Drilled Bedrock		4/11/2017	15:20:00	15:30:00	70411171530	No			No		POET effluent
323	Dean road	North Pownal	Drilled Bedrock		4/11/2017	15:10:00	15:20:00	70411171520	No			No		POET mid
323	Dean road	North Pownal	Drilled Bedrock		4/11/2017	15:00:00	15:10:00	70411171510	No			No		POET influent
323	Dean Road	North Pownal	Drilled Bedrock		6/28/2017	12:10:00	12:20:00	70628171220	No			Yes	Sediment	POET middle
323	Dean Road	North Pownal	Drilled Bedrock		6/28/2017	12:00:00	12:10:00	70628171210	No			Yes	Sediment	Pressure Tank Spigot
338	Dean Road	North Pownal	Drilled Bedrock		11/11/2016	9:45:00	9:55:00	91111160955	No			No		Kitchen Faucet
355	Dean Road	North Pownal	Drilled Bedrock		11/10/2016	11:15:00	11:25:00	91110161125	Yes			Yes	Sediment	Pressure Tank Spigot
355	Dean Road	North Pownal	Drilled Bedrock		1/11/2017	12:32:00	12:42:00	70111171242	Yes	MacClean		Yes	Sediment	Pressure Tank Spigot
393	Dean Road	North Pownal	Shallow		11/10/2016	16:50:00	17:00:00	91110161700	No			Yes	Sediment	Kitchen Faucet
393	Dean Road	North Pownal	Shallow		3/16/2017	16:25:00	16:35:00	70316171635	No			Yes	Sediment	POET influent
393	Dean Road	North Pownal	Shallow		3/16/2017	16:35:00	16:45:00	70316171645	No			Yes	Sediment	POET middle
393	Dean Road	North Pownal	Shallow		3/16/2017	16:45:00	16:55:00	70316171655	No			Yes	Sediment	POET effluent
393	Dean Road	North Pownal	Shallow		6/28/2017	14:21:00	14:31:00	70628171431	No			Yes	Sediment	POET middle
393	Dean Road	North Pownal	Shallow		6/28/2017	14:11:00	14:21:00	70628171421	No			Yes	Sediment	POET influent
499	Dean Road	North Pownal	Drilled Bedrock		11/10/2016	10:53:00	11:03:00	91110161103	No			Yes	Sediment	Kitchen Faucet

**WATER SUPPLY WELL SAMPLING DATABASE  
POWNA, VERMONT**

Street Number	Street Name	Other Sample Location	Aerator Removed	Odor	Color	Sample Area Inventory/Use	General Comments	PFOA	PFHpA	PFOS	Initial Sample (I)/Resample (R) or POET	PFOA Resample	PFHpA Resample	PFOS Resample
0	Alta Garden MHP	Pumped from well before pres	None Present	No	No	Pumphouse		ND/<6.7	ND/<3.3	ND/<13.	I			
465	Brookman Road		None Present	No	No	Storage, motorcycle, paint		ND/<6.7	ND/<3.3	ND/<13.	I			
157	Burrington Road	Tub	None Present	No	Yes	Bathroom		ND/<6.7	ND/<3.3	ND/<13.	I			
398	Burrington Road		None Present	No	No	Basement	Well fracked	ND/<6.7	ND/<3.3	ND/<13.	I			
233	Cedar hill road		Yes	No	No	Kitchen		7.72	ND/<1.0	ND/<3.8	I			
549	Cedar Hill Road		None Present	No	Yes	Storage ast	Duplicate dup010102	ND/<6.7	ND/<3.3	ND/<13.	I			
549	Cedar Hill Road		No	No	No	Pressure Tank Shed	Well 2	ND/<6.7	ND/<3.3	ND/<13.	I			
549	Cedar Hill Road		None Present	No	No	Crop irrigation	Well 3 - irrigation well	7.19	ND/<3.3	ND/<13.	I			
171	Church Street		None Present	Yes	Yes	Bathroom Utility Closet		ND/<6.7	ND/<3.3	ND/<13.	I			
186	Church Street		None Present	No	No	Furance storage	Duplicate	ND/<6.7	ND/<3.3	ND/<13.	I			
191	Church Street		None Present	No	No	Basement-general storage		ND/<6.7	ND/<3.3	ND/<13.	I			
257	Church Street		None Present	No	No	Basement/storage	Well under decorative lighthouse	13.8	ND/<3.3	ND/<7.9	I			
257	Church Street		None Present	No	No	Basement					R	7.62	ND/<1.0	ND/<3.8
283	Church Street		Yes	No	No	Kitchen	DUP010101	ND/<6.7	ND/<3.3	ND/<13.	I			
51	Dean Road	WWTP-influent	None Present	Yes	Yes	WWTP	Influent	ND/<6.7	ND/<3.3	ND/<13.	I			
51	Dean Road	WWTP-effluent	None Present	Yes	Yes	WWTP	Effluent	12.6	ND/<2.8	ND/<7.9	I			
174	Dean Road		No	No	No	Kitchen		ND/<2.3	ND/<1.0	ND/<3.8	I			
187	Dean Road		None Present	Yes	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
201	Dean Road		None Present	No	No	Garden		19.5	ND/<2.8	ND/<7.9	I			
201	Dean Road	POET influent	None Present	No	No	Laundry closet	POET influent				POET	21.4	2.41 J	ND/<2.2
201	Dean Road	POET middle	None Present	No	No	Laundry closet	POET middle				POET	ND/<2.2	ND/<1.0	ND/<2.2
201	Dean Road	POET effluent	None Present	No	No	Laundy closet	POET effluent				POET	ND/<2.2	ND/<1.0	ND/<2.2
201	Dean Road										POET	23.6	2.56 J	ND/<1.7
201	Dean Road										POET	ND/<1.2	ND/<0.8	ND/<1.7
201	Dean Road	POET middle		No	No	Laundry room	POET middle				POET	ND/<1.2	ND/<0.8	ND/<1.7
201	Dean Road			No	No	Laundry room	07062817dup1 POET influent				POET	32.4	2.94	3.31 J
244	Dean Road		None Present	No	No	Basement	Dup 2	ND/<4.4	ND/<2.8	ND/<7.9	I			
260	Dean Road		None Present	No	No	Utility closet		28.9	ND/<2.8	ND/<7.9	I			
260	Dean Road	POET influent	None Present	No	No	Utility room	POET influent				POET	9.35	ND/<1.0	ND/<2.2
260	Dean Road	POET middle	None Present	No	No	Utility room	POET middle				POET	ND/<2.2	ND/<1.0	ND/<2.2
260	Dean Road	POET effluent	None Present	No	No	Utility room	POET effluent				POET	ND/<2.2	ND/<1.0	ND/<2.2
260	Dean Road										POET	11.3	0.86 J	ND/<1.7
260	Dean Road										POET	ND/<1.2	ND/<0.8	ND/<1.7
260	Dean Road	POET middle		No	No	Garage	POET middle				POET	ND/<1.2	ND/<0.8	ND/<1.7
260	Dean Road	POET influent		No	No	Garage	POET influent				POET	13.2	0.94 J	ND/<1.7
270	Dean Road		No	No	No	Kitchen		ND/<6.7	ND/<3.3	ND/<13.	I			
281	Dean Road		None Present	No	No	Kitchen		ND/<6.7	ND/<3.3	ND/<13.	I			
306	Dean Road		No	No	No	Basement		ND/<2.3	ND/<1.0	ND/<3.8	I			
323	Dean Road	Bath	None Present	No	No	Bathroom	07111016dup1	22.7	1.43 J	ND/<3.8	I			
323	Dean Road										POET	17.8	ND/<0.8	ND/<1.7
323	Dean Road										POET	ND/<1.2	ND/<0.8	ND/<1.7
323	Dean Road										POET	2.03 J	ND/<0.8	ND/<1.7
323	Dean road		None Present	No	No	Basement	POET effluent				POET	ND/<1.2	ND/<0.8	ND/<1.7
323	Dean road		None Present	No	No	Basement	POET mid				POET	ND/<1.2	ND/<0.8	ND/<1.7
323	Dean road		None Present	No	No	AST closest to influent	POET influent				POET	9.24	ND/<0.8	ND/<1.7
323	Dean Road	POET middle		No	No	Basement	POET middle				POET	ND/<1.2	ND/<0.8	ND/<1.7
323	Dean Road			No	No	Basement	POET influent				POET	41.4	3.65	6.06
338	Dean Road		No	No	No	Kitchen		6.78 J	ND/<1.0	ND/<3.8	I			
355	Dean Road		No	No	No	Basement		15.6	1.43 J	ND/<3.8	I			
355	Dean Road		None Present	No	No	Basement					R	12.3	1.17 J	ND/<3.8
393	Dean Road		No	No	No	Kitchen		21.6	2.28 J	ND/<3.8	I			
393	Dean Road										POET	23.2	2.2 J	ND/<1.7
393	Dean Road										POET	ND/<1.2	ND/<0.8	ND/<1.7
393	Dean Road										POET	ND/<1.2	ND/<0.8	ND/<1.7
393	Dean Road	POET middle		No	No	Closet	POET middle				POET	ND/<1.2	ND/<0.8	ND/<1.7
393	Dean Road	POET influent		No	No	Closet	POET influent				POET	22	2.52 J	2.03 J
499	Dean Road		No	No	No	Kitchen		39.7	4.52	5.16 J	I			

**WATER SUPPLY WELL SAMPLING DATABASE  
POWNAI, VERMONT**

Street Number	Street Name	City	Water Supply Type	Well Depth	Sample Date	Time Purging Started	Sample Time	Sample ID	Water Softener	Water Softener Type	Water Softener Discharge Location	Water Filter	Water Filter Type	Sample Location
499	Dean Road	North Pownal	Drilled Bedrock		3/16/2017	11:50:00	12:00:00	70316171200	No			Yes	Sediment	POET middle
499	Dean Road	North Pownal	Drilled Bedrock		3/16/2017	12:00:00	12:10:00	70316171210	No			Yes	Sediment	POET influent
499	Dean Road	North Pownal	Drilled Bedrock		3/16/2017	12:10:00	12:20:00	70316171220	No			Yes	Sediment	POET effluent
499	Dean road	North Pownal	Unknown		4/11/2017	14:45:00	14:55:00	70411171455	No			No		POET effluent
499	Dean road	North Pownal	Unknown		4/11/2017	14:35:00	14:45:00	70411171445	No			No		POET mid
499	Dean road	North Pownal	Unknown		4/11/2017	14:25:00	14:35:00	70411171435	No			No		POET influent
499	Dean Road	North Pownal	Drilled Bedrock		6/28/2017	14:00:00	14:10:00	70628161410	No			Yes	Sediment	POET middle
499	Dean Road	North Pownal	Drilled Bedrock		6/28/2017	13:50:00	14:00:00	70628171400	No			Yes	Sediment	Pressure Tank Spigot
536	Dean Road	Pownal	Shallow		6/23/2016	16:50:00	17:00:00	70623161700	No			No		Other
536	Dean Road	North Pownal	Shallow		1/11/2017	16:35:00	16:45:00	70111171645	No			No		Kitchen Faucet
239	Furlong road	North Pownal	Shallow		8/15/2016	12:30:00	12:40:00	70815161240	No			Yes	Sediment	Pressure Tank Spigot
1	Green Mountain MHP	Pownal	Shallow		3/30/2016	13:02:00	13:12:00	10330161312	No			No		Kitchen Faucet
22	Ladd Road	Pownal	Drilled Bedrock		3/29/2016	15:42:00	15:52:00	10329161552	No			No		Pressure Tank Spigot
23	Ladd Road	Pownal	Drilled Bedrock	480	3/30/2016	12:25:00	12:35:00	50330161235	Yes			Yes	Sediment	Pressure Tank Spigot
100	Ladd Road	Pownal	Shallow		3/30/2016	12:03:00	12:13:00	50330161213	No			No		Pressure Tank Spigot
100	Ladd Road	Pownal	Shallow		1/11/2017	15:06:00	15:16:00	70111171516	No			No		Pressure Tank Spigot
703	Ladd Road	Pownal	Drilled Bedrock	465	3/30/2016	11:43:00	11:53:00	50330161153	Yes			No		Pressure Tank Spigot
47	Mann Hill Road South	Pownal	Drilled Bedrock	389	3/30/2016	10:54:00	23:04:00	50330161104	Yes			No		Pressure Tank Spigot
97	Mann Hill Road South	Pownal	Drilled Bedrock		3/30/2016	11:15:00	11:25:00	50330161135	Yes		Septic	Yes	Sediment	Pressure Tank Spigot
245	Mann Hill Road South	Pownal	Drilled Bedrock	229	3/30/2016	14:09:00	14:19:00	50330161419	Yes		Septic	Yes	Sediment	Pressure Tank Spigot
720	Maple grove road	Pownal	Drilled Bedrock		4/4/2016	13:11:00	13:21:00	60404161321	Yes	Macclean		Yes	Sediment	Pressure Tank Spigot
880	Maple grove road	Other	Drilled Bedrock	110	4/4/2016	13:27:00	13:37:00	60404161337	Yes		Septic	Yes	Sediment	Pressure Tank Spigot
72	Murphy Lane	North Pownal	Drilled Bedrock		7/15/2016	10:28:00	10:38:00	70715161038	No			No		Outside Spigot
72	Murphy Lane	North Pownal	Drilled Bedrock		1/11/2017	11:40:00	11:50:00	70111171150	No			No		Outside Spigot
175	Murphy Lane	Pownal	Shallow		6/23/2016	16:50:00	17:00:00	70623161700	No			No		Other
175	Murphy Lane	North Pownal	Shallow		1/11/2017	16:22:00	16:32:00	70111171632	No			No		Other
313	Nicholas Way	North Pownal	Shallow		11/11/2016	8:20:00	8:30:00	71111160830	No			No		Pressure Tank Spigot
79	North Pownal Road	North Pownal	Drilled Bedrock	300	6/23/2016	9:20:00	9:30:00	70623160930	No			No		Pressure Tank Spigot
82	North Pownal Road	North Pownal	Shallow		6/23/2016	9:35:00	9:45:00	70623160945	Yes	Macclean		Yes	Sediment	Outside Spigot
110	North Pownal Road	Pownal	Drilled Bedrock		6/23/2016	9:48:00	9:58:00	70623160958	No			No		Outside Spigot
225	North Pownal Road	North Pownal	Unknown		6/23/2016	10:10:00	10:20:00	70623161020	No			Yes	Sediment	Pressure Tank Spigot
2705	North Pownal Road	Pownal Center	Drilled Bedrock	180	4/27/2016	16:48:00	16:58:00	20427161658	No			No		Kitchen Faucet
10	NW Hill Road	Pownal	Drilled Bedrock	400	3/29/2016	14:46:00	14:46:00	10329161456	Yes		Septic	Yes	Sediment	Kitchen Faucet
28	NW Hill Road	Pownal	Drilled Bedrock	150	3/29/2016	13:45:00	14:10:00	10329161410	No			No		Pressure Tank Spigot
46	NW Hill Road	Pownal	Drilled Bedrock		3/30/2016	12:35:00	12:45:00	10330161245	No			No		Pressure Tank Spigot
196	NW Hill Road	Pownal	Shallow		3/29/2016	16:08:00	16:18:00	10329161618	No			No		Pressure Tank Spigot
244	NW Hill Road	Pownal	Drilled Bedrock	400	3/29/2016	14:19:00	14:36:00	10329161436	No			No		Pressure Tank Spigot
306	NW Hill Road	Pownal	Drilled Bedrock		3/30/2016	17:46:00	17:56:00	50330161756	No			No		Pressure Tank Spigot
454	NW Hill Road	Pownal	Drilled Bedrock		4/27/2016	14:03:00	14:13:00	20427161413	Yes	Culligan	Septic	Yes	Sediment	Pressure Tank Spigot
498	NW Hill Road	Pownal	Shallow	65	4/4/2016	11:49:00	11:59:00	60404161159	Yes	Ge	Septic	No		Pressure Tank Spigot
555	NW Hill Road	Pownal	Drilled Bedrock		3/30/2016	17:27:00	17:37:00	50330161737	Yes		Unknown	Yes	Sediment	Pressure Tank Spigot
32	Oak Hill School Road	Pownal	Drilled Bedrock	500	3/31/2016	7:20:00	7:35:00	10331160735	Yes	MacClean	Dedicated Field	No		Pressure Tank Spigot
149	Orchard Street	Pownal	Unknown		3/30/2016	16:46:00	16:56:00	10330161656	Yes	Plumbing labe		No		Pressure Tank Spigot
33	Palmer Drive	Pownal	Drilled Bedrock		3/29/2016	16:22:00	16:32:00	10329161632	Yes			No		Pressure Tank Spigot
278	Palmer Drive	Pownal	Unknown		3/29/2016	11:57:00	12:14:00	10329161214	No			No		Kitchen Faucet
317	Palmer Drive	Pownal	Shallow		3/29/2016	12:19:00	12:35:00	10329161235	No			No		Pressure Tank Spigot
60	Pratt Road	Pownal	Drilled Bedrock	375	3/29/2016	18:15:00	18:25:00	10329161825	No			No		Pressure Tank Spigot
173	Pratt Road	Pownal	Drilled Bedrock	100	4/27/2016	12:17:00	12:27:00	20427161227	No			Yes	Sediment	Kitchen Faucet
192	Pratt Road	Pownal	Shallow		3/29/2016	18:35:00	18:45:00	10329161845	Yes			No		Pressure Tank Spigot
192	Pratt Road	Pownal	Shallow		11/21/2016	13:10:00	13:20:00	71121161320	Yes			No		Other
192	Pratt Road	Pownal	Shallow		11/21/2016	13:20:00	13:30:00	71121161330	Yes			Yes	Sediment	Other
192	Pratt Road	Pownal	Shallow		11/21/2016	13:30:00	13:40:00	71121161340	Yes			Yes	Sediment	Other
192	Pratt Road	Pownal	Shallow		3/16/2017	11:15:00	11:25:00	70316171125	Yes			No		POET influent
192	Pratt Road	Pownal	Shallow		3/16/2017	11:25:00	11:35:00	70316171135	Yes			Yes	Sediment	POET middle
192	Pratt Road	Pownal	Shallow		6/28/2017	10:15:00	10:25:00	70628171025	Yes			Yes	Sediment	POET middle
192	Pratt Road	Pownal	Shallow		6/28/2017	10:05:00	10:15:00	70628171015	Yes			Yes	Sediment	Pressure Tank Spigot
235	Pratt Road	Pownal	Drilled Bedrock		3/30/2016	12:50:00	13:00:00	50330161300	No			No		Pressure Tank Spigot

**WATER SUPPLY WELL SAMPLING DATABASE  
POWNA, VERMONT**

Street Number	Street Name	Other Sample Location	Aerator Removed	Odor	Color	Sample Area Inventory/Use	General Comments	PFOA	PFHpA	PFOS	Initial Sample (I)/Resample (R) or POET	PFOA Resample	PFHpA Resample	PFOS Resample
499	Dean Road										POET	ND/<1.2	ND/<0.8	ND/<1.7
499	Dean Road										POET	<b>50.7</b>	7.54	4.76 J
499	Dean Road										POET	ND/<1.2	ND/<0.8	ND/<1.7
499	Dean road		None Present	No	No	Closet	POET effluent				POET	ND/<1.2	ND/<0.8	ND/<1.7
499	Dean road		None Present	No	No	Closet	POET mid				POET	ND/<1.2	ND/<0.8	ND/<1.7
499	Dean road		None Present	No	No	Closet	Poet influent				POET	<b>86.8</b>	11.9	7.99
499	Dean Road	POET middle		No	No	Utility closet	POET middle				POET	ND/<1.2	ND/<0.8	ND/<1.7
499	Dean Road			No	No	POET influent	POET influent lab dup				POET	<b>47.1</b>	4.67	5.62
536	Dean Road	Shallow spring down near the	No	No	No	Woods		13	ND/<2.8	ND/<7.9	I			
536	Dean Road		None Present	No	No	Kitchen					R	19.6	1.87 J	ND/<3.8
239	Furlong road		None Present	No	No	Garage	Lab dup	ND/<2.3	ND/<1.0	ND/<3.8	I			
1	Green Mountain MHF		Yes	No	No	Kitchen		<b>22.7</b>	ND/<3.3	ND/<13.	I			
22	Ladd Road		None Present	No	Yes	Closet		ND/<6.7	ND/<3.3	ND/<13.	I			
23	Ladd Road		None Present	No	No	Household cleaners, heating o		ND/<6.7	ND/<3.3	ND/<13.	I			
100	Ladd Road		None Present	No	No	None	Lab dup 1251 sample time	15.6	ND/<2.8	ND/<7.9	I			
100	Ladd Road		None Present	No	No	Basement					R	19.5	1.95 J	ND/<3.8
703	Ladd Road		None Present	No	No	Fire extinguisher		ND/<6.7	ND/<3.3	ND/<13.	I			
47	Mann Hill Road South		None Present	No	No	Household cleaners, heating o		ND/<6.7	ND/<3.3	ND/<13.	I			
97	Mann Hill Road South		None Present	No	No	Heating oil, household cleaners		ND/<6.7	ND/<3.3	ND/<13.	I			
245	Mann Hill Road South		None Present	No	No	Old paint 1 or 2 gallons		ND/<6.7	ND/<3.3	ND/<13.	I			
720	Maple grove road		None Present	No	No	Paint, tile ppr tank		ND/<6.7	ND/<3.3	ND/<13.	I			
880	Maple grove road		None Present	No	No	Storage	90 feet casing	ND/<6.7	ND/<3.3	ND/<13.	I			
72	Murphy Lane		None Present	No	No	Garden		11. J	ND/<2.8	9.41 J	I			
72	Murphy Lane		None Present	No	No	Garden	07011117Dup1				R	<b>80.3</b>	12	94.8
175	Murphy Lane	Shallow spring down near the	No	No	No	Woods		13	ND/<2.8	ND/<7.9	I			
175	Murphy Lane		None Present	No	No	Woods					R	19.5	1.76 J	ND/<3.8
313	Nicholas Way		None Present	No	No	Basement	Lab dup 2	4.33 J	ND/<1.0	ND/<3.8	I			
79	North Pownal Road		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
82	North Pownal Road		None Present	No	No	Basment		ND/<6.7	ND/<3.3	ND/<13.	I			
110	North Pownal Road		None Present	No	No	Above flowerbed		ND/<6.7	ND/<3.3	ND/<13.	I			
225	North Pownal Road		None Present	No	No	Kitchen closet		ND/<6.7	ND/<3.3	ND/<13.	I			
2705	North Pownal Road		Yes	No	No	Kitchen		7.02	ND/<3.3	ND/<13.	I			
10	NW Hill Road		None Present	No	No	Kitchen		ND/<6.7	ND/<3.3	ND/<13.	I			
28	NW Hill Road		None Present	No	No	Basement	Lab duplicate	ND/<6.7	ND/<3.3	ND/<13.	I			
46	NW Hill Road		None Present	No	No	Basement, AST, Oil Burner		ND/<6.7	ND/<3.3	ND/<13.	I			
196	NW Hill Road		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
244	NW Hill Road		None Present	No	Yes	Pantry		ND/<6.7	ND/<3.3	ND/<13.	I			
306	NW Hill Road		None Present	Yes	No	Heating oil tank		ND/<6.7	ND/<3.3	ND/<13.	I			
454	NW Hill Road		None Present	No	No	Furnace,ast	Lab duplicate	ND/<6.7	ND/<3.3	ND/<13.	I			
498	NW Hill Road		None Present	No	No	Paints,275 ast,		ND/<6.7	ND/<3.3	ND/<13.	I			
555	NW Hill Road		None Present	No	No	Paint oil tank		ND/<6.7	ND/<3.3	ND/<13.	I			
32	Oak Hill School Road		None Present	No	No	Utility Closet		ND/<6.7	ND/<3.3	ND/<13.	I			
149	Orchard Street		None Present	No	No	Ast...storage...furnace		ND/<6.7	ND/<3.3	ND/<13.	I			
33	Palmer Drive		None Present	No	No	Basement/AST		ND/<6.7	ND/<3.3	ND/<13.	I			
278	Palmer Drive		Yes	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
317	Palmer Drive		None Present	No	No	Basement	DUP010100	ND/<6.7	ND/<3.3	ND/<13.	I			
60	Pratt Road		None Present	No	Yes	Basement	Iron in water	ND/<6.7	ND/<3.3	ND/<13.	I			
173	Pratt Road		No	Yes	No	Kitchen		ND/<6.7	ND/<3.3	ND/<13.	I			
192	Pratt Road		None Present	No	No	Basement		12.8	ND/<2.8	15.1	I			
192	Pratt Road	POET influent	None Present	No	No	Basement	POET influent				POET	14.1	2.95 J	16.8
192	Pratt Road	POET middle	None Present	No	No	Basement	POET middle				POET	ND/<2.2	ND/<1.0	ND/<2.2
192	Pratt Road	POET effluent	None Present	No	No	Basement	POET effluent				POET	ND/<2.2	ND/<1.0	ND/<2.2
192	Pratt Road										POET	14.7	2.34 J	18.9
192	Pratt Road										POET	ND/<1.2	ND/<0.8	ND/<1.7
192	Pratt Road	POET middle		No	No	Basement	POET middle				POET	ND/<1.2	ND/<0.8	ND/<1.7
192	Pratt Road			No	No	Basement	POET influent				POET	19.7	3.26	<b>27.3</b>
235	Pratt Road		None Present	No	No	Nothing	Well is under hay to prevent freez	ND/<6.7	ND/<3.3	ND/<13.	I			

**WATER SUPPLY WELL SAMPLING DATABASE  
POWNA, VERMONT**

Street Number	Street Name	City	Water Supply Type	Well Depth	Sample Date	Time Purging Started	Sample Time	Sample ID	Water Softener	Water Softener Type	Water Softener Discharge Location	Water Filter	Water Filter Type	Sample Location
141	Purcell Dugway	Pownal	Shallow		4/27/2016	12:46:00	12:56:00	20427161257	Yes	Culligan		Yes	Sediment	Pressure Tank Spigot
252	Route 346	Pownal	Drilled Bedrock		3/29/2016	16:08:00	16:18:00	50329161418	Yes	MacClean		No		Pressure Tank Spigot
253	Route 346	Pownal	Unknown		3/30/2016	17:13:00	17:23:00	10330161723	Yes	Unkown		No		Pressure Tank Spigot
293	Route 346	Pownal	Unknown		3/29/2016	16:31:00	16:41:00	50329161441	No			Yes	Other	Pressure Tank Spigot
437	Route 346	Pownal	Drilled Bedrock		3/30/2016	11:10:00	11:20:00	10330161120	No			No		Pressure Tank Spigot
565	Route 346	Pownal	Drilled Bedrock		4/27/2016	16:02:00	16:03:00	20427161604	No			No		Pressure Tank Spigot
594	Route 346	Pownal	Unknown		3/29/2016	17:14:00	17:24:00	50329161724	No			Yes	Sediment	Pressure Tank Spigot
714	Route 346	Pownal	Drilled Bedrock		3/29/2016	17:37:00	17:47:00	50329161747	Yes	Salt	Unknown	Yes	Carbon	Pressure Tank Spigot
1235	Route 346	Pownal	Shallow	86 ft deep, 199	3/29/2016	11:40:00	11:50:00	40329161150	No			Yes	Other	Pressure Tank Spigot
1235	Route 346	Pownal	Shallow		11/21/2016	10:15:00	10:25:00	71121161025	Yes			Yes	Sediment	Other
1235	Route 346	Pownal	Shallow		11/21/2016	10:25:00	10:35:00	71121161035	Yes			Yes	Sediment	Other
1235	Route 346	Pownal	Shallow		11/21/2016	10:35:00	10:45:00	71121161045	Yes			Yes	Sediment	Other
1235	Route 346	Pownal	Shallow		3/16/2017	10:40:00	10:50:00	70316171050	Yes			Yes	Sediment	POET influent
1235	Route 346	Pownal	Shallow		3/16/2017	10:50:00	11:00:00	70316171100	Yes			Yes	Sediment	POET middle
1235	Route 346	Pownal	Shallow		6/28/2017	10:50:00	11:00:00	70628171100	Yes			Yes	Sediment	POET middle
1235	Route 346	Pownal	Shallow		6/28/2017	10:40:00	10:50:00	70628171050	Yes			Yes	Sediment	Pressure Tank Spigot
1277	Route 346	Pownal	Shallow	97	4/27/2016	17:37:00	17:47:00	20427161747	Yes	Culligan		No		Pressure Tank Spigot
1467	Route 346	Pownal	Shallow		3/29/2016	12:10:00	12:20:00	40329161220	No			No		Pressure Tank Spigot
1607	Route 346	Pownal	Unknown		3/29/2016	14:55:00	15:05:00	40329161505	Yes			Yes	Other	Outside Spigot
1647	Route 346	Pownal	Shallow	20	4/27/2016	16:16:00	16:26:00	20427161626	No			No		Kitchen Faucet
1834	Route 346	Pownal	Shallow		3/29/2016	14:03:00	14:13:00	40329161413	No			No		Pressure Tank Spigot
1834	Route 346	Pownal	Shallow		1/11/2017	14:22:00	14:32:00	70111171432	No			No		Pressure Tank Spigot
1940	Route 346	Pownal	Shallow		3/29/2016	18:03:00	18:13:00	50329161813	Yes			Yes	Other	Pressure Tank Spigot
2670	Route 346	Pownal	Shallow	10	4/27/2016	13:18:00	13:28:00	20427161328	No			No		Kitchen Faucet
2752	Route 346	Pownal	Drilled Bedrock		12/7/2016	12:25:00	12:35:00	71207161235	No			Yes	Sediment	Pressure Tank Spigot
2808	Route 346	North Pownal	Drilled Bedrock		6/23/2016	13:06:00	13:16:00	70623161316	No			No		Outside Spigot
2828	Route 346	Pownal	Unknown		6/23/2016	11:28:00	11:38:00	70623161138	No			No		Kitchen Faucet
2868	Route 346	Pownal	Drilled Bedrock	100	6/23/2016	13:54:00	14:04:00	70623161404	No			No		Pressure Tank Spigot
2898	Route 346	Pownal	Shallow		6/9/2016	16:28:00	16:38:00	70609161638	No			Yes	Sediment	Pressure Tank Spigot
2910	Route 346	Pownal	Drilled Bedrock	442	6/22/2016	15:36:00	15:46:00	70622161546	No			No		Pressure Tank Spigot
3042	Route 346	North Pownal	Drilled Bedrock		11/22/2016	8:15:00	8:25:00	71122160825	No			No		Other
3052	Route 346	North Pownal	Unknown		6/23/2016	10:26:00	10:36:00	70623161036	No			No		Kitchen Faucet
3076	Route 346	North Pownal	Unknown		6/9/2016	9:23:00	9:33:00	70609160933	No			No		Pressure Tank Spigot
3100	Route 346	North Pownal	Drilled Bedrock		11/10/2016	12:30:00	12:40:00	91110161240	No			Yes	Sediment	Pressure Tank Spigot
3115	Route 346	North Pownal	Drilled Bedrock		11/10/2016	14:00:00	14:10:00	91110161410	No			Yes	Sediment	Pressure Tank Spigot
3126	Route 346	North Pownal	Drilled Bedrock	500	11/10/2016	14:15:00	14:25:00	91110161425	No			No		Pressure Tank Spigot
3137	Route 346	Pownal	Shallow		6/23/2016	15:37:00	15:47:00	70623161547	No			No		Other
3137	Route 346	North Pownal	Shallow		11/21/2016	13:45:00	13:55:00	71121161355	No			No		Other
3137	Route 346	North Pownal	Shallow		11/21/2016	13:55:00	14:05:00	71121161405	No			No		Other
3137	Route 346	North Pownal	Shallow		11/21/2016	14:05:00	14:15:00	71121161415	No			No		Other
3137	Route 346	North Pownal	Shallow		3/17/2017	07:30:00	07:40:00	70317170740	No			No		POET influent
3137	Route 346	North Pownal	Shallow		3/17/2017	07:40:00	07:50:00	70317170750	No			No		POET middle
3137	Route 346	North Pownal	Shallow		6/28/2017	12:40:00	12:50:00	70628171250	No			Yes	Sediment	Pressure Tank Spigot
3137	Route 346	North Pownal	Shallow		6/28/2017	12:30:00	12:40:00	70628171240	No			Yes	Sediment	POET middle
3138	Route 346	Pownal	Drilled Bedrock		6/8/2016	14:58:00	15:08:00	70608161508	No			No		Pressure Tank Spigot
3164	Route 346	Pownal	Drilled Bedrock	180	6/8/2016	15:08:00	15:18:00	70608161518	No			No		Pressure Tank Spigot
3164	Route 346	Pownal	Shallow	20	6/8/2016	15:18:00	15:28:00	70608161528	No			No		Pressure Tank Spigot
3164	Route 346	Pownal	Shallow		11/21/2016	12:25:00	12:35:00	71121161235	No			No		Other
3164	Route 346	Pownal	Shallow		11/21/2016	12:35:00	12:45:00	71121161245	No			No		Other
3164	Route 346	Pownal	Shallow		11/21/2016	12:45:00	12:55:00	71121161255	No			No		Other
3164	Route 346	Pownal	Shallow		3/16/2017	12:40:00	12:50:00	70316171250	No			No		POET influent
3164	Route 346	Pownal	Shallow		3/16/2017	12:50:00	13:00:00	70316171300	No			No		POET middle
3164	Route 346	North Pownal	Shallow		6/28/2017	13:12:00	13:22:00	70628171322	No			Yes	Sediment	POET middle
3164	Route 346	North Pownal	Shallow		6/28/2017	13:02:00	13:12:00	70628171312	No			Yes	Sediment	Pressure Tank Spigot
3176	Route 346	North Pownal	Drilled Bedrock	60	6/8/2016	15:28:00	15:38:00	70608161538	No			No		Other
3176	Route 346	North Pownal	Shallow		8/15/2016	11:05:00	11:15:00	70815161115	No			No		Pressure Tank Spigot
3199	Route 346	North Pownal	Shallow	14	4/27/2016	15:19:00	15:21:00	20427161521	No			Yes	Sediment	Other
3199	Route 346	North Pownal	Shallow		8/15/2016	12:00:00	12:10:00	70815161210	No			No		Pressure Tank Spigot

**WATER SUPPLY WELL SAMPLING DATABASE  
POWNA, VERMONT**

Street Number	Street Name	Other Sample Location	Aerator Removed	Odor	Color	Sample Area Inventory/Use	General Comments	PFOA	PFHpA	PFOS	Initial Sample (I)/Resample (R) or POET	PFOA Resample	PFHpA Resample	PFOS Resample
141	Purcell Dugway		None Present	Yes	Yes	Ast, storage	136 is also on same well	7.23	ND/<3.3	ND/<13.	I			
252	Route 346		None Present	No	No	Backyard		ND/<6.7	ND/<3.3	ND/<13.	I			
253	Route 346		None Present	No	No	Storage		8.3	ND/<3.3	ND/<13.	I			
293	Route 346		None Present	No	Yes	Basement-general storage	Labeled sample with time 1441 in	ND/<6.7	ND/<3.3	ND/<13.	I			
437	Route 346		None Present	No	No	Alot of storage paints etc.	Alot of storage-paints	ND/<6.7	ND/<3.3	ND/<13.	I			
565	Route 346		None Present	No	No	Basement..house unused	Unused house. Purge time only	ND/<6.7	ND/<3.3	ND/<13.	I			
594	Route 346		None Present	No	No	General household storage	Bottles filled with cap, spigot was	44.2	5.9	ND/<13.	I			
714	Route 346		None Present	No	No	Backyard		ND/<6.7	ND/<3.3	ND/<13.	I			
1235	Route 346		None Present	No	No	Storage	When FD 2 well is under large de	66.2	4.34	ND/<13.	I			
1235	Route 346	POET influent	None Present	No	No	Utility room	POET influent				POET	86.2	5.25	ND/<2.2
1235	Route 346	POET middle	None Present	No	No	Utility room	POET middle				POET	ND/<2.2	ND/<1.0	ND/<2.2
1235	Route 346	POET effluent	None Present	No	No	Utility room	POET effluent				POET	ND/<2.2	ND/<1.0	ND/<2.2
1235	Route 346										POET	84.9	5.55	ND/<1.7
1235	Route 346										POET	ND/<1.2	ND/<0.8	ND/<1.7
1235	Route 346	POET middle		No	No	Utility closet	Lab dup POET middle				POET	ND/<1.2	ND/<0.8	ND/<1.7
1235	Route 346			No	No	Utility room	POET influent				POET	88.8	5.29	ND/<1.7
1277	Route 346		None Present	No	No	Pump	Sampled from pump pit	43.2	4.27	ND/<13.	I			
1467	Route 346		None Present	No	No	Separate room in barn		ND/<6.7	ND/<3.3	ND/<13.	I			
1607	Route 346		None Present	No	No	Backyard spigot	Dup-1 collected here	ND/<6.7	ND/<3.3	ND/<13.	I			
1647	Route 346		None Present	No	No	Kitchen	Old well went dry when wastewa	ND/<6.7	ND/<3.3	ND/<13.	I			
1834	Route 346		None Present	No	No	Basement-general household s		16.2	ND/<2.8	ND/<7.9	I			
1834	Route 346		None Present	No	No	Basement					R	14.1	ND/<1.0	ND/<3.8
1940	Route 346		None Present	No	No	Unfinished basement-general s		ND/<6.7	ND/<3.3	ND/<13.	I			
2670	Route 346		No	No	No	Kitchen		ND/<6.7	ND/<3.3	ND/<13.	I			
2752	Route 346		None Present	No	No	Utility closet		17.7	ND/<1.0	ND/<2.2	I			
2808	Route 346		None Present	No	No	Flowers		7.47	ND/<3.3	ND/<13.	I			
2828	Route 346		None Present	No	No	Kitchen		ND/<6.7	ND/<3.3	ND/<13.	I			
2868	Route 346		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
2898	Route 346		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
2910	Route 346		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
3042	Route 346	Out of well - used Rons gener	None Present	No	No	Outside in the snow		3.74 J	ND/<1.0	ND/<3.8	I			
3052	Route 346		None Present	No	No	Kitchen		ND/<6.7	ND/<3.3	ND/<13.	I			
3076	Route 346		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
3100	Route 346		No	No	No	Laundry room		ND/<2.3	ND/<1.0	ND/<3.8	I			
3115	Route 346		No	No	No	Basement		2.44 J	ND/<1.0	ND/<3.8	I			
3126	Route 346		No	No	No	Basement		ND/<2.3	ND/<1.0	ND/<3.8	I			
3137	Route 346	Bathroom sink	None Present	No	No	Bathroom	Dup 2	15.8	ND/<2.8	11.3	I			
3137	Route 346	POET influent	None Present	No	No	Utility room	POET influent 07112116dup2				POET	16	1.39 J	10.9
3137	Route 346	POET middle	None Present	No	No	Utility room	POET middle				POET	ND/<2.2	ND/<1.0	ND/<2.2
3137	Route 346	POET effluent	None Present	No	No	Utility room	POET effluent				POET	ND/<2.2	ND/<1.0	ND/<2.2
3137	Route 346										POET	60.8	10.2	14.4
3137	Route 346										POET	ND/<1.2	ND/<0.8	ND/<1.7
3137	Route 346			No	No	Utility room	POET influent				POET	74.1	8.28	30.9
3137	Route 346	POET middle		No	No	Utility room	POET middle				POET	ND/<1.2	ND/<0.8	ND/<1.7
3138	Route 346		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
3164	Route 346		None Present	No	No	Basement	He has two wells . This sample t	ND/<6.7	ND/<3.3	ND/<13.	I			
3164	Route 346		None Present	No	No	General storage	Shallow well Alonzo uses both se	32.8	5.24	ND/<13.	I			
3164	Route 346	POET influent	None Present	No	No	Basement	POET influent				POET	ND/<2.2	ND/<1.0	ND/<2.2
3164	Route 346	POET middle	None Present	No	No	Basement	POET middle				POET	ND/<2.2	ND/<1.0	ND/<2.2
3164	Route 346	POET effluent	None Present	No	No	Basement	POET effluent				POET	ND/<2.2	ND/<1.0	ND/<2.2
3164	Route 346										POET	7.29	1.11 J	2.42 J
3164	Route 346										POET	ND/<1.2	ND/<0.8	ND/<1.7
3164	Route 346	POET middle		No	No	Basement	POET middle				POET	ND/<1.2	ND/<0.8	ND/<1.7
3164	Route 346			No	No	Basement	POET influent				POET	1.6 J	ND/<0.8	ND/<1.7
3176	Route 346	At well spigot at well	None Present	No	No	None	Three wells are connected to the	ND/<6.7	ND/<3.3	ND/<13.	I			
3176	Route 346		None Present	No	No	Basement		8.04	ND/<1.0	4.82 J	I			
3199	Route 346	Inlet to storage tank	None Present	No	No	Storage	Low flow pump tp 250 gal storage	24.9	ND/<3.3	ND/<13.	I			
3199	Route 346		None Present	No	No	Basement	Dup 1				R	20.4 J	2.48	7.86 J

**WATER SUPPLY WELL SAMPLING DATABASE  
POWNA, VERMONT**

Street Number	Street Name	City	Water Supply Type	Well Depth	Sample Date	Time Purging Started	Sample Time	Sample ID	Water Softener	Water Softener Type	Water Softener Discharge Location	Water Filter	Water Filter Type	Sample Location
3199	Route 346	North Pownal	Shallow		11/21/2016	11:50:00	12:00:00	71121161200	No			No		Other
3199	Route 346	North Pownal	Shallow		11/21/2016	12:00:00	12:10:00	71121161210	No			No		Other
3199	Route 346	North Pownal	Shallow		11/21/2016	12:10:00	12:20:00	71121161220	No			No		Other
3199	Route 346	North Pownal	Shallow		3/16/2017	18:05:00	18:15:00	70316171815	No			No		POET influent
3199	Route 346	North Pownal	Shallow		3/16/2017	18:15:00	18:25:00	70316171825	No			No		POET middle
3199	Route 346	North Pownal	Shallow		6/28/2017	13:40:00	13:50:00	70628171350	No			Yes	Sediment	POET middle
3199	Route 346	North Pownal	Shallow		6/28/2017	13:30:00	13:40:00	70628171340	No			Yes	Sediment	POET influent
3227	Route 346	Pownal	Drilled Bedrock		6/23/2016	8:56:00	9:06:00	70623160906	No			No		Kitchen Faucet
3239	Route 346	North Pownal	Unknown		11/10/2016	11:56:00	12:06:00	71110161206	No			No		Outside Spigot
3244	Route 346	Pownal	Drilled Bedrock		6/23/2016	8:35:00	8:45:00	70623160845	No			No		Pressure Tank Spigot
3244	Route 346	Pownal	Shallow		6/23/2016		8:50:00	70623160850	No			No		
3260	Route 346	Pownal	Shallow		6/9/2016	13:59:00	14:09:00	70609161409	No			No		Pressure Tank Spigot
3261	Route 346	Pownal	Shallow		6/23/2016	18:12:00	18:22:00	70623161722	No			Yes	Sediment	Pressure Tank Spigot
3266	Route 346	North Pownal	Drilled Bedrock		1/11/2017	12:15:00	12:25:00	70111171225	Yes			Yes	Sediment	Pressure Tank Spigot
3310	Route 346	North Pownal	Shallow	10	6/28/2017	11:05:00	11:15:00	70628171115	No			Yes	Sediment	Pressure Tank Spigot
3324	Route 346	North Pownal	Shallow		6/8/2016	14:28:00	14:38:00	70608161438	No			No		Kitchen Faucet
3437	Route 346	North Pownal	Unknown		4/27/2016	11:39:00	11:49:00	20427161149	No			No		Pressure Tank Spigot
3438	Route 346	Pownal	Shallow		6/22/2016	15:11:00	15:21:00	70622161521	No			No		Pressure Tank Spigot
3454	Route 346	North Pownal	Shallow		12/7/2016	13:30:00	13:40:00	71207161340	Yes			No		Pressure Tank Spigot
3474	Route 346	Pownal	Shallow		6/22/2016	14:53:00	15:03:00	70622161503	No			Yes	Sediment	Pressure Tank Spigot
3494	Route 346	Pownal	Shallow		6/9/2016	13:42:00	13:52:00	70609161352	No			Yes	Sediment	Pressure Tank Spigot
3503	Route 346	Pownal	Shallow		6/9/2016	16:08:00	16:18:00	70609161618	Yes	Kenmore		Yes	Sediment	Pressure Tank Spigot
3535	Route 346	North Pownal	Shallow		6/9/2016	12:50:00	13:00:00	70609161300	No			No		Kitchen Faucet
3554	Route 346	North Pownal	Shallow		6/23/2016	13:33:00	13:43:00	70623161343	No			No		Pressure Tank Spigot
3573	Route 346	North Pownal	Shallow		6/9/2016	13:11:00	13:21:00	70609161321	No			Yes	Sediment	Kitchen Faucet
3610	Route 346	North Pownal	Drilled Bedrock	700	4/27/2016	14:56:00	15:06:00	20427161506	Yes	Watersoft	Septic	Yes	Sediment	Pressure Tank Spigot
4251	Route 346	North Pownal	Shallow		8/15/2016	15:00:00	15:10:00	70815161510	No			No		Pressure Tank Spigot
5724	Route 7	Pownal	Drilled Bedrock		3/30/2016	10:28:00	10:38:00	50330161038	Yes		Septic	Yes	Sediment	Pressure Tank Spigot
5939	Route 7	Pownal	Drilled Bedrock		5/11/2016	16:33:00	16:35:00	20511161635	Yes			No		Pressure Tank Spigot
5952	Route 7	Pownal	Drilled Bedrock	110	3/30/2016	16:46:00	16:56:00	50330161656	Yes		Septic	No		Pressure Tank Spigot
5970	Route 7	Pownal	Drilled Bedrock		3/30/2016	9:25:00	9:30:00	50330160935	Yes	Salt	Septic	No		Pressure Tank Spigot
5993	Route 7	Pownal	Drilled Bedrock		3/30/2016	9:58:00	22:08:00	50330161008	No			Yes	Sediment	Pressure Tank Spigot
6275	Route 7	Pownal	Drilled Bedrock	60	3/30/2016	17:09:00	17:19:00	50330161719	No			Yes	Sediment	Pressure Tank Spigot
6380	Route 7	Pownal	Shallow	67	4/4/2016	12:28:00	12:38:00	60404161238	No			No		Other
	Route 7	Pownal	Shallow		6/8/2016	14:05:00	14:05:00	70608161405	No			No		Other
38	Skyborrow Road	Pownal	Drilled Bedrock	70	6/9/2016	12:25:00	12:35:00	70609161235	No			Yes	Sediment	Kitchen Faucet
138	Swallow Hill Road	Pownal	Drilled Bedrock	600	3/29/2016	17:12:00	17:25:00	10329161723	Yes	Kenmore	Septic	Yes	Sediment	Pressure Tank Spigot
171	Swallow Hill Road	Pownal	Drilled Bedrock		3/29/2016	17:27:00	17:37:00	10329161737	Yes	Kenetico	Septic	Yes	Sediment	Pressure Tank Spigot
191	Swallow Hill Road	Pownal	Shallow	30	4/27/2016	18:36:00	18:46:00	20427161846	No			Yes	Sediment	Pressure Tank Spigot
196	Swallow Hill Road	Pownal	Drilled Bedrock	196	3/29/2016	17:00:00	17:10:00	10329161710	Yes			Yes	Sediment	Outside Spigot
234	Swallow Hill Road	Pownal	Drilled Bedrock	600	4/4/2016	14:08:00	14:18:00	60404161418	Yes	Culligan	Septic	Yes	Sediment	Pressure Tank Spigot
302	Swallow Hill Road	Pownal	Drilled Bedrock		3/29/2016	17:52:00	18:02:00	10329161802	Yes	GE	Septic	Yes	Sediment	Pressure Tank Spigot
379	Swallow Hill Road	Pownal	Drilled Bedrock		4/4/2016	14:27:00	14:37:00	60404161437	Yes	Impress	Septic	Yes	Sediment	Pressure Tank Spigot
31	White Birch Lane	Pownal	Unknown		3/30/2016	16:17:00	16:27:00	30330161627	Yes	Best water sof		Yes	Sediment	Pressure Tank Spigot
154	Wood road	North Pownal	Drilled Bedrock	80	11/10/2016	12:55:00	13:05:00	91110161305	Yes	Culligan		Yes	Sediment	Pressure Tank Spigot

**WATER SUPPLY WELL SAMPLING DATABASE  
POWNA, VERMONT**

Street Number	Street Name	Other Sample Location	Aerator Removed	Odor	Color	Sample Area Inventory/Use	General Comments	PFOA	PFHpA	PFOS	Initial Sample (I)/Resample (R) or POET	PFOA Resample	PFHpA Resample	PFOS Resample
3199	Route 346	POET influent	None Present	No	No	Basement	POET influent 07112116Dup1				POET	11.4	ND/<1.0	ND/<2.2
3199	Route 346	POET middle	None Present	No	No	Basement	POET middle				POET	ND/<2.2	ND/<1.0	ND/<2.2
3199	Route 346	POET effluent	None Present	No	No	Basement	POET effluent				POET	ND/<2.2	ND/<1.0	ND/<2.2
3199	Route 346										POET	<b>33.5</b>	3.52	9.35
3199	Route 346										POET	ND/<1.2	ND/<0.8	ND/<1.7
3199	Route 346	POET middle		No	No	Basement	POET middle				POET	ND/<1.2	ND/<0.8	ND/<1.7
3199	Route 346	POET influent		No	No	Basement	POET influent				POET	17.7	1.68 J	7.72
3227	Route 346		None Present	No	No	Kitchen	Dup 1	ND/<6.7	ND/<3.3	ND/<13.	I			
3239	Route 346		None Present	No	No	Side of house	Lab dup1	16.5	1.83 J	7.58 J	I			
3244	Route 346		None Present	No	No	Basement	Two wells. Driven well sampled a	ND/<6.7	ND/<3.3	ND/<13.	I			
3244	Route 346						Two wells. Driven well sampled a	ND/<6.7	ND/<3.3	ND/<13.	I			
3260	Route 346		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
3261	Route 346		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
3266	Route 346		None Present	No	No	Basement	Lab dup 1	ND/<2.3	ND/<1.0	ND/<3.8	I			
3310	Route 346			No	No	Outside		ND/<1.2	ND/<0.8	ND/<1.7	I	ND/<1.2	ND/<0.8	ND/<1.7
3324	Route 346		No	No	No	Kitchen	No sigot on pressure tank also no	ND/<6.7	ND/<3.3	ND/<13.	I			
3437	Route 346		No	No	No	Ast, crawlspace	Jet pump	8.6	ND/<3.3	ND/<13.	I			
3438	Route 346		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
3454	Route 346		None Present	No	No	Basement	07120716dup1	6.13 J	ND/<1.0	ND/<2.2	I			
3474	Route 346		None Present	No	No	Basement		7.66	ND/<3.3	ND/<13.	I			
3494	Route 346		None Present	No	No	Basement		7.47	ND/<3.3	ND/<13.	I			
3503	Route 346		None Present	No	No	Basement	Dup 4	7.77	ND/<3.3	ND/<13.	I			
3535	Route 346		Yes	No	No	Kitchen		ND/<6.7	ND/<3.3	ND/<13.	I			
3554	Route 346		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
3573	Route 346		None Present	No	No	Kitchen		ND/<6.7	ND/<3.3	ND/<13.	I			
3610	Route 346		None Present	No	No	Ast furnace shop		ND/<6.7	ND/<3.3	ND/<13.	I			
4251	Route 346		None Present	No	No	Basement		5.84 J	ND/<1.0	ND/<3.8	I			
5724	Route 7		None Present	No	No	Motocycle, machine tools, clean		ND/<6.7	ND/<3.3	ND/<13.	I			
5939	Route 7		None Present	No	No	Storage, mostly empty	Water system has 3 four hundred	ND/<6.7	ND/<3.3	ND/<13.	I			
5952	Route 7		None Present	No	No	Paints heating oil tank		ND/<6.7	ND/<3.3	ND/<13.	I			
5970	Route 7		None Present	No	No	Office equipment		ND/<6.7	ND/<3.3	ND/<13.	I			
5993	Route 7		None Present	No	No	No chemicals		ND/<6.7	ND/<3.3	ND/<13.	I			
6275	Route 7		None Present	No	No	Wd40 paint		ND/<6.7	ND/<3.3	ND/<13.	I			
6380	Route 7	Hydrant on south side of gran	None Present	No	No	Hydrant		ND/<6.7	ND/<3.3	ND/<13.	I			
	Route 7		None Present	No	No	Spring	Spring along route 7	ND/<6.7	ND/<3.3	ND/<13.	I			
38	Skyborrow Road		None Present	No	No	Kitchen	Surface water sample was also t	ND/<6.7	ND/<3.3	ND/<13.	I			
138	Swallow Hill Road		None Present	No	No	Basement		ND/<6.7	ND/<3.3	ND/<13.	I			
171	Swallow Hill Road		None Present	No	No	Basement	Lab blank	ND/<6.7	ND/<3.3	ND/<13.	I			
191	Swallow Hill Road		None Present	No	No	Storage,workout		ND/<6.7	ND/<3.3	ND/<13.	I			
196	Swallow Hill Road		None Present	No	No	Septice/propane	Owner out of town. Requested o	ND/<6.7	ND/<3.3	ND/<13.	I			
234	Swallow Hill Road		No	No	No	Woodshop, 275 ast, storage		ND/<6.7	ND/<3.3	ND/<13.	I			
302	Swallow Hill Road		None Present	No	No	Basement/Pellot heater		ND/<6.7	ND/<3.3	ND/<13.	I			
379	Swallow Hill Road		None Present	No	No	Storage		ND/<6.7	ND/<3.3	ND/<13.	I			
31	White Birch Lane		None Present	No	No	Storage		<b>24.2</b>	ND/<3.3	ND/<13.	I			
154	Wood road		No	No	No	Basement		ND/<2.3	ND/<1.0	ND/<3.8	I			

## APPENDIX C

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257635

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912586 050330160935 Collected: 03/30/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	90.14%						S
C13-PFDA (SURR)	90.921%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257635

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912588 050330161008 Collected: 03/30/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	90.916%						S
C13-PFDA (SURR)	97.247%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257635

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912590 050330161038 Collected: 03/30/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	87.031%						S
C13-PFDA (SURR)	88.451%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257635

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912592 050330161104 Collected: 03/30/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	85.751%						S
C13-PFDA (SURR)	88.164%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257635

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912594 050330161125 Collected: 03/30/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	88.181%						S
C13-PFDA (SURR)	88.147%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257635

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912596 050330161300 Collected: 03/30/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	85.816%						S
C13-PFDA (SURR)	83.768%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257635

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912598 050330161235 Collected: 03/30/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	88.32%						S
C13-PFDA (SURR)	92.603%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257635

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912600 050330161213 Collected: 03/30/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0156	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	89.855%						S
C13-PFDA (SURR)	91.548%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257635

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912601 050330161213 FB Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	100.278%					S
C13-PFDA (SURR)	107.001%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257635

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912602 050330161251 Collected: 03/30/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0163	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	100.158%						S
C13-PFDA (SURR)	100.179%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257635

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912603 050330161251 FB Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	97.688%					S
C13-PFDA (SURR)	104.352%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257635

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/06/2016 11:05

Sample: 912604 050330161153 Collected: 03/30/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	82.431%						S
C13-PFDA (SURR)	88.253%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912606 010329161138 Collected: 03/29/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	87.815%						S
C13-PFDA (SURR)	92.714%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912608 010329161214 Collected: 03/29/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	91.404%						S
C13-PFDA (SURR)	99.703%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912610 010329161235 Collected: 03/29/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	94.777%						S
C13-PFDA (SURR)	101.088%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912612 010329161410 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	84.329%						S
C13-PFDA (SURR)	93.91%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912614 010329161436 Collected: 03/29/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	90.3%						S
C13-PFDA (SURR)	89.676%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257636

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912616 010329161456 Collected: 03/29/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	90.756%						S
C13-PFDA (SURR)	97.594%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912618 040329161413 Collected: 03/29/16 Analyzed: 04/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0162	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	94.04%						S
C13-PFDA (SURR)	94.019%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912619 040329161413 FB Collected: 03/29/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	96.018%					S
C13-PFDA (SURR)	107.783%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912620 040329161505 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	88.873%						S
C13-PFDA (SURR)	96.154%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912622 04032916DUP-1 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	98.215%						S
C13-PFDA (SURR)	102.023%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912624 DUP010100 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	91.373%						S
C13-PFDA (SURR)	97.431%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912626 040329161434 Collected: 03/29/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	89.394%						S
C13-PFDA (SURR)	71.234%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912628 040329161440 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0126	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	101.243%						S
C13-PFDA (SURR)	95.907%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257636

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912629 040329161440 FB Collected: 03/29/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	101.007%					S
C13-PFDA (SURR)	113.411%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912630 040329161150 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	0.00434	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0662	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	85.087%						S
C13-PFDA (SURR)	93.76%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title:

Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912631 040329161150 FB Collected: 03/29/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	89.049%					S
C13-PFDA (SURR)	104.998%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 257636

Project Description: Chem Fab

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 08:44

Sample: 912632 040329161220 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	94.39%						S
C13-PFDA (SURR)	99.195%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912700 050329161618 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	96.68%						S
C13-PFDA (SURR)	105.901%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912702 050329161441 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	100.181%						S
C13-PFDA (SURR)	108.207%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912704 050329161724 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	0.0059	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0442	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	101.162%						S
C13-PFDA (SURR)	108.074%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912705 050329161724 FB Collected: 03/29/16 Analyzed: 04/06/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	98.494%					S
C13-PFDA (SURR)	107.704%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912706 050329261659 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	91.846%						S
C13-PFDA (SURR)	95.353%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912708 050329161813 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	93.286%						S
C13-PFDA (SURR)	97.752%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912710 050329161747 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	81.814%						S
C13-PFDA (SURR)	87.31%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912712 010329161618 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	86.218%						S
C13-PFDA (SURR)	91.741%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912714 010329161632 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	97.352%						S
C13-PFDA (SURR)	104.792%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912716 010329161802 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	94.011%						S
C13-PFDA (SURR)	101.341%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912718 010329161825 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	90.827%						S
C13-PFDA (SURR)	97.898%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912720 010329161550 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	94.856%						S
C13-PFDA (SURR)	93.732%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912722 010329161707 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	94.728%						S
C13-PFDA (SURR)	103.11%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912724 010329161845 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0128	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	0.0151	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	91.962%						S
C13-PFDA (SURR)	97.421%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912725 010329161845 FB Collected: 03/29/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	96.443%					S
C13-PFDA (SURR)	107.695%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912726 010329161737 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	84.648%						S
C13-PFDA (SURR)	89.346%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912728 010329161723 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	83.477%						S
C13-PFDA (SURR)	96.639%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257666

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:44

Sample: 912730 010329161905 Collected: 03/29/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	84.666%						S
C13-PFDA (SURR)	74.323%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912737 010330161423 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	81.181%						S
C13-PFDA (SURR)	79.854%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912739 010330161245 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	85.427%						S
C13-PFDA (SURR)	92.903%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912741 010330161312 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0227	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	79.45%						S
C13-PFDA (SURR)	88.977%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912742 010330161312 FB Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	91.238%					S
C13-PFDA (SURR)	106.001%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912743 010330161120 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	80.516%						S
C13-PFDA (SURR)	91.451%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912745 010330161051 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0138	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	73.544%						S
C13-PFDA (SURR)	75.652%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912746 010330161051 FB Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	99.971%					S
C13-PFDA (SURR)	112.61%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912747 010330161414 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	72.858%						S
C13-PFDA (SURR)	78.52%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912749 050330161419 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	74.432%						S
C13-PFDA (SURR)	83.708%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912751 010330161023 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	77.663%						S
C13-PFDA (SURR)	86.875%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912753 010330161057 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	74.914%						S
C13-PFDA (SURR)	77.899%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912755 010330161435 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.00719	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	76.167%						S
C13-PFDA (SURR)	85.151%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912756 010330161435 FB Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	95.922%					S
C13-PFDA (SURR)	108.391%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912757 Dup 010101 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	73.515%						S
C13-PFDA (SURR)	80.406%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257670

Project Description: Pownal Fire Department #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 13:46

Sample: 912759 Dup 010102 Collected: 03/30/16 Analyzed: 04/02/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	71.518%						S
C13-PFDA (SURR)	72.124%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913082 010330161723 Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0083	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	94.921%						S
C13-PFDA (SURR)	107.055%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913083 010330161723 FB Collected: 03/30/16 Analyzed: 04/06/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	95.373%					S
C13-PFDA (SURR)	111.611%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913084 010330161656 Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	102.218%						S
C13-PFDA (SURR)	98.193%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913086 010330161602 Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	93.939%						S
C13-PFDA (SURR)	101.362%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913088 010330161627 Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0242	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	100.23%						S
C13-PFDA (SURR)	117.516%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913089 010330161627 FB Collected: 03/30/16 Analyzed: 04/06/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	100.319%					S
C13-PFDA (SURR)	115.438%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913090 010331160735 Collected: 03/31/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	98.017%						S
C13-PFDA (SURR)	98.418%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913092 050330161719 Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	98.751%						S
C13-PFDA (SURR)	103.709%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913094 050330161737 Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	95.148%						S
C13-PFDA (SURR)	111.178%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913096 050330161756 Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	91.657%						S
C13-PFDA (SURR)	96.911%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257768

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/08/2016 14:58

Sample: 913098 050330161656 Collected: 03/30/16 Analyzed: 04/04/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	99.255%						S
C13-PFDA (SURR)	116.853%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257944

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/07/2016 14:00

Sample: 913662 060404161238 Collected: 04/04/16 Analyzed: 04/06/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	92.396%						S
C13-PFDA (SURR)	104.415%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257964

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/11/2016 14:56

Sample: 913702 060404161159 Collected: 04/04/16 Analyzed: 04/07/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	103.953%						S
C13-PFDA (SURR)	99.187%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257964

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/11/2016 14:56

Sample: 913704 060404161321 Collected: 04/04/16 Analyzed: 04/07/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	107.31%						S
C13-PFDA (SURR)	111.884%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257964

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/11/2016 14:56

Sample: 913706 060404161337 Collected: 04/04/16 Analyzed: 04/07/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	99.089%						S
C13-PFDA (SURR)	97.116%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257964

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/11/2016 14:56

Sample: 913708 060404161418 Collected: 04/04/16 Analyzed: 04/07/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	100.022%						S
C13-PFDA (SURR)	94.692%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257964

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/11/2016 14:56

Sample: 913710 060404161437 Collected: 04/04/16 Analyzed: 04/07/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	95.142%						S
C13-PFDA (SURR)	103.234%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 257964

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 04/11/2016 14:56

Sample: 913712 060404161708 Collected: 04/04/16 Analyzed: 04/07/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	92.81%						S
C13-PFDA (SURR)	99.801%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918442 020427161149 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0086	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	104.068%						S
C13-PFDA (SURR)	81.863%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918443 020427161149 FB Collected: 04/27/16 Analyzed: 05/05/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	91.234%					S
C13-PFDA (SURR)	80.388%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918444 020427161227 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	97.368%						S
C13-PFDA (SURR)	77.022%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918446 020427161257 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.00723	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	97.169%						S
C13-PFDA (SURR)	77.429%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918447 020427161257 FB Collected: 04/27/16 Analyzed: 05/05/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	88.719%					S
C13-PFDA (SURR)	80.04%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918448 020427161328 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	92.956%						S
C13-PFDA (SURR)	76.91%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918450 020427161413 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	97.871%						S
C13-PFDA (SURR)	78.029%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918452 020427161521 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0249	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	103.247%						S
C13-PFDA (SURR)	75.813%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918454 020427161604 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	97.914%						S
C13-PFDA (SURR)	72.814%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918456 020427161616 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	91.707%						S
C13-PFDA (SURR)	70.45%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918458 020427161658 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.00702	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	97.711%						S
C13-PFDA (SURR)	75.271%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918459 020427161658 FB Collected: 04/27/16 Analyzed: 05/05/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	87.226%					S
C13-PFDA (SURR)	72.855%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918460 02042716 DUP Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	103.832%						S
C13-PFDA (SURR)	75.912%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918462 020427161747 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	0.00427	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0432	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	103.319%						S
C13-PFDA (SURR)	77.088%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918464 020427161846 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	96.661%						S
C13-PFDA (SURR)	76.965%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 259337

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/06/2016 15:38

Sample: 918466 020427161506 Collected: 04/27/16 Analyzed: 05/03/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	93.117%						S
C13-PFDA (SURR)	77.604%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 260427

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/25/2016 13:36

Sample: 922256 020511161635 Collected: 05/11/16 Analyzed: 05/24/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	88.149%						S
C13-PFDA (SURR)	96.771%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 260427

Project Description: Pownal FD #2

Project Title: Template: 537UCMR3FB Printed: 05/25/2016 13:36

Sample: 922258 020511161740 Collected: 05/11/16 Analyzed: 05/24/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	98.393%						S
C13-PFDA (SURR)	87.596%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 261493

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/14/2016 15:40

Sample: 925956 070608161405 Collected: 06/08/16 Analyzed: 06/13/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	98.104%						S
C13-PFDA (SURR)	100.057%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261493

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/14/2016 15:40

Sample: 925958 070608161438 Collected: 06/08/16 Analyzed: 06/13/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	96.589%						S
C13-PFDA (SURR)	95.243%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Page 3 of 9

Customer: Weston &amp; Sampson

NLS Project: 261493

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/14/2016 15:40

Sample: 925960 070608161508 Collected: 06/08/16 Analyzed: 06/13/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	102.913%						S
C13-PFDA (SURR)	100.233%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261493

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/14/2016 15:40

Sample: 925962 070608161518 Collected: 06/08/16 Analyzed: 06/13/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	99.739%						S
C13-PFDA (SURR)	103.909%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261493

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/14/2016 15:40

Sample: 925964 070608161528 Collected: 06/08/16 Analyzed: 06/13/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	0.00524	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0328	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	0.0191	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	98.88%						S
C13-PFDA (SURR)	93.759%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261493

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/14/2016 15:40

Sample: 925966 070608161538 Collected: 06/08/16 Analyzed: 06/13/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	96.285%						S
C13-PFDA (SURR)	91.576%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261493

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/14/2016 15:40

Sample: 925968 070608160855 Collected: 06/09/16 Analyzed: 06/13/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	89.704%						S
C13-PFDA (SURR)	87.971%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Page 8 of 9

Customer: Weston &amp; Sampson

NLS Project: 261493

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/14/2016 15:40

Sample: 925970 070608160933 Collected: 06/09/16 Analyzed: 06/13/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	96.987%						S
C13-PFDA (SURR)	94.881%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261493

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/14/2016 15:40

Sample: 925972 07060816 Dup 3 Collected: 06/09/16 Analyzed: 06/13/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	98.965%						S
C13-PFDA (SURR)	86.001%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926597 070609161220 Collected: 06/09/16 Analyzed: 06/17/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.00752	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	90.303%						S
C13-PFDA (SURR)	71.077%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926599 070609161220 FB Collected: 06/09/16 Analyzed: 06/21/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	93.368%					S
C13-PFDA (SURR)	99.487%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926600 070609161235 Collected: 06/09/16 Analyzed: 06/17/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	89.358%						S
C13-PFDA (SURR)	76.54%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926602 070609161300 Collected: 06/09/16 Analyzed: 06/17/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	82.256%						S
C13-PFDA (SURR)	75.441%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926604 070609161321 Collected: 06/09/16 Analyzed: 06/17/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	87.539%						S
C13-PFDA (SURR)	78.894%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926606 070609161352 Collected: 06/09/16 Analyzed: 06/17/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.00747	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	78.222%						S
C13-PFDA (SURR)	71.758%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926607 070609161352 FB Collected: 06/09/16 Analyzed: 06/21/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	95.757%					S
C13-PFDA (SURR)	110.138%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926608 070609161409 Collected: 06/09/16 Analyzed: 06/17/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	84.629%						S
C13-PFDA (SURR)	73.751%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926610 070609161618 Collected: 06/09/16 Analyzed: 06/17/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.00777	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	82.538%						S
C13-PFDA (SURR)	79.433%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926611 070609161618 FB Collected: 06/09/16 Analyzed: 06/21/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	102.823%					S
C13-PFDA (SURR)	99.466%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926612 070609161638 Collected: 06/09/16 Analyzed: 06/17/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	76.02%						S
C13-PFDA (SURR)	73.162%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926614 07060916 Dup 4 Collected: 06/09/16 Analyzed: 06/17/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.00774	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	81.698%						S
C13-PFDA (SURR)	75.046%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 261637

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 06/24/2016 11:44

Sample: 926615 07060916 Dup 4 FB Collected: 06/09/16 Analyzed: 06/21/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	101.413%					S
C13-PFDA (SURR)	103.332%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929781 070622161503 Collected: 06/22/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.00766	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	106.961%						S
C13-PFDA (SURR)	86.434%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929783 070622161521 Collected: 06/22/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	107.431%						S
C13-PFDA (SURR)	80.712%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929785 070622161546 Collected: 06/22/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	102.571%						S
C13-PFDA (SURR)	93.457%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929787 070623160845 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	93.972%						S
C13-PFDA (SURR)	90.286%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929789 070623160850 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	101.956%						S
C13-PFDA (SURR)	95.11%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929791 070623160930 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	95.078%						S
C13-PFDA (SURR)	85.607%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929793 070623160945 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	97.928%						S
C13-PFDA (SURR)	82.78%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929795 070623160958 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	101.399%						S
C13-PFDA (SURR)	84.472%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929797 070623161020 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	101.343%						S
C13-PFDA (SURR)	95.576%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929799 07062316 Dup 1 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	103.901%						S
C13-PFDA (SURR)	93.504%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929801 070623161036 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	103.538%						S
C13-PFDA (SURR)	94.154%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929803 070623161722 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	103.147%						S
C13-PFDA (SURR)	91.46%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262426

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/05/2016 14:52

Sample: 929805 070623161138 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	106.785%						S
C13-PFDA (SURR)	105.25%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929807 070623160906 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	108.082%						S
C13-PFDA (SURR)	91.269%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929809 070623161316 Collected: 06/23/16 Analyzed: 07/05/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.00747	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	100.101%						S
C13-PFDA (SURR)	95.766%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929810 070623161316 FB Collected: 06/23/16 Analyzed: 07/06/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	86.152%					S
C13-PFDA (SURR)	87.624%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929811 070623161343 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	102.236%						S
C13-PFDA (SURR)	88.508%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929813 070623161404 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	104.39%						S
C13-PFDA (SURR)	86.562%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929815 070623161547 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0158	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	105.558%						S
C13-PFDA (SURR)	84.185%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929816 070623161547 FB Collected: 06/23/16 Analyzed: 07/05/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	90.033%					S
C13-PFDA (SURR)	98.263%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929817 070623161650 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	108.554%						S
C13-PFDA (SURR)	102.256%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929819 07062316 Dup 2 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0151	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	108.922%						S
C13-PFDA (SURR)	87.804%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929820 07062316 Dup 2 FB Collected: 06/23/16 Analyzed: 07/05/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	93.215%					S
C13-PFDA (SURR)	105.861%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929821 070623161700 Collected: 06/23/16 Analyzed: 06/30/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.013	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	105.183%						S
C13-PFDA (SURR)	96.714%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929822 070623161700 FB Collected: 06/23/16 Analyzed: 07/05/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	93.603%					S
C13-PFDA (SURR)	109.562%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929823 070623161743 Collected: 06/23/16 Analyzed: 07/05/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	0.0195	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	101.964%						S
C13-PFDA (SURR)	103.397%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title: Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929824 070623161743 FB Collected: 06/23/16 Analyzed: 07/06/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030	
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033	
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010	
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067	
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067	
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013	
C13-PFHxA (SURR)	102.568%					S
C13-PFDA (SURR)	97.616%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 262427

Project Description: Pownal

Project Title:

Template: 537UCMR3FB Printed: 07/07/2016 16:23

Sample: 929825 070623161755 Collected: 06/23/16 Analyzed: 07/05/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ug/L	1	0.030	0.030		
perfluoroheptanoic acid (PFHpA)	ND	ug/L	1	0.0033	0.0033		
perfluorohexanesulfonic acid (PFHxS)	ND	ug/L	1	0.010	0.010		
perfluorooctanoic acid (PFOA)	ND	ug/L	1	0.0067	0.0067		
perfluorononanoic acid (PFNA)	ND	ug/L	1	0.0067	0.0067		
perfluorooctanesulfonic acid (PFOS)	ND	ug/L	1	0.013	0.013		
C13-PFHxA (SURR)	94.363%						S
C13-PFDA (SURR)	94.747%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 263649

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 08/03/2016 15:11

Sample: 933836 070715161038 Collected: 07/15/16 Analyzed: 07/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	18	61		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	2.8	9.2		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	6.2	21		
perfluorooctanoic acid (PFOA)	[11]	ppt	1	4.4	15		J
perfluorononanoic acid (PFNA)	ND	ppt	1	6.2	21		
perfluorooctanesulfonic acid (PFOS)	[9.41]	ppt	1	7.9	26		J
C13-PFHxA (SURR)	88.993%						S
C13-PFDA (SURR)	88.263%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 263649

Project Description: Pownal

Project Title: Template: 537PPT Printed: 08/03/2016 15:11

Sample: 933837 070715161038 FB Collected: 07/15/16 Analyzed: 08/01/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	18	61	
perfluoroheptanoic acid (PFHpA)	ND	ppt		1	2.8	9.2	
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	6.2	21	
perfluorooctanoic acid (PFOA)	ND	ppt		1	4.4	15	
perfluorononanoic acid (PFNA)	ND	ppt		1	6.2	21	
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	7.9	26	
C13-PFHxA (SURR)	74.657%						S
C13-PFDA (SURR)	102.287%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 263649

Project Description: Pownal

Project Title: Template: 537PPT Printed: 08/03/2016 15:11

Sample: 933838 070715161110 Collected: 07/15/16 Analyzed: 07/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	18	61		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	2.8	9.2		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	6.2	21		
perfluorooctanoic acid (PFOA)	28.9	ppt	1	4.4	15		
perfluorononanoic acid (PFNA)	ND	ppt	1	6.2	21		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	7.9	26		
C13-PFHxA (SURR)	83.901%						S
C13-PFDA (SURR)	81.044%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 263649

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 08/03/2016 15:11

Sample: 933840 070715161150 Collected: 07/15/16 Analyzed: 07/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	18	61		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	2.8	9.2		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	6.2	21		
perfluorooctanoic acid (PFOA)	ND	ppt	1	4.4	15		
perfluorononanoic acid (PFNA)	ND	ppt	1	6.2	21		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	7.9	26		
C13-PFHxA (SURR)	94.091%						S
C13-PFDA (SURR)	101.308%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 263649

Project Description: Pownal

Project Title: Template: 537PPT Printed: 08/03/2016 15:11

Sample: 933842 07071516 Dup 2 Collected: 07/15/16 Analyzed: 07/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	18	61		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	2.8	9.2		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	6.2	21		
perfluorooctanoic acid (PFOA)	ND	ppt	1	4.4	15		
perfluorononanoic acid (PFNA)	ND	ppt	1	6.2	21		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	7.9	26		
C13-PFHxA (SURR)	89.605%						S
C13-PFDA (SURR)	92.926%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis****Customer: Weston & Sampson NLS Project: 265504****Project Description: Pownal****Project Title: Template: 537PPT Printed: 08/30/2016 14:49**

Sample: 939516 070815161115 Collected: 08/15/16 Analyzed: 08/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	8.04	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	[4.82]	ppt	1	3.8	13		J
C13-PFHxA (SURR)	113.851%						S
C13-PFDA (SURR)	82.976%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 265504

Project Description: Pownal

Project Title: Template: 537PPT Printed: 08/30/2016 14:49

Sample: 939517 070815161115 FB Collected: 08/15/16 Analyzed: 08/29/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37	
perfluoroheptanoic acid (PFHpA)	ND	ppt		1	1.0	3.3	
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	3.8	13	
perfluorooctanoic acid (PFOA)	ND	ppt		1	2.3	7.6	
perfluorononanoic acid (PFNA)	ND	ppt		1	2.3	7.7	
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	3.8	13	
C13-PFHxA (SURR)	91.365%						S
C13-PFDA (SURR)	112.843%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 265504

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 08/30/2016 14:49

Sample: 939518 070815161210 Collected: 08/15/16 Analyzed: 08/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[2.48]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	20.4	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	[7.86]	ppt	1	3.8	13		J
C13-PFHxA (SURR)	116.249%						S
C13-PFDA (SURR)	87.893%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 265504

Project Description: Pownal

Project Title: Template: 537PPT Printed: 08/30/2016 14:49

Sample: 939520 070815161240 Collected: 08/15/16 Analyzed: 08/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	108.895%						S
C13-PFDA (SURR)	89.478%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 265504

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 08/30/2016 14:49

Sample: 939522 070815161300 Collected: 08/15/16 Analyzed: 08/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	[18.6]	ppt	1	11	37		J
perfluoroheptanoic acid (PFHpA)	55.1	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	450	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	283	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	[4.17]	ppt	1	2.3	7.7		J
perfluorooctanesulfonic acid (PFOS)	173	ppt	1	3.8	13		
C13-PFHxA (SURR)	169.146%						SR S
C13-PFDA (SURR)	85.56%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

SR = Surrogate recovery was outside QC limits.

C13-PFHxA recovered above QC limits.

High surrogate recovery was confirmed by a second extraction and analysis.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 265504

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 08/30/2016 14:49

Sample: 939524 07081516 Dup 1 Collected: 08/15/16 Analyzed: 08/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[2.29]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	19.7	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	[7.63]	ppt	1	3.8	13		J
C13-PFHxA (SURR)	115.502%						S
C13-PFDA (SURR)	86.633%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 265504

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 08/30/2016 14:49

Sample: 939525 07081516 Dup 1 FB Collected: 08/15/16 Analyzed: 08/29/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37	
perfluoroheptanoic acid (PFHpA)	ND	ppt		1	1.0	3.3	
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	3.8	13	
perfluorooctanoic acid (PFOA)	ND	ppt		1	2.3	7.6	
perfluorononanoic acid (PFNA)	ND	ppt		1	2.3	7.7	
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	3.8	13	
C13-PFHxA (SURR)	103.326%						S
C13-PFDA (SURR)	120.823%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 265504

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 08/30/2016 14:49

Sample: 939526 070815161410 Collected: 08/15/16 Analyzed: 08/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	7.72	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	107.628%						S
C13-PFDA (SURR)	85.913%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 265504

Project Description: Pownal

Project Title: Template: 537PPT Printed: 08/30/2016 14:49

Sample: 939527 070815161410 FB Collected: 08/15/16 Analyzed: 08/29/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37	
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3	
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13	
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6	
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7	
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13	
C13-PFHxA (SURR)	93.48%					S
C13-PFDA (SURR)	113.292%					S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 265504

Project Description: Pownal

Project Title: Template: 537PPT Printed: 08/30/2016 14:49

Sample: 939528 070815161510 Collected: 08/15/16 Analyzed: 08/25/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	[5.84]	ppt	1	2.3	7.6		J
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	104%						S
C13-PFDA (SURR)	86.412%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 UCMR3 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 265504

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 08/30/2016 14:49

Sample: 939529 070815161510 FB Collected: 08/15/16 Analyzed: 08/29/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS	WWB	DIL	LOD	LOQ	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt		1	11	37	
perfluoroheptanoic acid (PFHpA)	ND	ppt		1	1.0	3.3	
perfluorohexanesulfonic acid (PFHxS)	ND	ppt		1	3.8	13	
perfluorooctanoic acid (PFOA)	ND	ppt		1	2.3	7.6	
perfluorononanoic acid (PFNA)	ND	ppt		1	2.3	7.7	
perfluorooctanesulfonic acid (PFOS)	ND	ppt		1	3.8	13	
C13-PFHxA (SURR)	89.082%						S
C13-PFDA (SURR)	120.898%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271037

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/23/2016 12:06

Sample: 959046 071110161340 Collected: 11/10/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[1.43]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	22.7	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	93.725%						S
C13-PFDA (SURR)	92.308%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271037

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/23/2016 12:06

Sample: 959054 071111160830 Collected: 11/11/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	[4.33]	ppt	1	2.3	7.6		J
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	90.969%						S
C13-PFDA (SURR)	87.647%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271037

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/23/2016 12:06

Sample: 959062 07111016 Dup 1 Collected: 11/10/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[1.32]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	22.2	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	94.279%						S
C13-PFDA (SURR)	92.474%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271037

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/23/2016 12:06

Sample: 959076 071110161206 Collected: 11/10/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[1.83]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	16.5	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	[7.58]	ppt	1	3.8	13		J
C13-PFHxA (SURR)	88.527%						S
C13-PFDA (SURR)	89.955%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 271039

Project Description: Pownal

Project Title: Template: 537PPT Printed: 11/30/2016 10:28

Sample: 959091 091110161103 Collected: 11/10/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	4.52	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	39.7	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	[5.16]	ppt	1	3.8	13		J
C13-PFHxA (SURR)	90.931%						S
C13-PFDA (SURR)	86.617%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271039

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/30/2016 10:28

Sample: 959093 091110161125 Collected: 11/10/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[1.43]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	15.6	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	100.227%						S
C13-PFDA (SURR)	96.434%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271039

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/30/2016 10:28

Sample: 959095 091110161149 Collected: 11/10/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	87.104%						S
C13-PFDA (SURR)	87.574%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271039

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/30/2016 10:28

Sample: 959097 091110161215 Collected: 11/10/16 Analyzed: 11/22/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	91.021%						S
C13-PFDA (SURR)	93.534%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271039

Project Description: Pownal

Project Title: Template: 537PPT Printed: 11/30/2016 10:28

Sample: 959099 091110161240 Collected: 11/10/16 Analyzed: 11/23/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	102.557%						S
C13-PFDA (SURR)	106.013%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271039

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/30/2016 10:28

Sample: 959101 091110161305 Collected: 11/10/16 Analyzed: 11/23/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	100.528%						S
C13-PFDA (SURR)	96.76%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Page 7 of 11

**Customer: Weston & Sampson****NLS Project: 271039****Project Description: Pownal****Project Title:****Template: 537PPT Printed: 11/30/2016 10:28**

Sample: 959103 091110161410 Collected: 11/10/16 Analyzed: 11/23/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	[2.44]	ppt	1	2.3	7.6		J
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	95.638%						S
C13-PFDA (SURR)	91.01%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271039

Project Description: Pownal

Project Title: Template: 537PPT Printed: 11/30/2016 10:28

Sample: 959105 091110161425 Collected: 11/10/16 Analyzed: 11/23/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	102.33%						S
C13-PFDA (SURR)	104.32%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271039

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/30/2016 10:28

Sample: 959107 09111016 Dup 1 Collected: 11/10/16 Analyzed: 11/23/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	[2.7]	ppt	1	2.3	7.6		J
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	105.473%						S
C13-PFDA (SURR)	107.786%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271039

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/30/2016 10:28

Sample: 959109 091110161700 Collected: 11/10/16 Analyzed: 11/23/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[2.28]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	21.6	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	119.716%						S
C13-PFDA (SURR)	102.215%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 271039

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 11/30/2016 10:28

Sample: 959111 091111160955 Collected: 11/11/16 Analyzed: 11/23/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	[6.78]	ppt	1	2.3	7.6		J
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	114.122%						S
C13-PFDA (SURR)	111.811%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Page 1 of 1

Customer: Weston &amp; Sampson

NLS Project: 271509

Project Description: Pownal

Project Title: Template: 537PPT Printed: 12/07/2016 16:37

Sample: 961077 071122160825 Collected: 11/22/16 Analyzed: 12/06/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	[3.74]	ppt	1	2.3	7.6		J
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	81.112%						S
C13-PFDA (SURR)	80.583%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Page 1 of 6

**Customer: Weston & Sampson NLS Project: 272214****Project Description: Pownal****Project Title: Template: 537PPT2 Printed: 12/19/2016 21:13**

Sample: 965635 071207161235 Collected: 12/07/16 Analyzed: 12/15/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	7.2	23		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.2		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	1.4	4.4		
perfluorooctanoic acid (PFOA)	17.7	ppt	1	2.2	7.1		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.1	3.5		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	2.2	7.0		
C13-PFHxA (SURR)	90.396%						S
C13-PFDA (SURR)	81.04%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Page 2 of 6

**Customer: Weston & Sampson NLS Project: 272214****Project Description: Pownal****Project Title: Template: 537PPT2 Printed: 12/19/2016 21:13**

Sample: 965637 071207161255 Collected: 12/07/16 Analyzed: 12/15/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	7.2	23		
perfluoroheptanoic acid (PFHpA)	[2.41]	ppt	1	1.0	3.2		J
perfluorohexanesulfonic acid (PFHxS)	[1.88]	ppt	1	1.4	4.4		J
perfluorooctanoic acid (PFOA)	21.4	ppt	1	2.2	7.1		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.1	3.5		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	2.2	7.0		
C13-PFHxA (SURR)	84.322%						S
C13-PFDA (SURR)	78.303%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 272214

Project Description: Pownal

Project Title: Template: 537PPT2 Printed: 12/19/2016 21:13

Sample: 965639 071207161305 Collected: 12/07/16 Analyzed: 12/15/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	7.2	23		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.2		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	1.4	4.4		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.2	7.1		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.1	3.5		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	2.2	7.0		
C13-PFHxA (SURR)	80.658%						S
C13-PFDA (SURR)	77.037%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 272214

Project Description: Pownal

Project Title: Template: 537PPT2 Printed: 12/19/2016 21:13

Sample: 965641 071207161315 Collected: 12/07/16 Analyzed: 12/15/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	7.2	23		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.2		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	1.4	4.4		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.2	7.1		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.1	3.5		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	2.2	7.0		
C13-PFHxA (SURR)	83.782%						S
C13-PFDA (SURR)	84.655%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis****Customer: Weston & Sampson****NLS Project: 272214****Project Description: Pownal****Project Title: Template: 537PPT2 Printed: 12/19/2016 21:13**

Sample: 965643 071207161340 Collected: 12/07/16 Analyzed: 12/15/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	7.2	23		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.2		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	1.4	4.4		
perfluorooctanoic acid (PFOA)	[6.13]	ppt	1	2.2	7.1		J
perfluorononanoic acid (PFNA)	ND	ppt	1	1.1	3.5		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	2.2	7.0		
C13-PFHxA (SURR)	84.014%						S
C13-PFDA (SURR)	74.32%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 272214

Project Description: Pownal

Project Title:

Template: 537PPT2 Printed: 12/19/2016 21:13

Sample: 965645 07120716 Dup 1 Collected: 12/07/16 Analyzed: 12/15/16 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	7.2	23		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.2		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	1.4	4.4		
perfluorooctanoic acid (PFOA)	7.69	ppt	1	2.2	7.1		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.1	3.5		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	2.2	7.0		
C13-PFHxA (SURR)	81.146%						S
C13-PFDA (SURR)	71.648%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 273642

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 01/18/2017 14:45

Sample: 969776 070111171150 Collected: 01/11/17 Analyzed: 01/17/17 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	128	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	12	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	22.9	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	80.3	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	94.8	ppt	1	3.8	13		
C13-PFHxA (SURR)	83.808%						S
C13-PFDA (SURR)	91.09%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Page 2 of 9

**Customer: Weston & Sampson****NLS Project: 273642****Project Description: Pownal****Project Title: Template: 537PPT Printed: 01/18/2017 14:45**

Sample: 969778 070111171225 Collected: 01/11/17 Analyzed: 01/17/17 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	ND	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	81.505%						S
C13-PFDA (SURR)	89.246%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 273642

Project Description: Pownal

Project Title: Template: 537PPT Printed: 01/18/2017 14:45

Sample: 969780 070111171242 Collected: 01/11/17 Analyzed: 01/17/17 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[1.17]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	12.3	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	87.105%						S
C13-PFDA (SURR)	89.659%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 273642

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 01/18/2017 14:45

Sample: 969782 07011117 Dup1 Collected: 01/11/17 Analyzed: 01/17/17 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	124	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	11.5	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	20.2	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	76	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	83.8	ppt	1	3.8	13		
C13-PFHxA (SURR)	82.655%						S
C13-PFDA (SURR)	91.805%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 273642

Project Description: Pownal

Project Title: Template: 537PPT Printed: 01/18/2017 14:45

Sample: 969784 070111171432 Collected: 01/11/17 Analyzed: 01/17/17 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	14.1	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	83.691%						S
C13-PFDA (SURR)	87.734%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Page 6 of 9

Customer: Weston &amp; Sampson

NLS Project: 273642

Project Description: Pownal

Project Title: Template: 537PPT Printed: 01/18/2017 14:45

Sample: 969786 070111171516 Collected: 01/11/17 Analyzed: 01/17/17 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[1.95]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	19.5	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	77.957%						S
C13-PFDA (SURR)	90.575%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Page 7 of 9

**Customer: Weston & Sampson****NLS Project: 273642****Project Description: Pownal****Project Title: Template: 537PPT Printed: 01/18/2017 14:45**

Sample: 969788 070111171645 Collected: 01/11/17 Analyzed: 01/17/17 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[1.87]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	19.6	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	78.061%						S
C13-PFDA (SURR)	94.152%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 273642

Project Description: Pownal

Project Title: Template: 537PPT Printed: 01/18/2017 14:45

Sample: 969790 070111171707 Collected: 01/11/17 Analyzed: 01/17/17 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	1.0	3.3		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	7.62	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	76.726%						S
C13-PFDA (SURR)	70.636%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 273642

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 01/18/2017 14:45

Sample: 969792 070111171632 Collected: 01/11/17 Analyzed: 01/17/17 - Analytes: 6

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	11	37		
perfluoroheptanoic acid (PFHpA)	[1.76]	ppt	1	1.0	3.3		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	3.8	13		
perfluorooctanoic acid (PFOA)	19.5	ppt	1	2.3	7.6		
perfluorononanoic acid (PFNA)	ND	ppt	1	2.3	7.7		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	3.8	13		
C13-PFHxA (SURR)	82.015%						S
C13-PFDA (SURR)	84.822%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 276486

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 04/03/2017 16:20

Sample: 978559 070316171050 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	[2.26]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	5.55	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	84.9	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	100.04%						S
C13-PFDA (SURR)	98.598%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 276486

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 04/03/2017 16:20

Sample: 978561 070316171100 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	91.957%						S
C13-PFDA (SURR)	94.838%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 276486

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 04/03/2017 16:20

Sample: 978563 070316171125 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	[2.56]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	[2.34]	ppt	1	0.80	2.6		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	14.7	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	18.9	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	93.694%						S
C13-PFDA (SURR)	90.273%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978565 070316171135 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	91.877%						S
C13-PFDA (SURR)	87.752%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978567 070316171200 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	90.67%						S
C13-PFDA (SURR)	95.379%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title:**

**Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978569 070316171210 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	4.8	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	7.54	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[2.83]	ppt	1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	50.7	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	[4.76]	ppt	1	1.7	5.3		J
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	96.835%						S
C13-PFDA (SURR)	88.648%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978571 070316171220 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	89.943%						S
C13-PFDA (SURR)	89.099%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 276486

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 04/03/2017 16:20

Sample: 978573 070316171250 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	[1.11]	ppt	1	0.80	2.6		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	7.29	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	[2.42]	ppt	1	1.7	5.3		J
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	94.622%						S
C13-PFDA (SURR)	88.078%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978575 070316171300 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	91.881%						S
C13-PFDA (SURR)	90.346%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 276486

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 04/03/2017 16:20

Sample: 978577 07031617 Dup 1 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	[2.29]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	5.14	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	83	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	93.316%						S
C13-PFDA (SURR)	93.124%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978579 070316171525 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	[0.86]	ppt	1	0.80	2.6		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	11.3	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	85.71%						S
C13-PFDA (SURR)	80.224%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston & Sampson

NLS Project: 276486

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 04/03/2017 16:20

Sample: 978581 070316171535 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	94.273%						S
C13-PFDA (SURR)	93.671%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 276486

Project Description: Pownal

Template: 537PPT Printed: 04/03/2017 16:20

Sample: 978583 070316171635 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	[2.2]	ppt	1	0.80	2.6		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	23.2	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	94.771%						S
C13-PFDA (SURR)	89.067%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978585 070316171645 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	93.622%						S
C13-PFDA (SURR)	95.292%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978587 070316171655 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	90.313%						S
C13-PFDA (SURR)	90.614%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 276486

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 04/03/2017 16:20

Sample: 978589 070316171710 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	17.8	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	94.603%						S
C13-PFDA (SURR)	95.072%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson

NLS Project: 276486

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 04/03/2017 16:20

Sample: 978591 070316171720 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	84.972%						S
C13-PFDA (SURR)	87.003%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978593 070316171730 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	[2.03]	ppt	1	1.2	3.9		J
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	92.811%						S
C13-PFDA (SURR)	94.854%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston & Sampson

NLS Project: 276486

Project Description: Pownal

Project Title:

Template: 537PPT Printed: 04/03/2017 16:20

Sample: 978595 070316171745 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	[2.22]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	[2.56]	ppt	1	0.80	2.6		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	23.6	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	95.363%						S
C13-PFDA (SURR)	90.103%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978597 07031617 Dup 2 Collected: 03/16/17 Analyzed: 03/25/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	[2.72]	ppt	1	1.2	3.9		J
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	92.239%						S
C13-PFDA (SURR)	91.8%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978599 070316171755 Collected: 03/16/17 Analyzed: 03/28/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	82.359%						S
C13-PFDA (SURR)	89.93%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title:**

**Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978601 070316171815 Collected: 03/16/17 Analyzed: 03/28/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	[9.67]	ppt	1	6.6	21		J
perfluorohexanoic acid (PFHxA)	[3.34]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	3.52	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[3.36]	ppt	1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	33.5	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	9.35	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	83.845%						S
C13-PFDA (SURR)	86.036%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978603 070316171825 Collected: 03/16/17 Analyzed: 03/28/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	75.568%						S
C13-PFDA (SURR)	83.218%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title:**

**Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978605 070316170740 Collected: 03/17/17 Analyzed: 03/28/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	[7.01]	ppt	1	6.6	21		J
perfluorohexanoic acid (PFHxA)	9.83	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	10.2	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[5.66]	ppt	1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	60.8	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	14.4	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	87.886%						S
C13-PFDA (SURR)	88.38%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson**

**NLS Project: 276486**

**Project Description: Pownal**

**Project Title: Template: 537PPT Printed: 04/03/2017 16:20**

Sample: 978607 070316170750 Collected: 03/17/17 Analyzed: 03/28/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	77.396%						S
C13-PFDA (SURR)	87.495%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 277728

Project Description: Pownal VT DEC

Project Title: Template: 537PPT Printed: 04/27/2017 11:01

Sample: 982863 070411171435 Collected: 04/11/17 Analyzed: 04/22/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	6.15	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	11.9	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[4.14]	ppt	1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	86.8	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	7.99	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	95.456%						S
C13-PFDA (SURR)	98.087%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis****Customer: Weston & Sampson NLS Project: 277728****Project Description: Pownal VT DEC****Project Title: Template: 537PPT Printed: 04/27/2017 11:01**

Sample: 982865 070411171445 Collected: 04/11/17 Analyzed: 04/22/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	86.258%						S
C13-PFDA (SURR)	89.113%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 277728**

**Project Description: Pownal VT DEC**

**Project Title: Template: 537PPT Printed: 04/27/2017 11:01**

Sample: 982867 070411171455 Collected: 04/11/17 Analyzed: 04/22/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	86.106%						S
C13-PFDA (SURR)	92.042%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 277728

Project Description: Pownal VT DEC

Project Title: Template: 537PPT Printed: 04/27/2017 11:01

Sample: 982869 070411171510 Collected: 04/11/17 Analyzed: 04/22/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	9.24	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	94.329%						S
C13-PFDA (SURR)	85.698%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 277728

Project Description: Pownal VT DEC

Project Title: Template: 537PPT Printed: 04/27/2017 11:01

Sample: 982871 070411171520 Collected: 04/11/17 Analyzed: 04/22/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	79.824%						S
C13-PFDA (SURR)	92.201%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 277728**

**Project Description: Pownal VT DEC**

**Project Title: Template: 537PPT Printed: 04/27/2017 11:01**

Sample: 982873 070411171530 Collected: 04/11/17 Analyzed: 04/22/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	86.175%						S
C13-PFDA (SURR)	88.87%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 282277

Project Description: Pownal Quarterly Sampling

Project Title: Template: 537PPT Printed: 07/11/2017 13:33

Sample: 1001715 070628171240 Collected: 06/28/17 Analyzed: 07/06/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	96.56%						S
C13-PFDA (SURR)	103.116%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001717 070628171250 Collected: 06/28/17 Analyzed: 07/06/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	6.78	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	8.28	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[4.82]	ppt	1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	74.1	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	[1.71]	ppt	1	1.5	4.9		J
perfluorooctanesulfonic acid (PFOS)	30.9	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	94.415%						S
C13-PFDA (SURR)	95.443%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001719 070628171312 Collected: 06/28/17 Analyzed: 07/06/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	[1.6]	ppt	1	1.2	3.9		J
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	87.539%						S
C13-PFDA (SURR)	96.309%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001721 070628171322 Collected: 06/28/17 Analyzed: 07/06/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	93.935%						S
C13-PFDA (SURR)	104.029%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001723 070628171340 Collected: 06/28/17 Analyzed: 07/06/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	[1.68]	ppt	1	0.80	2.6		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	17.7	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	7.72	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	91.074%						S
C13-PFDA (SURR)	93.228%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001725 070628171350 Collected: 06/28/17 Analyzed: 07/06/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	91.684%						S
C13-PFDA (SURR)	102.828%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001727 070628171400 Collected: 06/28/17 Analyzed: 07/06/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	[3.16]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	4.67	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	47.1	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	5.62	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	87.063%						S
C13-PFDA (SURR)	94.075%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001729 070628171410 Collected: 06/28/17 Analyzed: 07/06/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	93.22%						S
C13-PFDA (SURR)	102.975%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001731 070628171421 Collected: 06/28/17 Analyzed: 07/06/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	[1.53]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	[2.52]	ppt	1	0.80	2.6		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	22	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	[2.03]	ppt	1	1.7	5.3		J
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	89.496%						S
C13-PFDA (SURR)	94.234%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001733 070628171431 Collected: 06/28/17 Analyzed: 07/06/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	86.769%						S
C13-PFDA (SURR)	97.21%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001735 070628171450 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	[0.94]	ppt	1	0.80	2.6		J
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	13.2	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	99.253%						S
C13-PFDA (SURR)	93.551%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282277**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:33**

Sample: 1001737 070628171500 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	93.236%						S
C13-PFDA (SURR)	99.232%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Page 1 of 10

**Customer: Weston & Sampson NLS Project: 282278****Project Description: Pownal Quarterly Sampling****Project Title: Template: 537PPT Printed: 07/11/2017 13:51**

Sample: 1001739 070628171015 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	4.04	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	3.26	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	19.7	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	[1.5]	ppt	1	1.5	4.9		J
perfluorooctanesulfonic acid (PFOS)	27.3	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	92.392%						S
C13-PFDA (SURR)	100.81%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 282278

Project Description: Pownal Quarterly Sampling

Project Title: Template: 537PPT Printed: 07/11/2017 13:51

Sample: 1001741 070628171025 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	92.829%						S
C13-PFDA (SURR)	99.73%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282278**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:51**

Sample: 1001743 070628171050 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	[2.09]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	5.29	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	88.8	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	96.27%						S
C13-PFDA (SURR)	101.018%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

Customer: Weston &amp; Sampson NLS Project: 282278

Project Description: Pownal Quarterly Sampling

Project Title: Template: 537PPT Printed: 07/11/2017 13:51

Sample: 1001745 070628171100 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	107.081%						S
C13-PFDA (SURR)	113.228%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282278**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:51**

Sample: 1001747 070628171142 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	[2.11]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	2.94	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	32.4	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	[3.31]	ppt	1	1.7	5.3		J
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	92.261%						S
C13-PFDA (SURR)	88.892%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282278**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:51**

Sample: 1001749 070628171152 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	91.799%						S
C13-PFDA (SURR)	102.729%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282278**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:51**

Sample: 1001751 070628171210 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	[2.02]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	3.65	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	[3.8]	ppt	1	2.8	8.8		J
perfluorooctanoic acid (PFOA)	41.4	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	6.06	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	92.35%						S
C13-PFDA (SURR)	91.339%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282278**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:51**

Sample: 1001753 070628171220 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	92.639%						S
C13-PFDA (SURR)	96.619%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282278**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:51**

Sample: 1001755 070628171115 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	ND	ppt	1	1.3	4.0		
perfluoroheptanoic acid (PFHpA)	ND	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	ND	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	ND	ppt	1	1.7	5.3		
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	92.699%						S
C13-PFDA (SURR)	94.786%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

S = This compound is a surrogate used to evaluate the quality control of a method.

**ANALYTICAL RESULTS: Perfluorinated Chemicals by EPA 537 Rev 1.1 Safe Drinking Water Analysis**

**Customer: Weston & Sampson NLS Project: 282278**

**Project Description: Pownal Quarterly Sampling**

**Project Title: Template: 537PPT Printed: 07/11/2017 13:51**

Sample: 1001757 07062817 DUP 1 Collected: 06/28/17 Analyzed: 07/07/17 - Analytes: 12

ANALYTE NAME	RESULT	UNITS WWB	DIL	LOD	LOQ	MCL	Note
perfluorobutanesulfonic acid (PFBS)	ND	ppt	1	6.6	21		
perfluorohexanoic acid (PFHxA)	[2.9]	ppt	1	1.3	4.0		J
perfluoroheptanoic acid (PFHpA)	3.27	ppt	1	0.80	2.6		
perfluorohexanesulfonic acid (PFHxS)	ND	ppt	1	2.8	8.8		
perfluorooctanoic acid (PFOA)	37.9	ppt	1	1.2	3.9		
perfluorononanoic acid (PFNA)	ND	ppt	1	1.5	4.9		
perfluorooctanesulfonic acid (PFOS)	[4.0]	ppt	1	1.7	5.3		J
perfluorodecanoic acid (PFDA)	ND	ppt	1	0.90	2.7		
perfluoroundecanoic acid (PFUnA)	ND	ppt	1	1.0	3.0		
perfluorododecanoic acid (PFDoA)	ND	ppt	1	1.9	6.1		
perfluorotridecanoic acid (PFTrDA)	ND	ppt	1	3.2	10		
perfluorotetradecanoic acid (PFTA)	ND	ppt	1	2.8	8.9		
C13-PFHxA (SURR)	106.119%						S
C13-PFDA (SURR)	96.122%						S

**NOTES APPLICABLE TO THIS ANALYSIS:**

J = Result enclosed in brackets is between LOD and LOQ, a region of less certain quantitation.

S = This compound is a surrogate used to evaluate the quality control of a method.

The PFOA branch isotope peak is included in the PFOA calculation per EPA directive.

## APPENDIX D



April 14, 2017  
Refer: OP-3675

Ms. Patricia Coppolino  
State of Vermont  
Department of Environmental Conservation  
Waste Management & Prevention Division  
Sites Management Section  
Environmental Program Manager  
One National Life Drive, Davis 1  
Montpelier, VT 05620-3704

Re: Phase I and Phase II Remedial Investigation Report  
Former General Cable Facility (SMS Site #87-0129)  
Pownal, VT

Dear Ms. Coppolino:

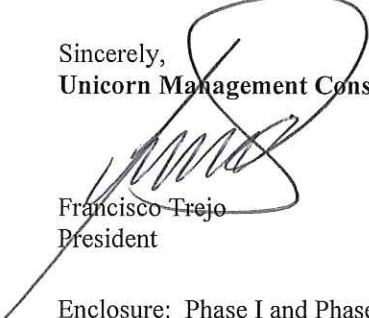
Unicorn Management Consultants, LLC (UMC), prepared the enclosed Phase I and II Remedial Investigation Report (Phase I and II RIR) on behalf of American Premier Underwriters, Inc. (APU), pursuant to the Vermont Department of Environmental Conservation (VTDEC), Sites Management Section (SMS) letter correspondence dated April 19, 2016 (VTDEC First Letter) regarding the Former Warren Wire Facility, Plant #1, located at 1007 Route 346 in Pownal, Vermont referred to as VTDEC Site #87-0129 (Site). Appendix E of the enclosed report contains a copy of the VTDEC First Letter.

This Phase I and II RIR summarizes the procedures and findings of Phase I and Phase II remedial investigation (RI) activities conducted at the Site to evaluate the extent of perfluorinated compound (PFC) impacts in groundwater, surface water, soil, and sediment.

Consistent with the "Recommendations for Additional Site Work" outlined in Section 8 of the enclosed Phase I and II RIR, UMC requests that, on behalf of APU, UMC confer with VTDEC officials to discuss the overall findings and conclusions summarized report. Based on those discussions, UMC will then prepare and submit a Phase III RIR and Limited Remedial Action (RA) workplan to the VTDEC for their review and approval.

Should you have any questions or comments, or require additional information, please do not hesitate to contact me.

Sincerely,  
**Unicorn Management Consultants, LLC**



Francisco Trejo  
President

Enclosure: Phase I and Phase II RIR  
cc: Mr. Chuck Schwer

52 Federal Road, Suite 2C  
Danbury, CT 06810  
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Fax: (203) 205-9011  
www.unicornmgt.com



**PHASE I AND II  
REMEDIAL INVESTIGATION REPORT**

**FORMER GENERAL CABLE COMPANY FACILITY  
1007 ROUTE 346  
POWNAI, VERMONT  
VTDEC, SMS SITE #87-0129**

**Prepared for:**

**AMERICAN FINANCIAL GROUP  
One East Fourth Street  
Cincinnati, Ohio 45202**

**Prepared by:**

**UNICORN MANAGEMENT CONSULTANTS, LLC  
52 Federal Road, Suite 2C  
Danbury, CT 06810**

**April 2017**



**DOCUMENT AUTHORIZATION FORM**

**PHASE I AND II  
REMEDIAL INVESTIGATION REPORT**

**FORMER GENERAL CABLE FACILITY  
1007 ROUTE 346  
POWNAI, VERMONT  
VTDEC, SMS SITE #87-0129**

**Prepared for:**

**AMERICAN FINANCIAL GROUP  
One East Fourth Street  
Cincinnati, Ohio 45202**

**Prepared by:**

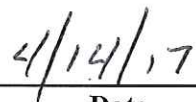
**UNICORN MANAGEMENT CONSULTANTS, LLC  
52 Federal Road, Suite 2C  
Danbury, CT 06810**

**April 2017**

**AUTHORIZATION:**

  
\_\_\_\_\_

**Richard R. Bush  
Senior Geologist**

  
\_\_\_\_\_

**Date**

  
\_\_\_\_\_

**Michael O'Connor  
Manager of Environmental Projects**

  
\_\_\_\_\_

**Date**

  
\_\_\_\_\_

**Francisco Trejo  
President**

  
\_\_\_\_\_

**Date**



CERTIFICATION

I, Michael O'Connor, certify that I am currently a Qualified Environmental Professional and that this Phase I and II Remedial Investigation Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the State of Vermont, "Investigation and Remediation of Contaminated Properties Procedures"(IROCP), dated April 2012.



**Michael O'Connor**

**Manager of Environmental Projects**



**Date**



## TABLE OF CONTENTS

<b>1. INTRODUCTION</b>	<b>1</b>
1.1 PURPOSE AND OBJECTIVES	1
1.2 REPORT ORGANIZATION	1
<b>2. BACKGROUND</b>	<b>2</b>
2.1 SITE LOCATION	2
2.2 SITE HISTORY	3
2.2.1 <i>General Site Features</i>	3
2.2.2 <i>Wire Production Related Infrastructure</i>	5
2.3 STUDY AREA PHYSICAL CHARACTERISTICS	8
2.3.1 <i>Physiography</i>	8
2.3.2 <i>Hydrology</i>	9
2.3.3 <i>Surficial Geology</i>	9
2.3.4 <i>Bedrock Geology</i>	10
<b>3. REGULATORY HISTORY</b>	<b>10</b>
3.1 APPLICABLE REGULATION	10
3.2 SITE PFC REGULATORY HISTORY	11
3.2.1 <i>March 24, 2016 VTDEC Correspondence</i>	11
3.2.2 <i>UMC's March 2016 Immediate Response Investigation</i>	11
3.2.3 <i>April 19, 2016 VTDEC Directive Letter and UMC's Comprehensive Voluntary Response Action Plan</i>	12
3.2.3.1 UMC's Comprehensive Voluntary Response Action Plan	13
3.2.4 <i>May 11, 2016 VTDEC Correspondence and UMC Response</i>	13
3.2.4.1 UMC's May 13, 2016 Response Letter	14
3.2.5 <i>July 12, 2016 VTDEC Correspondence and UMC Response</i>	15
3.2.5.1 UMC's July 18, 2016 Response Letter	15
<b>4. PHASE I AND PHASE II REMEDIAL INVESTIGATIONS</b>	<b>16</b>
4.1 PHASE I RI PROCEDURES	16
4.1.1 <i>Document Review</i>	16
4.1.2 <i>Survey of the Site Property</i>	17
4.1.3 <i>Assessment of the Site Property Underground Utilities and Warehouse</i>	17
4.1.3.1 Municipal Waste Water Line	17
4.1.3.2 Storm Water System	17
4.1.3.3 Warehouse Inspections	18
4.1.3.4 Assessment of Floor Drain System	19
4.1.4 <i>Utility Clearance</i>	20
4.1.5 <i>Waterloo<sup>APS</sup> Profiling Procedures</i>	20
4.1.6 <i>Waterloo<sup>APS</sup> Groundwater Sampling Procedures</i>	21
4.1.7 <i>Phase I RI QA/QC Sampling</i>	22
4.1.8 <i>Equipment Decontamination Procedures and Special Considerations</i>	22
4.2 PHASE II RI PROCEDURES	22
4.2.1 <i>Test Boring and Soil Sampling Procedures</i>	23
4.2.2 <i>Monitoring Well Installation Procedures</i>	25
4.2.2.1 Monitoring Well Development Procedures	26
4.2.3 <i>Groundwater Sampling Procedures</i>	26



4.2.4	<i>Surface Water Sampling Procedures</i>	28
4.2.5	<i>Sediment Sampling Procedures</i>	28
4.2.6	<i>Phase II RI QA/QC Sampling</i>	29
4.2.7	<i>Hydrogeologic Data Collection Procedures</i>	30
4.2.7.1	Groundwater Elevation Measurements	30
4.2.7.2	Hydraulic Conductivity Testing	30
<b>5.</b>	<b>NATURE AND EXTENT OF IMPACTS</b>	<b>31</b>
5.1	PHASE I RI DATA ANALYSIS AND OBSERVATIONS	31
5.1.1	<i>Waterloo<sup>APS</sup> Profiling Observations</i>	31
5.1.2	<i>Waterloo<sup>APS</sup> Groundwater Sampling Results and Discussion</i>	33
5.1.2.1	Waterloo <sup>APS</sup> Groundwater Sampling Results	33
5.1.2.2	Discussion of Waterloo <sup>APS</sup> Groundwater Sampling Results	34
5.2	PHASE II RI DATA ANALYSIS AND OBSERVATIONS	35
5.2.1	<i>Phase II RI Test Boring Observations and Discussion</i>	35
5.2.1.1	Phase II RI Soil and Sediment Observations and Discussion	35
5.2.1.1.1	Soil Observations and Discussion	35
5.2.1.1.2	Sediment Observations and Discussion	36
5.2.1.2	Phase II RI Bedrock Observations and Discussion	36
5.2.2	<i>Phase II RI Soil and Sediment Sample Analytical Results and Discussion</i>	37
5.2.2.1	Surficial Soil Sample PFC Analytical Results and Discussion	37
5.2.2.2	Deep Soil Sample PFC Analytical Results and Discussion	37
5.2.2.3	Sediment Sample PFC Analytical Results and Discussion	38
5.2.2.4	Additional Soil and Sediment Sample Analytical Results and Discussion	38
5.2.2.4.1	TOC Analytical Results	38
5.2.2.4.2	Iron Analytical Results	38
5.2.2.4.3	Grain Size Distribution	38
5.2.3	<i>Phase II RI Groundwater Sampling Results and Discussion</i>	39
5.2.3.1	Phase II RI Groundwater Sampling Results	39
5.2.3.2	Discussion of Phase II RI Groundwater Sampling Results	40
5.2.4	<i>Phase II RI Surface Water Sampling Results and Discussion</i>	41
5.2.5	<i>Vault Contents Analytical Results and Discussion</i>	41
5.2.5.1	Total PFC Analysis	41
5.2.5.2	TCLP Analysis	42
5.2.6	<i>Phase II RI Hydrogeologic Findings and Discussion</i>	42
5.2.6.1	Groundwater Flow Direction and Horizontal Gradient Findings	42
5.2.6.2	Groundwater Vertical Gradient Findings	43
5.2.6.3	Hydraulic Conductivity Findings	44
5.2.6.4	Discussion of Hydrogeologic Findings	44
5.3	QA/QC SAMPLING AND DATA USABILITY	45
5.3.1	<i>Phase I RI QA/QC Sampling</i>	46
5.3.2	<i>Phase II RI QA/QC Sampling</i>	46
5.3.2.1	Soil and Sediment QA/QC Sampling	46
5.3.2.2	Groundwater and Surface Water QA/QC Sampling	46
5.4	INVESTIGATION DERIVED WASTE	46
<b>6.</b>	<b>CONTAMINANT FATE AND TRANSPORT</b>	<b>47</b>
6.1	PFC-IMPACTED GROUNDWATER DISTRIBUTION AND TRANSPORT MECHANISMS	49
6.2	CONCEPTUAL SITE MODEL	50
6.2.1	<i>Overview of Study Area PFC Impacts</i>	50
6.2.2	<i>Potential Sources of PFCs</i>	51

<b>7. PHASE I AND PHASE II RI CONCLUSIONS</b>	<b>52</b>
<b>8. RECOMMENDATIONS FOR ADDITIONAL SITE WORK</b>	<b>54</b>
<b>9. LIST OF REFERENCES</b>	<b>55</b>
<b>10. LIST OF ACRONYMS AND ABBREVIATIONS</b>	<b>57</b>

## FIGURES

Figure 1	Locus Plan and Study Area Properties
Figure 2	Present Day Site Property Features
Figure 3	UMC's March 2016 Immediate Response Investigation Sampling Results
Figure 4	Site Property Underground Utilities and Floor Drain System
Figure 5	Phase I Waterloo <sup>APS</sup> Sampling Results
Figure 6a	Phase II Groundwater and Surface Water Sampling Results
Figure 6b	Phase II Soil and Sediment Sampling Results
Figure 7a	Geologic Cross Section A-A'
Figure 7b	Geologic Cross Section B-B'
Figure 8	Bedrock Elevation Contour Map and Thickness of Overburden
Figure 9a	Shallow Groundwater Elevation Contour Map
Figure 9b	Intermediate Groundwater Elevation Contour Map
Figure 9c	Deep Groundwater Elevation Contour Map
Figure 10	Groundwater Vertical Gradient Map

## TABLES

Table 1	Monitoring Well Survey and Groundwater Elevation Data
Table 2	Monitoring Well Hydraulic Conductivity Testing
Table 3	Waterloo <sup>APS</sup> Profiling Results
Table 4	Surficial Soil and Sediment Sample Results
Table 5	Deep Soil Sample Results
Table 6	Groundwater and Surface Water Sample Results

## APPENDICIES

Appendix A	Historical Topographic Maps and Aerial Photographs
Appendix B	Study Area Photographs
Appendix C	Site Property Schematics
Appendix D	APA Appraisal Report
Appendix E	VTDEC and UMC Correspondences
Appendix F	Boundary Survey
Appendix G	FEMA Map
Appendix H	Test Boring Logs and Monitoring Well Installation Details
Appendix I	Cascade Report
Appendix J	Laboratory Analytical Reports



## 1. INTRODUCTION

Unicorn Management Consultants, LLC (UMC), prepared this Phase I and II Remedial Investigation Report (Phase I and II RIR) on behalf of American Premier Underwriters, Inc. (APU), pursuant to the Vermont Department of Environmental Conservation (VTDEC), Sites Management Section (SMS) letter correspondence dated April 19, 2016 (VTDEC First Letter) regarding the Former Warren Wire Facility, Plant #1, located at 1007 Route 346 in Pownal, Vermont referred to as VTDEC Site #87-0129 (Site). This Phase I and II RIR summarizes the procedures and findings of Phase I and Phase II remedial investigation (RI) activities conducted at the Site to evaluate the extent of perfluorinated compound (PFC) impacts in groundwater, surface water, soil, and sediment.

### 1.1 Purpose and Objectives

The purpose of the Phase I and Phase II RI activities were to develop sufficient Site characterization information to provide recommendations for future activities at the Site. Specifically, the Phase I investigation activities included the review of available historical documents related to the Site, a Site inspection, Site infrastructure evaluation, vault material analysis for PFC content and leachability, an initial assessment of the Site overburden conditions, and evaluation of the extent of PFC impacts to groundwater and via borings advanced utilizing the Waterloo Advanced Profiling System (Waterloo<sup>APS</sup>). The information obtained through the Waterloo<sup>APS</sup> was used to identify specific target intervals of groundwater PFC impacts for monitoring and sampling.

During the Phase II RI groundwater monitoring well clusters were installed, surveyed, developed, and sampled for contaminants of concern (COCs) to evaluate vertical and horizontal PFC distribution in Site groundwater. In addition, the wells were utilized to assess Site hydrogeologic conditions, including groundwater transmissivity and hydraulic conductivity via rising and falling head slug testing; and, horizontal and vertical groundwater gradients. During the advancement of the well borings, soil samples were collected from various depth intervals to evaluate the vertical and horizontal distribution of PFCs in Site soil. Finally, surface water and sediment samples were collected from areas located adjacent to or within the Study Area to determine the potential impact of PFCs on sensitive receptors.

The procedures, findings, and conclusions of the Phase I and II RI activities are the subject of this Phase I and II RIR report and were used to develop the conclusions and presented recommendations for future investigation activities at the Site.

### 1.2 Report Organization

This Phase I and II RIR is presented in the following sections:

- Section 2 provides background information including the general Site and Study Area location, Site history, and Study Area physical characteristics;
- Section 3 describes the regulations applicable to this Phase I and II RIR, as well as, the regulatory history of the Site;
- Section 4 summarizes Phase I and Phase II RI activities including the Phase I and II RI procedures;
- Section 5 summarizes the findings of the Phase I and II RI including the nature and extent of PFC impacts to Site groundwater and other sampled media (i.e. surface water, soil, and



- sediment), the overall Site hydrogeologic observations, usability of data, and investigation derived wastes;
- Section 6 discusses chemical characteristics of PFCs, potential sources of PFCs, the fate and transport mechanisms that affect migration pathways and potential receptors, and a PFC related conceptual site model;
  - Section 7 summarizes overall Phase I and II RI conclusions;
  - Section 8 discusses recommendations for additional Site work subject to work plan development and approval by the VTDEC;
  - Section 9 is a list of references used in support of this Phase I and II RIR; and,
  - Section 10 is a list of acronyms used in this Phase I and II RIR.

The following sections discussed the Site background including the Site location, history and Study Area physical characteristics.

## **2. BACKGROUND**

The Site was utilized as a cable and wire manufacturing facility from approximately 1948 to 1986. Thereafter, the Site was sold and is currently used as a storage warehouse. The following sections provide a discussion of the Study Area property historical usage based on UMC's review of available historical information including tax maps and property cards provided by the Town of Pownal, historical United States Geological Survey (USGS) topographic maps and aerial photographs provided by Environmental Data Resources, Inc. (EDR), schematics provided by various agencies, historical newspaper articles, and UMC's Study Area observations. Appendix A contains copies of the topographic maps and aerial photographs obtained by UMC from EDR. Appendix B contains photographs depicting pertinent Study Area features. Appendix C contains copies of schematics provided to UMC by the VTDEC and Town of Pownal Waste Water Treatment Facility (WWTF) representatives.

### **2.1 Site Location**

The Site property is located in Bennington County, Pownal, Vermont. The Site is identified on Town of Pownal tax maps and property cards as Parcel ID No. 346-38, consisting of 10.26 acres, currently owned by Mack Molding Company (MMC), with the property deed registered in Book 87, Page 92. The Site property is abutted to the north by a residential property identified as 1235 Route 346, to the south by the Town of Pownal WWTF identified as 450 Lincoln Street. To the west the site is abutted by the Pan AM Southern Railroad right-of-way, occupied by a single track line, which is elevated approximately 10 to 12 feet above the Site property. A very steep, thickly vegetated embankment slopes downward approximately 20 feet from the railroad right-of-way to the Hoosic River with a predominant northerly flow which meanders to the east in the vicinity of the Site. To the west of the Hoosic River is a privately owned agricultural property, and a very small undeveloped portion the Site property. Route 346 abuts the Site property to the east and is slightly elevated above the southern portion of the Site property but gains in elevation toward the northern end cresting at a hilltop in the vicinity of the residential properties having physical addresses of 1235 and 1277 Route 346, Pownal, Vermont. To the east of Route 346 is a privately owned undeveloped property, which consists of a steep, upward sloping, and thickly vegetated bedrock scarp.

The Phase I and II RI activities discussed in this report extended beyond the Site to residential properties north of the Site property having the physical addresses of 1235, 1277, and 1467 Route 346; as well as, two properties located south of the Site property identified as the Town of Pownal



WWTF and Pownal Fire District #2 (PFD #2 property) with addresses of 450 Lincoln Road and 753 Route 346, respectively; and, the Hoosic River immediately west of the Site. These properties and the Site property are referred to collectively herein as the Study Area. Figure 1 is a Locus Plan depicting the location of the Site property and the current approximate boundaries of the Study Area.

## 2.2 Site History

Historical documents reviewed by UMC including a 1942 aerial photograph (Appendix A) illustrate that the Site property was undeveloped farmland prior to 1948. In 1948, the Site was purchased and developed by the Warren Wire Company (WWC) with a 12,000 square foot building to house their wire and cable manufacturing operations. Between 1948 and 1951, WWC produced enamel coated magnet wire used in the manufacture of transformers, inductors, motors, electromagnets, and other applications that require tight coils of insulated wire. In 1951, WWC initiated the production of Teflon<sup>®</sup> coated wire used for high temperature applications. Teflon<sup>®</sup> is identified by the United States Environmental Protection Agency (USEPA) as a PFC containing substance. WWC continued enamel and Teflon<sup>®</sup> coated wire production and the expansion of the Site buildings until sale of the facility to the General Cable Corporation (GCC) in 1963.

GCC continued production and warehouse expansion, culminating in 1980 to 123,049 square feet with the expansion of the northern-most end of the warehouse. In 1981, GCC was acquired by the Penn Central Corporation and in 1986; GCC changed its name to GK Technologies. A letter from GCC representatives to the Compliance Branch, Region 1, of the USEPA dated August 12, 1987, states that manufacturing at the Site property was discontinued by GCC “on or about November 15, 1986”. Appendix A contains aerial photographs taken between 1960 and 1986 that show the Site warehouse in progressively larger stages of development.

In 1988, MMC purchased the Site property from the Penn Central Corporation (GK Technologies formerly known as GCC). In 1994, the Penn Central Corporation changed its name to APU, a property and casualty insurance company which was created from the non-rail assets of Penn Central. The Site is currently owned by MMC who have made no notable improvements to the property. MMC utilizes the Site solely for the purpose of providing temporary storage of goods manufactured in the MMC Arlington, Vermont facility. MMC representatives have indicated to UMC that no manufacturing has been conducted in the Site warehouse or on any portion of the overall Site property since MMC’s purchase of the property and that manufactured goods stored in the warehouse do not contain PFC-containing materials.

The following section provides a discussion of pertinent general Site features.

### 2.2.1 General Site Features

The Site property generally consists of a warehouse, several auxiliary outbuildings, and infrastructure associated with historical operations. The VTDEC provided UMC with a schematic of the Site warehouse and working portions of the Site property prepared by J.F. Willey dated March 21, 1983 (warehouse schematic). Appendix C contains a copy of the warehouse schematic. The warehouse schematic indicates the year of construction of various sections of the building and a key indicating the “Building Number” and general “Description” of each section. Cross-referencing the key with the schematic identifies the various sections and year of construction of each section. The schematic also identifies the outbuildings and various infrastructures located around the warehouse. Figure 2 and photograph #'s 6 through 8 in



Appendix B indicate the location of these features including a “Solution Tank Building”, a “Main Pump House”, a “Sewage Control System”, an “Auxiliary Pump House”, a “Transformer and Concrete Pad”, two “50,000 Gallon Resin Storage Silos”, a “Water Tower”, and a “Pump House”, all located generally south of the Site warehouse. The following table lists the description and year of construction of the various sections of the Site warehouse based on the warehouse schematic.

<b>Description</b>	<b>Section No.</b>	<b>Year of Construction</b>	<b>Description</b>	<b>Section No.</b>	<b>Year of Construction</b>
Extruding Machines	1 & 2	1949 & 1954	Die Storage/Power Panels	9	1949
Compounding Area	2A	1965	Buncher Machines	10	1959
Solution Return Pits/Maintenance Crib	4	1951	Boiler Room/Compressors/Machine Shop/Twister and Cable Machines	11	1957
FX Rod	5	1951	Lean-To	11A	1970
Fine Wire Buncher/Respooling Machines	6	1949	Electrical Maintenance Department/Respool Department/Raw Material Storage	14	1960
Intermediate Machine/Laboratory	8	1951	Staging and Shipping Area	14A	1967
Offices	8A	1967	Warehouse	16	1980

As depicted on the figures, the warehouse is accessed by an asphalt covered driveway off of Route 346. The driveway provides access to two asphalt-covered parking areas located north and south of the main warehouse building. Loading docks, located in the northern most portion of the warehouse, are accessed via the northern parking area. A gravel covered truck turn-around area and a steep, thickly vegetated embankment sloping up to the northerly abutting property (1235 Route 346) occupy the northern-most portion of the Site property. A gravel covered driveway off of Route 346 is located at the top of this embankment and is generally coincident with the northern Site property boundary. This driveway is evident in aerial photographs (Appendix A) dating back to approximately 1972.

South of the warehouse building and southern parking area, is a grass-covered area and a retention pond, and associated apparent pump house. The retention pond and pump house are both surrounded by chain-link-fencing. A wooded and slightly elevated area extends south of the retention pond terminating at Lincoln Street. The retention pond is evident on the 1952 and more recent aerial photographs in Appendix A.

West of the warehouse, an inactive railroad spur line branches off of the eastern-most track of the main line allowing south-bound train’s access to the Site. The warehouse schematic indicates that as of 1983 the westerly abutting railroad right-of-way was owned by Boston and Maine Railroad and was occupied by two track lines. As depicted on Figure 2 and in Photograph #1, the southern portion of the railroad spur remains today. The northern portion of the spur and the eastern-most track in the railroad right-of-way have been removed.



The following section presents the Site's infrastructure as it relates to historical wire-production operations.

### 2.2.2 Wire Production Related Infrastructure

Based on UMC's review of the warehouse schematic, sections of the Site warehouse containing buncher, respooling, twister, and cabler machinery (section Nos. 6, 10, 11, and 14) were likely dedicated to the drawing of metal rod to produce single strands of wire, the braiding and twisting of wire to produce cables, and the spooling of finished wire. Section No. 5 of the warehouse, described as "FX Rod" may have been dedicated to the storage and/or drawing of metal rod stock.

Section Nos. 1 and 2 described on the warehouse schematic as "Extrusion Machines"; section No. 2A described as a "Compounding Area"; and, section 4 described as "Solution Return Pits/Maintenance Crib" were potentially associated with the preparation and application of Teflon<sup>®</sup> and enamel-based solutions and resins used in the various wire coating processes. In addition, section 4 contained a 5,000 gallon capacity underground storage tank (UST) located in a vault with a dirt floor and concrete lined walls inside the Site building. A second 10,000 gallon capacity UST was nested adjacent to the 5,000 gallon UST beneath the concrete floor of the building. The USTs were used to store #6 fuel oil to fuel boilers until the manufacturing schedule was cut back from seven to five days per week, at which point the boilers were refitted to burn #2 fuel. On April 24 1987, following cessation of manufacturing activities at the property but prior to sale of the property to MMC, GCC personnel reported a release of a mixture of #2 and #6 fuel oil at the Site property, resulting in the discharge of fuel oil to the Hoosic River. The release resulted in the listing of the Site with the VTDEC, SMS as site #87-0129. In response, APU subsequently removed the 5,000 gallon UST and approximately 25 cubic yards of petroleum-impacted soil which was excavated and transported off-Site. Also, APU closed the 10,000 gallon UST in place by filling with sand. Subsequent to the UST closures, APU recovered light non-aqueous phase liquid (LNAPL) from a recovery trench and recovery wells (RW-1 through RW-3); and, performed groundwater monitoring and sampling through a series of monitoring wells (GT-1 through GT-6 and MW-1 through MW-9). Accordingly, UMC, on behalf of APU, is currently conducting quarterly Site groundwater sampling and LNAPL recovery efforts consisting of the seasonal maintenance and operation of product skimmer units installed in active recovery wells and the annual vacuuming of product from wells with observed product. UMC is providing the VTDEC with quarterly and annual groundwater monitoring reports summarizing those efforts. LNAPL is regularly observed in monitoring wells MW-1 and MW-4, and occasionally in GT-3 during quarterly sampling events. However, although product thickness measurements are difficult to assess due to the low viscosity of the product, LNAPL thicknesses are likely less than one foot in MW-1 and seasonally range from less than two inches to sheen conditions in MW-4 and GT-3. As discussed in Sections 3.2.2 of this report, UMC sampled the existing wells for PFC's.

The warehouse schematic indicates two "50,000 Gallon Resin Storage Tanks" were located south of the Site warehouse that apparently have been removed. However, as indicated on Figure 2, an asphalt covered pad elevated approximately eight inches above the surrounding asphalt covered driveway is located immediately south of the Site warehouse that presumably supported the former storage tanks.



The two “Storage Silos” depicted on the warehouse schematic on the east side of the warehouse have apparently been removed. However, as indicated on Figure 2, a concrete pad elevated approximately eight inches above the surrounding asphalt covered driveway is located immediately east of the Site warehouse that presumably supported the silos. .

An historical newspaper article dated January 1960 indicates that the construction of section No. 14 of the warehouse was nearing completion at that time and would be used largely for the storage and shipment of finished goods as well as a maintenance and electrical repair shops. The area would include closed shipping docks and, along the west side of the warehouse, an experimental laboratory for the testing of new types of wire. The article also indicates that a large tank would be installed west of the warehouse for the storage of enamel used for wire coating and formerly stored in metal drums. The tank would be filled from railroad tank cars and the enamel piped under pressure to ovens where the wire coating was performed. Therefore, the “Solution Tank Building” depicted on the warehouse schematic and Figure 2 located south of the Site warehouse and at the south end of the railroad spur formerly accessing the property, may have contained a tank or tanks for the storage of enamel. The “Solution Tank Building” is constructed on a concrete pad and currently contains no equipment related to former manufacturing activities.

UMC did not observe evidence of the “Above Ground Cooling Tower” depicted on the warehouse schematic. However, the VTDEC provided UMC with a schematic (preparer not indicated) of the southern-most portion of the Site property dated July 1, 1968 (July 1968 schematic). Appendix C contains a copy of the July 1968 schematic. The schematic and historical and aerial photographs reviewed by UMC indicate a 30,000 gallon above ground storage tank (AST) containing liquid propane and an associated building containing a “Propane Vaporizer” were located immediately north of the retention pond as early as 1952. The schematic indicates that liquid propane was off-loaded to the AST from railroad cars and then cooled in the “Propane Vaporizer”. The propane gas was then apparently directed to the Site warehouse through above ground piping and used to fuel drying and sintering ovens. The piping remains on the Site property elevated approximately 12 feet above the ground surface and supported by metal framing and poles. Photograph #8 in Appendix B is a 1954 historical photograph depicting the former liquid propane AST with the “Propane Vaporizer” and above ground propane gas transmission piping visible in the background. The photograph depicts the southern-most portion of the Site warehouse, apparently undergoing a phase of construction at that time. The photograph also shows two structures on the east side of the warehouse extending well above the roof line of the building that may correspond to the two “Storage Silos” referenced above.

As indicated on photographs #6 and #7, an inactive silo is located immediately south of the Site warehouse. The silo is depicted on the warehouse schematic but is not labeled on the schematic or referenced on the schematic key.

The “450,000 Gallon Open Reservoir” (retention pond) and “Pump House” depicted on Figure 2 and the warehouse schematic are located in the southern-most portion of the Site property and are evident on the 1952 and more recent aerial photographs in Appendix A. The July 1968 schematic indicates that the retention pond was historically filled from the now inactive water supply well (discussed below) with outflow directed to the Hoosic River through a three inch diameter underground water line. The retention pond and pump house system was used during GCC ownership and is currently used by MMC to provide water to a fire suppression system in the Site warehouse. The retention pond is currently lined with an apparently impermeable membrane and,



based on discussions with MMC personnel; the water level in the pond is maintained by surface water runoff.

The Site property is not currently serviced with potable water. As depicted on Figure 2 and the warehouse schematic, the “Main Pump House” is constructed on a concrete slab and contains an inactive water supply well. During GCC ownership, the well supplied water to the “Auxiliary Pump House” located south of the warehouse and “Water Tower” located east of the warehouse. UMC reviewed the VTDEC Agency of Natural Resources (ANR) on-line database of private water supply wells in the vicinity of the Study Area. The database is limited to drilled overburden or bedrock wells installed after 1966 and does not include wells advanced by other means (i.e. overburden wells advanced using hand tools or backhoes). The VTDEC ANR database indicates that the inactive water supply well was installed in overburden to a depth of 64 feet below ground surface (bgs) in January 1974. Twelve inch steel casing was set in the well at a depth of 44 feet bgs. A static water level of 9 feet bgs and a yield of 525 gpm was reported in the finished well.

In addition to information provided in the VTDEC ANR database, EDR provided UMC with a listing of water supply wells in the Study Area vicinity. EDR identified the Site property inactive water supply well with the same well construction and yield data as that provided in the VTDEC ANR database. In addition, EDR identified a well on the Site property installed in 1959 to a depth of 58 feet bgs. EDR provided no further information regarding construction or finished yield characteristics of the well but did indicate the well is listed in the USGS-New England Water Science Center database under ID number USGS-424628073143401. UMC’s assessment of the USGS-New England Water Science Center database indicates the well was likely installed on or near the Site property to assess groundwater level and geochemical characteristics in the Hoosic River watershed.

UMC reviewed a document prepared in June 1988 by Atlantic & Pacific Appraisals on behalf of GCC titled “Real Estate Appraisal Report of Real Estate Interests Owned by The Penn Central Corporation, General Cable” (APA appraisal report). Appendix D contains a copy of the APA appraisal report. The report indicates that APA conducted a real estate appraisal of the Site property in January 1988 prior to sale of the property to MMC. The report indicates that two water supply wells are located on the Site property with a combined yield of 700 gpm. Therefore, the “Main Pump House” may actually contain two wells under a common well head. The APA appraisal report indicates the “Water Tower” has a 75,000 gallon capacity and is filled through eight-inch diameter underground piping. UMC notes that a large concrete-lined vault is located beneath the water tower that appears to contain piping directing water to the Site warehouse and may contain the second inactive water supply well referenced in the APA appraisal report.

The Site property is not currently serviced by a sewage system. During GCC ownership, sewage from the GCC facility was directed to the “Sewage Control System” located immediately south of the Site warehouse. Figure 2 and the warehouse schematic indicate the location of the system. The system is evident today by a small shed containing a pump and piping and an approximately eight-foot by 12-foot raised bed immediately south of the shed. The bed is surrounded with railroad ties stacked approximately two feet above the surrounding ground surface and topped with a rubber membrane and coarse gravel. The APA appraisal report indicates that at the time of appraisal, the Site property was serviced by a “septic system” with a 6,000 gallon per day



(gal/day) capacity. Other information concerning the specific construction or operation of the system was not made available to UMC.

An inactive transformer is located on a concrete pad surrounded by chain link fencing immediately south of the Site warehouse, corresponding to the “Transformer and Concrete Pad” depicted on Figure 2 and the warehouse schematic. During GCC operations, the transformer and overhead transmission lines supplied the electricity required to power ovens used for curing of coated wire. The Site warehouse is currently supplied with electrical power from a second set of transformers and overhead transmission lines located on the east side of the warehouse and depicted on Figure 2. The January 1960 historical newspaper article referenced above indicates that these transformers were installed during construction of section No. 14 of the warehouse to supply the additional power required to operate equipment installed in the completed addition.

Historical newspaper articles in the Bennington Banner indicate that on January 8, 1961 and July 8, 1962 fires occurred in the Site warehouse in the flue of the ventilating system associated with the enameling machines. The fires were quickly extinguished by the Town of Pownal Fire Department. Damage was reported as slight, only briefly curtailing production. The articles did not report if fire-fighting foam was used to extinguish the fires.

Historical documents reviewed by UMC did not provide a detailed description of the actual processes used in the historical wire coating process at the Site. In addition, UMC was unable to locate or review any documentation regarding the materials received, shipped, or disposed of at the Site.

In addition to the Site features discussed above, the Study Area physical characteristics discussed in the following section provide a better understanding of the overall Site location and features.

## 2.3 Study Area Physical Characteristics

### 2.3.1 Physiography

The Study Area is situated on the floodplain of the upper Hoosic River drainage of the Vermont Valley physiographic zone. The Green and Hoosac Mountains separate the Hoosic River drainage from the Connecticut River Valley to the east. The Taconic Mountains separate the Hoosic River drainage from the New York Hudson Lowland to the west (Reference 20).

The bedrock scarp referenced above forms the western-most front of the Green Mountains in this area, rising to an elevation of approximately 1,000 feet above mean sea level (amsl) immediately east of the Study Area and continuing to rise to an elevation of 1,417 feet amsl at the top of Mann Hill, approximately one mile northeast of the Study Area. The Taconic Mountains rise more gently to the west of the Study Area across the Hoosic River floodplain which is approximately 1/3 mile wide in this area.

The southern and northern-most portions of the Study Area including the Site property as well as most of the 1467 Route 346, WWTF and PFD #2 properties are at average elevations between approximately 530 and 535 feet amsl while the intervening 1277 and 1235 Route 346 properties are slightly more elevated at an average elevation of approximately 560 feet amsl.



### 2.3.2 Hydrology

The Hoosic River flows generally from south to north in the vicinity of the Study Area at an average elevation of approximately 520 feet amsl. The river meanders to the east in the vicinity of the WWTF, PFD #2 and the Site properties, and back to the west in the vicinity of the 1277 and 1467 Route 346 properties. The Pan Am railroad right-of-way is generally coincident with, and elevated slightly above, the western boundary of the Study Area, forming a man-made barrier between the Study Area properties and the Hoosic River.

The greater Hoosic River watershed consists of the main south branch of the Hoosic River and numerous named and unnamed tributaries. The headwaters of the south branch of the Hoosic River are in Lanesborough and Cheshire, Massachusetts where tributaries gather into the man-made Cheshire Reservoir and then flow as one river northwards through Adams, North Adams, and Williamstown, Massachusetts; into Pownal, North Pownal, Bennington, and North Bennington, Vermont; and, then northwest into Hoosick Falls, New York, finally joining the Hudson River in Schaghticoke, New York.

Major tributaries of the Hoosic River include the north branch of the Hoosic River and the Green River. The north branch of the Hoosic River flows south from Vermont into Clarksburg, Massachusetts, joining the main south branch of the Hoosic River in North Adams, Massachusetts. The Green River originates near New Ashford, Massachusetts and flows north, joining the Hoosic River near Williamstown, Massachusetts.

Minor tributaries of the Hoosic River in the vicinity of the Study Area include Ladd Brook, originating near Mann Hill and entering the Hoosic River approximately 1/2-mile south and hydraulically up gradient of the Study Area, and Lincoln Hollow emanating from the Taconic Mountains across the Hoosic River floodplain, directly west of the Site property. An unnamed tributary originates near Pownal Center and enters the Hoosic River approximately 1/2-mile north and hydraulically downgradient of the Study Area. Based on UMC's Study Area observations, a minor stream crosses Route 346 just south of the PFD #2 property and is directed north via an engineered drainage ditch along the western edge of the Town of Pownal WWTF and PFD #2 properties and onto the Site property. Here the drainage ditch directs the stream water to a box culvert near the south end of the Site property warehouse, then directed beneath the railroad right-of-way to the Hoosic River.

### 2.3.3 Surficial Geology

The surficial geology of the Study Area is largely influenced by glacial Lake Bascom that occupied the Hoosic River Valley in the vicinity of the Study Area following retreat of the Laurentide ice sheet during the Pleistocene Epoch approximately 14,000 years ago. The lake persisted for approximately 800 years, initially discharging southward to the Housatonic River near Cheshire, Massachusetts and filling the Hoosic River valley below approximately the 1,000-foot elevation. Breaching of a glacial debris dam in New York resulted in sporadic lowering of the lake level and eventual emptying of the lake during a series of flood events directed to the northwest into the Hudson River Lowlands (Reference 15).

Surficial geology in the Hoosic River drainage generally consists of a complex system of Pleistocene-age basal till overlain by ice contact glacio-fluvial deposits, glacio-lacustrine, and fluvial deltaic deposits. These materials are in turn overlain by Holocene-age river floodplain



alluvium. Deep bedrock valleys along the main stem of the Hoosic River have been filled in some places with more than 300 feet of these materials. Well yields as high as 2,500 gallons per minute (gpm) have been documented in some wells installed in sand and gravel intervals (Reference 16 and Reference 19).

UMC's review of a surficial geology map published by the Vermont Geological Survey (Reference 13), indicates that the Site property as well as the WWTF and PFD #2 properties and the greater portion of the 1467 Route 346 property are underlain by river floodplain and tributary alluvium consisting of sand with gravel. The map indicates the 1235 and 1277 Route 346 properties and the southern-most portion of the 1467 Route 346 property are underlain by fluvial terrace and kame moraine deposits consisting of gravel, sand and till. As discussed above, the 1235 and 1277 Route 346 properties are elevated approximately 30 feet or more above other portions of the Study Area.

#### 2.3.4 Bedrock Geology

The Bedrock Geologic Map of Vermont (Reference 14) indicates that the Study Area bedrock consists of the Walloomsac Formation, described as dark-gray, graphitic quartz phyllite and schist containing minor lenses of limestone.

A statewide analysis of bedrock water well data conducted by the Vermont Geological Survey in 2009 (Reference 17) indicates that the average yield of bedrock wells in the Study Area and vicinity is on the order of approximately 10 gpm or less.

The following section discusses the applicable regulatory criteria and Site specific regulatory history related to UMC's remedial investigation of PFCs at the subject Site.

### 3. REGULATORY HISTORY

#### 3.1 Applicable Regulation

UMC reviewed historical documents referencing Teflon<sup>®</sup> coated wire at the Site. The USEPA and VTDEC have determined that Teflon<sup>®</sup> contains PFCs which, at certain concentrations are harmful to human health and/or the environment; and therefore, are subject to regulatory criteria. PFC's were detected in the pre-existing Site wells and adjacent drinking water wells. The VTDEC identified APU as a potentially responsible for PFCs at the Site via letter correspondence dated April 19, 2016 (discussed in detail below). APU is voluntarily completing remedial investigation activities, including the Phase I and II RIR activities that are the subject of this report; in response to the April 19, 2016 VTDEC letter correspondence.

PFCs are classified by the USEPA as Emerging Contaminants defined as "chemicals or materials that are characterized by a perceived, potential, or real threat to human health or the environment or by a lack of published health standards" (Reference 1). On May 18, 2016, the USEPA established a Drinking Water Health Advisory (DWhA) of 70 parts per trillion (ppt) for the individual or sum concentration of the PFCs Perfluorooctanoic Acid (PFOA) and Perfluorooctanedulfonic Acid (PFOS) (Reference 2).

The VTDEC issued an Emergency Ruling on March 7, 2016 establishing Emergency Enforcement Standards for the PFCs PFOA and PFOS of 20 ppt and 30 ppt, respectively. A June 22, 2016 Memorandum from the Vermont Department of Health (VTDOH) to the VTDEC (June 22, 2016 VTDOH Memorandum) revised the DWhAs for PFOA and PFOS established in the



March 7, 2016, Emergency Ruling. The June 22, 2016 VTDOH Memorandum establishes a revised DWHA for the individual or sum concentration of PFOA and PFOS of 20 ppt. Appendix E contains copies of pertinent correspondences including the June 22, 2016 VTDOH Memorandum.

A March 10, 2016 Memorandum from the VTDOH to the VTDEC (March 10, 2016 VTDOH Memorandum) establishes a Soil Screening Value for PFOA in surface soil of 0.30 milligrams per kilogram (mg/Kg). Appendix E contains a copy of the March 10, 2016 VTDOH Memorandum. To the best of UMC's knowledge, there is currently no Soil Screening Value published by the State of Vermont for PFOS. In 2009, USEPA Region 4 established a Soil Screening Value in residential soil of 16 mg/Kg for PFOA and 6 mg/Kg for PFOS (Reference 1).

The PFCs impacts identified at the Site as well as the Phase I and II investigations discussed within this report are compared to the current VTDEC standards as presented in the June 22, 2016 VTDOH Memorandum for water and the March 10, 2016 VTDOH Memorandum for soils.

### 3.2 Site PFC Regulatory History

This section presents a summary of various historical PFC Site investigation documents reviewed during the preparation of this Phase I and II RIR.

#### 3.2.1 March 24, 2016 VTDEC Correspondence

On March, 24, 2016, the VTDEC notified UMC via email correspondence that the PFC PFOA was detected in groundwater samples collected by the VTDEC from the PFD #2 municipal water supply well located approximately XXXX feet south of the Site at concentrations above the VTDOH advisory. The March 24, 2016 VTDEC correspondence stated in part that the VTDEC "has determined that APU may be responsible for cleanup of the Site (property) and other actions to protect the public health, welfare, or the environment..." The correspondence indicated that the State of Vermont would begin providing bottled water to residences serviced by the PFD #2 water supply well and that the VTDEC would begin sampling of nearby private water supply wells. Appendix E contains a copy of the March 24, 2016 VTDEC Correspondence.

#### 3.2.2 UMC's March 2016 Immediate Response Investigation

In response to the March 24, 2016 VTDEC correspondence, UMC prepared an Immediate Response Work Plan (IRWP) dated March 28, 2016 which was subsequently approved by the VTDEC on March 28, 2016. Consistent with the IRWP, between March 28 and March 30, 2016, UMC conducted Immediate Response Investigation (IRI) activities including the collection of groundwater samples from pre-existing Site monitoring wells installed on the Site property for the purpose of assessing historical hydrocarbon-related impacts to groundwater and one surface water sample from the retention pond located on the southern portion of the Site property.

The groundwater and surface water samples were submitted for laboratory PFC analysis by USEPA Methods 537 and 537 Modified. Figure 3 depicts the location of monitoring wells installed on the Site property for the purpose of assessing hydrocarbon-related impacts, designated as MW-1 through MW-9; GT-1 through GT-6; and RW-2 and RW-3, and the location of the surface water sample designated as SW-1.



In addition, UMC collected 16 soil samples at six-inch intervals ranging from the ground surface to approximately three feet bgs from four locations using a stainless steel hand auger. UMC also collected one sediment sample adjacent to piping observed in a corrugated steel culvert located in the southwest portion of the Site. The soil and sediment samples were submitted for laboratory PFC analysis by USEPA Method 537 Modified. Figure 3 depicts the soil sample locations designated as PB-1 through PB-4 followed by the depth interval sampled in parentheses, and the sediment sample location designated as SED-1. Analysis of the soil and sediment samples collected during UMC's March 2016 IRI activities did not detect PFOA or PFOS at concentrations exceeding either the VTDOH or USEPA Soil Screening Values for those analytes.

On April 19, 2016, UMC submitted the preliminary groundwater, surface water, soil, and sediment sample results obtained during UMC's March 2016 IRI to the VTDEC via email correspondence. UMC summarized the procedures and findings of the March 2016 IRI activities in an Immediate Response Investigation Report (IRIR), submitted to the VTDEC on May 13, 2016. Figure 3 depicts UMC's March 2016 IRI media sampling locations and a tabulation of the media sample analytical results.

### 3.2.3 April 19, 2016 VTDEC Directive Letter and UMC's Comprehensive Voluntary Response Action Plan

Upon receipt of the preliminary analytical results obtained during UMC's March 2016 IRI, the VTDEC transmitted an April 19, 2016 letter to UMC and APU representatives (VTDEC First Letter). Appendix E contains a copy of the VTDEC First Letter. The VTDEC First Letter indicated in part that, based on the results of groundwater sampling conducted during UMC's March 2016 IRI, APU "may be responsible for cleanup of the Site (property) and other actions to protect the public health, welfare, or the environment.....". Accordingly, the VTDEC requested that APU commit to the completion of tasks including, but not limited to, the following:

- Retain a qualified environmental consultant to develop and submit to the VTDEC a work plan consistent with the VTDEC "Investigation and Remediation of Contaminated Properties Procedure" (IOCPP) dated April 5, 2012 (Reference 3) to further investigate the Site property, and, following VTDEC approval, implementation of the work plan and the submittal of findings to the VTDEC.
- Assume responsibility from the State of Vermont for the distribution of bottled drinking water to residences serviced by the PFD #2 municipal water supply well and to three residential properties.
- Develop and implement a detailed work plan for the installation of temporary PFC mitigation systems to restore the PFD #2 municipal water supply well and the three residential property wells to potable conditions.
- Prepare a focused feasibility report to evaluate available remedial technologies and alternatives to facilitate the selection of a permanent remedial action (e.g. new water supply well, treatment, etc.) to mitigate PFC impacts to municipal and residential water supply wells.

UMC on behalf of APU responded to the VTDEC First Letter in two separate letter correspondences dated April 19, 2016 and April 29, 2016 respectively (Letter Correspondences). The UMC Letter Correspondences included a Comprehensive Voluntary Response Action Plan to



address the most critical VTDEC requests to protect public health, welfare, and the environment from PFCs identified at the Site and responses to all of the VTDEC First Letter inquiries.

### *3.2.3.1 UMC's Comprehensive Voluntary Response Action Plan*

In response to the VTDEC First Letter, UMC prepared a Comprehensive Voluntary Response Action Plan (Action Plan) dated April 19, 2016 and Letter Correspondence dated April 29, 2016. Appendix E contains a copy of UMC's Action Plan and Letter Correspondences. Consistent with the Action Plan, APU authorized UMC to complete the following:

- In April 2016, UMC began providing bottled drinking water to residences serviced by the PFD #2 municipal water supply well, to the 1235 Route 346 property, and to the 594 Route 346, and 31 White Birch Lane properties pending restoration of water supplies at those properties to potable conditions.
- UMC oversaw the extension of PFD #2 municipal water supply lines to the 594 Route 346, and 31 White Birch Lane residential properties, after which bottled water distribution to the properties was terminated.
- UMC oversaw the installation of a granular activated carbon (GAC) filtration system on the PFD #2 municipal water supply well that become operational in July 2016.
- UMC developed work plans consistent with the VTDEC IOCPP to conduct the Phase I and Phase II RI activities that are the primary focus of this Phase I and II RIR.

Following completion of the GAC filtration system on the PFD #2 municipal water supply well, a "Do Not Drink" order for affected residences was lifted on July 28, 2016, at which point bottled water distribution to the affected residences was terminated. The VTDEC installed a mitigation system at 1235 Route 346 property at which point UMC discontinued bottled water delivery to the property.

UMC notes that work plans to conduct the response actions requested in the April 19, 2016 VTDEC Directive Letter were developed by UMC and subsequently approved by the VTDEC via letter correspondence dated June 2, 2016 (Appendix E). The response actions have been completed as discussed above or are on-going.

Actions undertaken by UMC related to monitoring and maintenance of the PFD #2 municipal water supply treatment system and preparation of a focused evaluation of available remedial technologies and alternatives to facilitate the selection of a permanent remedial action that will likely involve the siting of a new municipal water supply well are addressed under separate cover and are not addressed further in this Phase I and II RIR.

Concurrent to UMC IRI activities, the VTDEC is evaluating supply wells within the towns of Pownal, North Pownal, and Pownal Center, Vermont. Information regarding the VTDEC's supply well investigations can be found of the VTDEC website (<http://dec.vermont.gov/commissioners-office/pfoa>).

### *3.2.4 May 11, 2016 VTDEC Correspondence and UMC Response*

The VTDEC collected a residential water supply sample from 3199 Route 346, North Pownal for PFOA analysis the results of the analysis identified a concentration of PFOA exceeding VTDEC DWHAAs. In response to this sampling result, the VTDEC transmitted a letter to UMC dated May



11, 2016 (May 11, 2016 VTDEC Correspondence). Appendix E contains a copy of the May 11, 2016 VTDEC Correspondence.

The May 11, 2016 VTDEC Correspondence included a report prepared by Metcalf & Eddy, Inc. titled “Final Remedial Investigation Report, Volume I, Pownal Tannery Superfund Site, Pownal, Vermont”, dated July 2002 (Reference 12). The correspondence also included VTDEC calculations that estimated an average linear groundwater flow velocity (seepage velocity) between the Site property and North Pownal of 489 feet per year (ft/yr), presumably based on data in the Metcalf & Eddy Report indicating a hydraulic conductivity of overburden material at the former Pownal Tannery of 283.5 feet per day(ft/day), a porosity of 0.20, and an assumed hydraulic head and distance between the Site property and North Pownal of approximately 10 feet and two miles, respectively.

Based on the 3199 Route 346 water supply sampling results and the VTDEC’s estimate of seepage velocity between the Site property and North Pownal, the VTDEC concluded that groundwater flow from Site property is responsible for the observed PFC impacts to water supplies in North Pownal and any potential impacts to water supplies between the Site property and North Pownal. Consequently, the May 11, 2016 VTDEC Correspondence requested that APU fund the installation of a mitigation system at the 3199 Route 346 residence, conduct sampling of residential water supply wells between the Villages of Pownal and North Pownal, and provide bottled drinking water to those residences where PFC impacts exceeding VTDEC DWHAs are observed.

#### *3.2.4.1 UMC’s May 13, 2016 Response Letter*

In response to the May 11, 2016 VTDEC Correspondence, UMC transmitted a letter to the VTDEC dated May 13, 2016 (UMC’s May 13, 2016 Response Letter). Appendix E contains a copy of UMC’s May 13, 2016 Response Letter. The letter indicates that PFC impacts to water supplies in the North Pownal area may be related to historical activities conducted at the former Pownal Tannery, pointing out that as of transmittal of the May 11, 2016 VTDEC Correspondence, groundwater samples had not been collected at the property for PFC analysis.

Further, UMC’s May 13, 2016 Response Letter disputes the VTDEC’s estimate of seepage velocity of 489 ft/yr between the Site property and North Pownal. The letter contends that the hydraulic conductivity of overburden material used in the VTDEC calculations of 283.5 ft/day is not within the range of between 0.22 ft/day and 56 ft/day cited in the Metcalf & Eddy report. In addition, UMC’s May 13, 2016 Response Letter contends that the VTDEC’s estimate of seepage velocity does not take into account the potential retardation and slower transport times resulting from PFC adsorption to organic carbon. Finally, the letter contends that rather than flowing northward along the east side of the Hoosic River directly to North Pownal as implied by the VTDEC, PFC-impacted groundwater originating from the Site property more likely flows northwestward, eventually discharging to the Hoosic River before covering the approximate two-mile distance to North Pownal.

Based on these issues, UMC’s May 13, 2016 Response Letter concludes that the PFOA impacts observed in the 3199 Route 346 water supply and potential impacts to properties located north of the Site property are not likely the result of historical Site operations. Therefore, UMC respectfully requested to defer responsibility for providing bottled water and installing a



mitigation system at the 3199 Route 346 residence, or for collecting water supply samples from residences north of the Site property pending completion of RI activities in the Study Area.

### 3.2.5 July 12, 2016 VTDEC Correspondence and UMC Response

On July 12, 2016, UMC received an email correspondence from the VTDEC (July 12, 2016 VTDEC Correspondence). The correspondence referenced PFC impacts to water supplies at the 1235 Route 346, 1277 Route 346, 3164 Route 346, 3199 Route 346, and 187 Dean Road residential properties. VTDEC analysis of water supply samples collected from 1235 Route 346, 1277 Route 346, 3164 Route 346, 3199 Route 346, and 260 Dean Road detected PFOA at concentrations exceeding the VTDEC DWHA for that analyte. However, based on the data summarized on the table in Appendix E, analysis of the water supply sample collected at 187 Dean Road did not detect PFCs in concentrations exceeding laboratory reporting limits, indicating a clerical error was made either on the table in Appendix E or in the July 12, 2016 VTDEC Correspondence.

The July 12, 2016 VTDEC Correspondence referenced the May 11, 2016 VTDEC Correspondence and telephone conversations between VTDEC and UMC and requested confirmation of APU's position that it would defer responsibility for the installation of mitigation systems at 1235 Route 346, 1277 Route 346, 3164 Route 346, 3199 Route 346, and 187 Dean Road residential properties pending collection and analysis of additional groundwater quality data (subject of this Phase I and II report).

#### 3.2.5.1 UMC's July 18, 2016 Response Letter

In response to the July 12, 2016 VTDEC Correspondence, UMC transmitted a letter to the VTDEC dated July 18, 2016 (UMC's July 18, 2016 Response Letter). Appendix E contains a copy of UMC's July 18, 2016 Response Letter.

UMC's July 18, 2016 Response Letter reiterates APU's position to defer responsibility for installation of a mitigation system at 1235 Route 346 pending completion of RI activities, but to supply bottled water to the residence pending mitigation of the property's water supply. In addition, the letter indicates that a May 12, 2016 email correspondence from the VTDEC to UMC states that the 1277 Route 346 property owner declined to participate in UMC's bottled water distribution program and declined installation of a mitigation system; therefore, UMC will not pursue further action regarding 1277 Route 346.

UMC's July 18, 2016 Response Letter states that APU declines responsibility for providing bottled water and the installation of mitigation systems at the 3164 Route 346, 3199 Route 346, and 187 Dean Road residential properties based on APU's position that PFC impacts to groundwater documented at the properties are not the result of impacts observed on the Site property and, therefore, are not the responsibility of APU. The letter states that APU's position is technically justified based on the following:

- PFC impacts have been observed in groundwater samples collected from monitoring wells located at the former Pownal Tannery property. The monitoring wells are located as close as 500 feet from the 3164 Route 346, 3199 Route 346, and 187 Dean Road residential properties and are screened in the shallow overburden interval, no deeper than approximately 22 feet bgs.



- Analysis of residential drinking water supply samples collected by the VTDEC south of the 187 Dean Road property and north of 1277 Route 346, a distance of approximately 1.7 miles, detected PFCs at concentrations less than VTDEC DWHAs or did not detect PFCs at concentrations exceeding laboratory reporting limits.
- Based on a July 11, 2016 email correspondence between UMC and Cascade Technical Services (Cascade) representative Mr. Seth Pitkin, a hydraulic conductivity value of 28 ft/day (an order of magnitude less than the VTDEC estimate of 283.5 ft/day and within the range of the hydraulic conductivity values cited in the Metcalf & Eddy report) is a more reasonable estimate. In addition, a porosity value of 0.33 is more likely representative of overburden material than the value of 0.20 used by the VTDEC. These values and an assumed hydraulic head and distance between the Site property and North Pownal of approximately 10 feet and two miles, respectively, result in an estimated seepage velocity of approximately 28 ft/yr, an order of magnitude less than the VTDEC's estimate of 489 ft/yr. Assuming a seepage velocity of 28 ft/yr and negligible retardation, PFC-impacted groundwater originating from the Site property would travel approximately 1,400 feet over a 50 year period of time. UMC notes that Section 5.2.6 below provides an analysis of hydrogeologic data collected by UMC in the Study Area during Phase I and Phase II RI activities, including an assessment of the nature of overburden material and more critical estimates of seepage velocity in the Study Area.

In conclusion, UMC's July 18, 2016 Response Letter reiterated APU's position to defer responsibility for the installation of mitigation systems at 1235 Route 346 pending the completion of RI activities in the Study Area. Further, the letter stated that APU declines responsibility for further investigation, mitigation, and/or remediation of the 3164 Route 346, 3199 Route 346, and 187 Dean Road properties, based in part on PFC investigations conducted by the State of Vermont and USEPA in 2016 which clearly illustrate that the Site is not responsible for PFC impacts to those properties.

The following section discusses the UMC Phase I and II remedial investigation procedures and findings.

#### **4. PHASE I AND PHASE II REMEDIAL INVESTIGATIONS**

##### **4.1 PHASE I RI PROCEDURES**

The Phase I RI activities were conducted consistent with a Phase I Remedial Investigation Work Plan (RIWP) submitted to the VTDEC in June 2016 and approved by the VTDEC in a letter from the VTDEC to UMC dated June 2, 2016. The objective of the Phase I RI activities was to provide an initial assessment of Site history, the Site property, Site infrastructure, overburden hydrogeologic conditions, and the horizontal and vertical extent of PFC impacts to groundwater within the Study Area. A discussion of the Phase I RI procedures follows.

##### **4.1.1 Document Review**

UMC reviewed all available Study Area historical information including tax maps and property cards provided by the Town of Pownal, historical USGS topographic maps and aerial photographs provided by EDR, schematics provided by various agencies, historical newspaper



articles, and UMC's Study Area observations. Appendix A contains copies of the topographic maps and aerial photographs obtained by UMC from EDR. Appendix B contains photographs depicting pertinent Study Area features. Appendix C contains copies of schematics provided to UMC by the VTDEC and Town of Pownal WWTF representatives.

While this Phase I and II RIR provides an overview of potential environmental concerns from historical impacts to the environment, it should be noted that the historical review presented here is limited by the availability of discoverable information. Impediments to discovery are such things as lost records, incomplete records, records not made available to the public and other materials obscured by time. Also, the conclusions and recommendations regarding environmental conditions in this Phase I and II RIR are in part based on available information provided by historical documentation and active investigations. Furthermore, it is possible that unreported, non-APU, releases or other activities impairing the environmental status of the site may have occurred and, having been unreported, cannot be verified.

#### 4.1.2 Survey of the Site Property

UMC retained Vermont Survey and Engineering, Inc. (VSE), to conduct a boundary survey of the Site property. In addition, VSE surveyed: the general outline of the Site warehouse exterior walls; the outbuildings and various other infrastructures around the periphery of the warehouse; and, the location of storm drains, box culverts and municipal sewer manhole structures. Appendix F contains a copy of the boundary survey prepared by VSE for UMC. UMC also conducted inspections of the warehouse interior to assess the overall condition of the building and potential sources of PFC impacts. As a result of these inspections, UMC retained Subterra Locating Services (SLS) representatives in an attempt to locate and assess the flow paths and end points of floor drains or sumps in the warehouse that could potentially have contributed to PFC impacts on the Site property. A summary of these efforts follows.

#### 4.1.3 Assessment of the Site Property Underground Utilities and Warehouse

##### 4.1.3.1 *Municipal Waste Water Line*

Town of Pownal WWTF representatives provided UMC with schematics depicting the municipal waste water lines in the vicinity of the Site property. Appendix C contains copies of the schematics. Based on the schematics and UMC's discussions with WWTF personnel, an eight inch diameter forced main line is located on the east side of Route 346 in the vicinity of the 1277 Route 346 that passes beneath Route 346 in the vicinity of the 1235 Route 346. The line then continues south, down an embankment in the northern-most portion of the Site property and continues south along the eastern edge of the property, terminating at the pump house on the WWTF property. The Site warehouse is currently not connected to the system. However, connection to the system is available via a line that extends from the forced main and terminates in a manhole structure located near the northeast corner of the warehouse. Figure 4 depicts the approximate location of the municipal waste water line and associated manhole structures based on schematics provided by WWTF representatives and the VSE survey data. UMC notes that the fill material associated with the municipal waste water line (reported by WWTF representatives to be approximately six to eight feet bgs) may provide a preferential pathway for shallow groundwater flow and the solute transport of PFC-related constituents.

##### 4.1.3.2 *Storm Water System*

Figure 4 depicts the approximate location of storm water lines, catch basins, and box culverts associated with the Site property storm water system. As depicted on the figure, a drainage ditch



on the east side of Route 346 directs storm water runoff from Route 346 and the bedrock scarp east of the roadway south to catch basins, box culverts, and associated storm water lines that in turn direct storm water beneath Route 346 to the municipal waste water line and the Site property storm water system. Storm water lines and associated catch basins direct storm water around the north end of the Site warehouse and then south along the west side of the warehouse to a concrete box culvert located near the south end of the warehouse. This culvert also receives flow from the minor stream referenced above in Section 2.3.2 that flows north along the west side of the PFD #2 and Site properties in an engineered drainage. The culvert directs the stream and storm water beneath the railroad right-of-way to an outfall on the Hoosic River. Figure 4 depicts the Site property storm water system and the associated outfall to the Hoosic River.

UMC notes that, owing largely to Route 346 and the bedrock scarp to the east, the railroad right-of-way to the west, the embankment sloping upward to the 1235 Route 346 property to the north, and the slightly elevated southern portion of the Site property, the Site property effectively sits in a basin that collects large volumes of storm water runoff during major storm events. As a consequence, during peak flow in the Hoosic River, water levels have historically risen well above the level of the storm water system outfall, causing water to back-up in the system, overflow the associated catch basins, and flood the Site property. For example, in August 2011, UMC observed the aftermath of flooding caused by Hurricane Irene during an inspection of the Site property to assess potential damage. The event appeared to flood the greater part of the Site property but did not appear to have flooded the interior of the warehouse. Conversely, based on UMC's review of local historical newspaper articles, ice jamming caused the flooding of loading dock areas and the interior of the warehouse in January 1959. Photograph #9 depicts the storm water outfall to the Hoosic River equipped with a steel gate that apparently was manually closed during historical manufacturing times and periods of high water level in the river in order to mitigate flooding. These flooding events have the potential to transport PFCs onto the Site from offsite sources and continually redistribute PFC concentrations throughout the Site. For reference Appendix G contains a figure from the United States Department of Homeland Security, Federal Emergency Management Agency's, (FEMA), National Flood Hazard map illustrating that the Site is within the 100 year floodplain [1 percent (%) annual chance of flood].

#### *4.1.3.3 Warehouse Inspections*

The Site property warehouse is constructed on a concrete block foundation elevated less than one foot above the surrounding ground surface in some areas but approximately four feet in other areas, apparently as a deterrent to flooding of the building interior during high water periods. The larger portion of the warehouse is occupied by goods manufactured by MMC at an offsite location, wrapped in cardboard and plastic wrap and stacked on wooden pallets. Consequently, much of the concrete floor of the building was not visible during UMC's inspection. Concrete flooring that was visible appeared to be in generally good condition with relatively little cracking and no signs of deterioration. UMC did not observe chemical storage areas in the warehouse, other than gasoline cans in the southern-most section of the building. MMC personnel store these along with lawn mowers and grass trimmers in the area, accessible to the outside via an overhead garage door.

During inspections of the Site property warehouse, UMC observed six apparently empty, approximately 8-foot diameter by 35-foot tall metal tanks in the east-central portion of the warehouse. The tanks stand approximately 15 feet above the flat roof of the warehouse and are enclosed there by a wood-framed structure. Photograph #7 depicts the structure extending above



the roof and enclosing the tanks. Photograph #11 depicts the tanks from the inside of the warehouse. The tanks are not evident on any of the schematics provided to UMC by the VTDEC. However, based on review of the warehouse schematic, the tanks are located in Section 10 constructed in 1955 and referenced as containing “Buncher Machines”. The contents of the tanks was not made available to UMC.

During inspections of the Site property warehouse, UMC located a total of seven steel-covered vaults, three of which could not be opened as the covers had been welded shut. Three of the vaults were opened and found to contain small pellet-shaped pieces of material, varying in shade from black to light tan or white. A fourth vault was also opened and found to contain what appeared to be broken shards of the material. The vaults measured approximately three feet by three feet square, ranged between approximately 4.5 and 7.5 feet in depth, and were approximately 1/2 to 2/3 full of the material. The vault walls were concrete-lined, but the nature of floors was not assessed. Piping led away from one or more sides of each of the vaults, some clogged with the material. Material in one of the vaults was saturated with water that appeared to be dripping from one of the pipes. Photograph #12 in Appendix B depicts two of the vaults prior to opening. Photograph #13 depicts one of the open vaults and the material contained in it. Photograph #14 depicts samples of the material collected from each of the four opened vaults indicating the relative size, texture, and color of the material. Photograph #15 depicts one of the open vaults and a pipe clogged with the material.

On December 14, 2016, UMC collected one “grab” sample from each of the four opened vaults and combined the samples into one composite sample designated as VP-Comp. The sample was submitted to ALS Environmental Laboratory located in Kelso, WA (ALS) for total PFC and Toxic Characteristic Leaching Procedure (TCLP) analysis by USEPA method 537 Modified. Section 5.2.5 below discusses the sampling results.

#### *4.1.3.4 Assessment of Floor Drain System*

An extensive system of floor drains and sumps are located inside the Site warehouse. However, no schematics or other information was made available to UMC concerning the design and final construction of the system. Consequently, in conjunction with IRI, Phase I, and Phase II RI activities, UMC attempted to assess the floor drain system and the overall condition of the warehouse interior. On May 17<sup>th</sup> through the 20<sup>th</sup> 2016, UMC met at the Site property with SLS representatives in an attempt to locate and assess the flow paths and end points of the floor drain system. SLS worked in conjunction with UMC using steel plumbers snakes, ground penetrating radar (GPR), and electromagnetic tracing methods to assess the flow paths. Most drains were blocked with dirt or other debris within approximately 10 feet or less, some were completely filled with sediment or standing water and some could not be opened. Figure 4 depicts the approximate location of the floor drains and the flow paths between drains that were evident.

Due to the limited evidence of flow paths, definitive end points of the floor drain system were not evident. However, an approximately 10-inch diameter steel pipe, emanating from the southern-most and oldest portion of the Site building and possibly serving as the end point of the building floor drain system, was observed in the concrete box culvert described above as part of the storm water system. In addition, UMC observed one approximately two-inch diameter steel pipe and one approximately four-inch diameter concrete pipe protruding from the Hoosic River bank immediately north of the apparent storm water outlet discussed above. Figure 4 and Photograph #10 in Appendix B depict the piping observed by UMC, possibly associated with the now inactive sewerage control system. UMC also observed three approximately two-inch diameter



pipes emanating from the west wall of the warehouse at the approximate floor level of the building that may have discharged floor drain, roof drain, or other waste water directly to the ground or may have once directed the water elsewhere and later been cut off. No water was observed discharging from the pipes.

#### 4.1.4 Utility Clearance

In preparation for the subsurface remedial investigation of the Site, UMC marked all of the proposed Waterloo<sup>APS</sup> profiling points with white paint and, as was practicable, with wooden stakes as required by Vermont State Dig Safely One Call (One Call) protocols and placed a One Call notification prior to initiating Phase I and II RI activities. In addition, UMC retained SLS to identify privately owned or historical underground utilities not included as part of the One-Call notification using a GPR system. SLS also cleared within a minimum of ten feet around each probe location using the GPR system.

To further protect Site workers from potential hazards associated with underground utilities, all probe locations were hand cleared by UMC using a stainless steel hand auger to a minimum depth of between three and five feet bgs. UMC retained Cascade located in Montpelier, Vermont to conduct the Waterloo<sup>APS</sup> profiling. Prior to hand clearing, Cascade removed an approximately eight inch diameter core of concrete at the profiling points located inside the Site warehouse using a water-cooled carbide-tipped coring tool. Soil recovered during hand clearing was placed back in the borings pending profiling. Soil conditions observed during hand clearing was documented in Site-dedicated field notebooks and is discussed below in Section 5.1.1.

#### 4.1.5 Waterloo<sup>APS</sup> Profiling Procedures

Between June 6 -and 22, 2016, Cascade conducted Waterloo<sup>APS</sup> profiling and groundwater sampling under UMC supervision at 44 locations including 34 locations around the periphery of the Site property, eight locations inside the Site warehouse, and two locations on the southerly abutting PFD #2 property. Figure 5 depicts the approximate location of the Waterloo<sup>APS</sup> profiling points, designated as PP-1 through PP-44 based on coordinates obtained by UMC using a hand-held GPS device or, in the case of points located inside the Site warehouse, measurements from fixed points in the warehouse. The profiling points were generally located along three northwest to southeast oriented transects that are perpendicular to the historically observed shallow groundwater flow direction. UMC notes that some profiling points were preferentially located proximate to potential areas of concern including the former sewage control system, water supply well, as well as, points inside the warehouse proximate to the former solution towers, floor drains, or sumps.

The Waterloo<sup>APS</sup> profiling involved the direct push of a probe at points along the transects using a Geoprobe<sup>®</sup>. The probe consists of a 1.75-inch-diameter stainless steel sampling head with ports fitted with stainless steel screens, which in turn is screwed into direct push rods with an outer diameter 1.75 inches. The ports convey water (either injected into the formation during probe advancement or withdrawn from the formation during groundwater sampling) into a common internal fitting in the tip. Stainless steel tubing with an outside diameter of 1/8 inch is attached to the internal fitting using Swagelok<sup>®</sup> couplings. As the profiling probe is driven, additional sections of drill rod and stainless steel tubing are added.

As the probe was advanced, Cascade injected PFC-free water through the stainless steel tubing and into the formation under a generally constant pressure provided from compressed nitrogen.



The injection water was transported to the Site property by Cascade in a pre-cleaned holding tank from a private drinking water supply well located approximately two miles south of the Site property at the Green Mountain Racetrack, 6178 Route 7, Pownal, Vermont. The VTDEC collected and analyzed a groundwater sample from the Green Mountain Racetrack private drinking water supply well for PFCs which did not detect PFCs at concentrations exceeding laboratory reporting limits. Therefore, Cascade used water from the Green Mountain Racetrack water supply well for water injection and equipment decontamination purposes.

Subject to variations in formation permeability, the flow rate of water injected into the formation varied and was monitored in real time by Cascade during probe advancement. The injected water flow rate was correlated to pressure and adjusted for fluctuations in the potentiometric surface. This procedure provided a real-time representation of the formation index of hydraulic conductivity ( $I_K$ ). The  $I_K$  values are dimensionless ranging between zero and six and can be qualitatively compared to hydraulic conductivity ( $K$ ) values ranging between approximately  $10^{-5}$  to  $10^{-2}$  centimeters per second (cm/sec). Profiling materials with higher  $K$  values result in  $I_K$  values beyond the effective range of the method. Cascade discontinued probe advancement while continuing water injection at depths where the  $I_K$  values were generally greater than 4, usually sufficient to produce formation groundwater. If  $I_K$  values held at this level, Cascade discontinued water injection and began purging water from the formation using dedicated non-Teflon<sup>®</sup>-lined high density polyethylene (HDPE) and silicon tubing attached to the stainless steel tubing and a peristaltic pump at the ground surface. As the purging progressed, Cascade collected real-time physiochemical property measurements including pH, specific conductance (SC), dissolved oxygen (DO), and oxidation/reduction potential (ORP). Cascade continued purging until the PFC-free injected water was removed, generally marked by a change in water color or turbidity, and stabilization criteria for the physicochemical parameters were reached as follows: pH +/- 0.1 units; SC +/- 3%; ORP +/- 10 millivolts (mV);, and DO +/- 10%. Typical purge volumes ranged from approximately 400 milliliters (mL) to 1,000 mL per sample. The purge water was collected in five gallon buckets, transferred to a 55-gallon drum, and later transferred to a 20,000 gallon holding tank located within a secure location on the Site property pending characterization and off-Site disposal. Phase I and Phase II investigation derived waste (IDW) characterization and disposal is discussed below in Section 5.4.

#### 4.1.6 Waterloo<sup>APS</sup> Groundwater Sampling Procedures

Following purging and stabilization of the formation interval, UMC attempted to collect a groundwater sample from the formation interval. Many of the attempts were unsuccessful as the formation at a given interval did not produce groundwater within a practicable timeframe (discussed further below in Section 5.1.2). UMC collected the groundwater samples consistent with UMC's standard operating procedure (SOP) Document Control Number DCN1-44 for sampling of PFC-impacted media. Appendix 1 of UMC's Phase I RIWP contains a copy of UMC's SOP DCN1-44. The SOP requires that during sampling of all media for PFCs, no potential PFC-containing materials including Teflon<sup>®</sup>, Gortex, or other synthetic waterproofing materials can be used or worn by the sampler during sampling. UMC collected the groundwater samples in laboratory-supplied and preserved containers wearing triple-layered nitrile gloves that were changed between each sampling interval. The sample containers were filled, the caps were secured, and the containers were gently agitated in an up and down manner to allow the preservative to dissolve. The containers were labeled using an indelible ink marker indicating the profiling point and sample collection depth in feet [i.e. PP-10(72.9)], the sample time and date, the sampler's initials, and the analysis to be conducted. The sample identification and sampling



time was also recorded in Site-dedicated field notebooks. The samples were placed in re-sealable plastic bags which in turn were placed in bubble wrap bags and then placed in a cooler on ice along with a laboratory-supplied temperature blank. Filled coolers were then transported by United Parcel Service (UPS) courier under chain-of-custody to Northern Lake Service, Inc. (NLS) in Crandon, Wisconsin where the samples were analyzed for PFCs by USEPA Method 537.

Following sample collection, the HDPE and silicon tubing was removed and discarded as solid waste. Injection of PFC-free water was then resumed, and the probe was advanced to the next sampling interval where the sampling procedure was repeated. The probe was generally advanced to Geoprobe® refusal, which was anticipated to correspond generally with the overburden/bedrock interface. Following completion of each profiling point, Cascade withdrew the profiling probe and drill rod and backfilled the open hole to the ground surface using bentonite chips.

#### 4.1.7 Phase I RI QA/QC Sampling

In addition to the groundwater samples collected from each interval, UMC collected additional samples for quality control and quality assurance (QA/QC) purposes. QA/QC sampling included the collection of duplicate and matrix spike/matrix spike duplicate (MS/MSD) groundwater samples at a frequency of one per every 20 groundwater samples collected.

UMC also collected one aqueous equipment blank sample per working day. The equipment blank samples were collected by first decontaminating the sampling probe and stainless steel tubing as discussed below. PFC-free water was then drawn through the assembly using the peristaltic pump and dedicated tubing and collected in appropriate laboratory-supplied containers.

In addition, UMC collected one field blank sample on each day that sampling was conducted to assess ambient air conditions. The field blank samples were collected proximate to the active sampling locations either inside or outside the Site building. Field blank sampling kits consisted of two laboratory-supplied sample containers, one containing only preservative and one filled with laboratory-supplied PFC-free water. Field blank sampling was completed by pouring water from the filled container directly into the preserved container.

UMC labeled, stored, and transported the QA/QC samples as described above. The samples were transported to NLS for PFC analysis by USEPA Method 537. Phase I RI QA/QC sample analytical results and data usability are discussed below in Section 5.

#### 4.1.8 Equipment Decontamination Procedures and Special Considerations

Cascade decontaminated the drill rod, stainless steel tubing, profiling probe, and other tooling between each profiling point using PFC-free water. The profiling probe was decontaminated by submerging the tip in a five-gallon bucket containing PFC-free water and pumping a minimum of one liter of water through the tip using the peristaltic pump. The stainless steel sample tubing and drill rod were decontaminated by flushing and rinsing each piece with PFC-free water. The decontamination water was collected in a 55 gallon drum and stored at a secure location on the Site property pending characterization and off-Site disposal.

## 4.2 PHASE II RI PROCEDURES

UMC's Phase I RIWP proposed that, contingent on analysis of the Waterloo<sup>APS</sup> profiling data, monitoring well clusters would be installed at six profiling points with screened intervals set at



relatively shallow and deep stratigraphic intervals. However, based in part on the distribution of PFC impacts observed in Site groundwater during Waterloo<sup>APS</sup> profiling, UMC submitted a document to the VTDEC dated August 2016 titled “Interim Remedial Investigation Report (IRIR) and Phase II RIWP” (UMC’s IRIR and Phase II RIWP). The document summarized the Waterloo<sup>APS</sup> profiling data and proposed that the monitoring well cluster installations recommended in the Phase I RIWP be expanded to include the installation of 18 clusters with the wells screened variously at shallow, intermediate, and deep stratigraphic intervals. Specifically, UMC’s IRIR and Phase II RIWP proposed the installation of 15 monitoring well clusters at Waterloo<sup>APS</sup> profiling points conducted on the Site property and one cluster at a profiling point conducted on the southerly abutting PFD #2 property. In addition, the Phase II RIWP proposed the installation of two monitoring well clusters on the 1467 Route 346 property, where no Waterloo<sup>APS</sup> profiling was conducted, in an attempt to delineate the extent of PFC impacts north and hydraulically downgradient of the Site property.

Further, UMC’s IRIR and Phase II RIWP proposed: the collection of groundwater samples from the newly installed monitoring well clusters for PFC analysis; the collection of soil, sediment and surface water samples to assess potential PFC impacts to sensitive receptors; the collection and assessment of additional hydrogeologic data; and, the compilation of Phase I and Phase II RI findings in this Phase I and II Remedial Investigation Report.

UMC addressed comments from the VTDEC regarding drafts of the Phase II RIWP in a series of August 2016 email correspondences. UMC’s final Phase II RIWP was approved by the VTDEC in an August 26, 2016 email correspondence. A discussion of the Phase II RI activity procedures follows.

#### 4.2.1 Test Boring and Soil Sampling Procedures

On October 3 – 24, 2016, Phase II RI test borings and monitoring well installations were conducted by the Vermont-licensed drilling contractor Summit Drilling Company, Inc. (Summit) located in Bridgewater, New Jersey, under UMC oversight. Figures 6a and 6b depict the location of the 18 Phase II RI test borings designated as MM-1 through MM-16, BP-1, BP-2, and where applicable, the corresponding Phase I RI Waterloo<sup>APS</sup> profiling points. The Phase II RI borings were off-set approximately three to five feet from their corresponding Waterloo<sup>APS</sup> profiling points. Consistent with the Phase II RIWP, UMC collected four shallow soil samples at each of the 18 boring locations. These shallow soil samples were collected in six-inch increments from the ground surface to a depth of two feet bgs. The shallow soil samples were collected using a Geoprobe<sup>®</sup> and disposable acetate macro-core sampling sleeves.

Following the shallow soil sampling, the borings were over-drilled to the top of the competent bedrock surface using sonic drilling techniques and deep soil samples were collected from the borings. Exceptions to this procedure include borings MM-11, MM-14, and MM-16, (corresponding to Phase I RI Waterloo<sup>APS</sup> profiling points PP-24, PP-31, and PP-41, respectively) which were advanced to bedrock using a Geoprobe<sup>®</sup> with both shallow and deep soil samples collected using disposable acetate macro-core sampling sleeves.

Sonic drilling techniques involved the advancement of ten-foot long sections of four-inch diameter inner casing that collected soil as a continuous core. Then a ten-foot long section of 6.5-inch diameter outer casing was advanced over and to the bottom of the four-inch diameter inner casing, while adding PFC-free water to flush soil from the annular spacing between the casings.



The soil and water spoils were collected in a baffled steel tub installed at the ground surface and encompassing the borehole. The inner casing was then retrieved and the soil core was extruded from the casing into dedicated polyethylene sleeves. The sleeves were then cut open using a utility knife making the soil available for characterization and sampling. Another ten-foot long section of four-inch diameter inner casing was then added to the drill string and the process was repeated to bedrock refusal.

UMC collected one deep soil sample from depth intervals corresponding to the screened interval within each boring. The screened intervals in each of the Site and PFD #2 property borings were selected based on an assessment of the Waterloo<sup>APS</sup> profiling data and approved by the VTDEC in UMC's Phase II RIWP. The intervals were adjusted slightly up or down based on the direct observation and characterization of soil as it was retrieved. Since Waterloo<sup>APS</sup> profiling was not conducted on the 1467 Route 346 property, representative soil samples were collected continuously and retained from the 1467 Route 346 property borings (BP-1 and BP-2) until the screened intervals were selected based on soil characteristic and depth to bedrock observations. The deep soil samples were collected as composites of representative soil collected from each interval.

The soil samples were collected consistent with UMC's SOP DCN1-44. Accordingly, two field technicians were engaged in the soil sampling; one serving as the sampler and the other serving as an assistant to label containers and record observations. Only the sampler handled the soil and collected the soil samples. The soil was visually classified for soil type, organic content, grain size, texture, moisture content, and evidence of staining or impacts. Soil observations were field documented by the assistant in Site-dedicated field notebooks.

Laboratory-supplied containers were labeled by the assistant using an indelible ink marker indicating the sample location and interval, the sampling time and date, the sampler's initials, and the analyses to be conducted. The sample identification and sampling time were recorded by the assistant in Site-dedicated field notebooks. The sampler collected the soil samples wearing triple-layered nitrile gloves and using a pre-cleaned stainless steel hand trowel and mixing bowl. The samples were placed in the labeled containers by the sampler and in turn placed in re-sealable plastic bags. Gloves were changed between each sampling interval and the sampling equipment was decontaminated between each sample by triple rinsing with PFC-free water.

UMC placed the soil samples in re-sealable plastic bags which in turn were placed in bubble wrap bags and then placed in a cooler on ice along with a laboratory-supplied temperature blank. The samples were then transported under chain-of-custody by UPS courier to SGS-Accutest of New England (SGS) located in Marlborough, Massachusetts for PFC analysis by USEPA Method 537 Modified. Based on available literature reviewed by UMC the adsorptive capacity of PFC-impacted soil is influenced by the soil pH, grain size, organic carbon content, and total iron content. Therefore, in addition to PFC analysis, soil remaining in the two-foot interval after surficial soil sample collection and soil remaining in the deeper intervals after deep soil sample collection was homogenized in a stainless steel bowl, placed in appropriate labeled containers and submitted to SGS for total organic carbon (TOC) analysis by Standard Method 5310B, total iron analysis by USEPA Method 6010C, and grain size analysis by American Society for Testing and Materials (ASTM) D-422.



Soil remaining after sampling, if any, as well as soil generated during the advancement of casing during sonic drilling was collected in 55-gallon drums and later transferred to a lined 30 cubic yard (yd<sup>3</sup>) capacity roll-off placed at a secured location on the Site property pending characterization and offsite disposal. Drilling equipment and tooling was decontaminated between each test boring location in a polyethylene-lined decontamination area constructed on the Site property by Summit using a steam cleaner and PFC-free water. The decontamination water and water generated during the advancement of casing during sonic drilling was collected in 55-gallon drums and later transferred to the 20,000 gallon holding tank placed at a secured location on the Site property pending characterization and offsite disposal.

The Phase II RI soil observations and soil sample analytical results are discussed below in Section 5.2.1 and Section 5.2.2, respectively.

#### 4.2.2 Monitoring Well Installation Procedures

Following soil sampling and boring advancement to final depth, Summit installed monitoring wells in the borings screened variously at shallow, intermediate, and deep stratigraphic intervals. Figure 6a depicts the location of the Site and PFD #2 property monitoring well clusters designated as MM-1 through MM-16, and the 1467 Route 346 property clusters designated as BP-1 and BP-2. Figure 6a also indicates the shallow, intermediate, and deep intervals screened at each location, given the designations of S, I, and D, respectively.

Appendix H contains test boring and monitoring well installation logs depicting finished well construction details. The wells were constructed using two-inch diameter, schedule 40, 20 slot polyvinyl chloride (PVC) well screen and solid PVC riser pipe. Consistent with UMC's VTDEC-approved Phase II RIWP, only shallow (S) interval wells were installed at locations MM-11, MM-14, and MM-16. These and all other shallow interval wells were constructed using ten feet of well screen set across the groundwater table with riser pipe set above the well screen. Only shallow and deep (D) interval wells were installed at locations MM-1, MM-2, MM-4, MM-5, MM-6, and MM-9. At these locations, Summit first constructed the deep interval well and then stepped off approximately five to eight feet, advanced a second boring to the desired depth, and installed the shallow interval well. At the remaining locations, three intervals were screened including intermediate (I) and deep intervals in the initial boring and a shallow interval in a second boring. Five feet of well screen was set at all intermediate and deep intervals with the deeper interval generally resting on the observed bedrock surface.

In borings with only shallow or deep interval wells, Summit backfilled the boring annulus around the well screen with #1 filter sand to a level approximately two feet above the top of the screen. Summit then placed approximately two feet of bentonite chips on top of the filter sand. The remaining annular space was filled with either bentonite chips or a concrete/bentonite slurry to a level approximately one foot bgs followed by an approximately six-inch thick layer of filter sand. In borings with intermediate and deep screened intervals, Summit backfilled the boring annulus around the deep well screen with #1 filter sand to a level approximately two feet above the top of the screen and placed an approximately two-foot thick layer of bentonite chips above the sand. This was followed by either bentonite chips or slurry to a level approximately two feet below the intermediate interval where the procedure was repeated as described above.

Monitoring well clusters MM-4, MM-5, MM-6, MM-7, MM-9, MM-10, MM-11, and M-14 were finished at the ground surface with flush-mounted steel curb boxes set in concrete. The



remaining wells were finished approximately three to five feet above the ground surface and fitted with locking steel stand pipes set in concrete. Each well was fitted with J-plugs and marked with an indelible marker denoting shallow, intermediate, and deep intervals. Two steel bollards were set in concrete at MM-1, MM-2, MM-12, MM-13, and MM-16 to protect the wells from snow plows and vehicular traffic.

On October 24, 2016, VSE, surveyed the ground surface elevation and top of PVC riser elevations in Study Area monitoring well clusters. VSE conducted the survey relative to a benchmark established by VSE east of the Site building at the northeast corner of the water tower with an elevation of 533.56 feet amsl. Table 1 lists the ground surface and top of PVC riser elevations surveyed by VSE as well as the inferred top and bottom elevations of screened intervals in the wells.

#### *4.2.2.1 Monitoring Well Development Procedures*

Following the monitoring well installations, UMC and Summit personnel worked in tandem to develop the wells. The wells were developed using a battery powered submersible pump set within the screened interval of each well and non-Teflon<sup>®</sup>-lined plastic tubing. The pump and tubing was surged up and down within the screened interval as water was pumped from the well directly into 55-gallon drums. Wells with limited water production were pumped dry and allowed to recharge before resuming development. Development continued until a minimum of 55 gallons of water was removed from the well and turbidity was visibly reduced to a near clear condition. In some wells, as much as 220 gallons of water was purged during development.

The pump and plastic tubing used for well development was decontaminated between each well by pumping a minimum of five gallons of PFC-free water through the pump and tubing into a 55-gallon drum and triple rinsing the outside of the pump and tubing using PFC-free water. The purged water and decontamination water was transferred from the drums to the secured onsite holding tank for later characterization and offsite disposal.

#### *4.2.3 Groundwater Sampling Procedures*

Between October 31 and November 2, 2017, UMC collected groundwater samples from the newly installed monitoring wells. Consistent with UMC's Phase II RIWP, the samples were collected a minimum of seven days following well installation and development. The groundwater samples were collected consistent with the procedures outlined in UMC's SOP DCN1-44. Prior to sampling, the depth to groundwater and total well depth of each well was measured using an electronic interface probe and the values were recorded on well-dedicated non-PFC-containing field sheets. Based on the depth to groundwater and the total depth of the well, a length of HDPE tubing was measured and lowered slowly into the well to the midpoint of the saturated zone. Care was taken measuring the depth to bottom in the wells and the tubing was placed at least two feet above the bottom of the well to minimize disturbing any sediment at the well bottom.

The HDPE tubing was then connected to the inflow end of an approximately 10-inch long piece of silicon tubing nested above the cam rotor of a peristaltic pump and an approximately 2-foot long piece of HDPE tubing was connected to the outflow end of the silicon tubing. Prior to activating the pump, an electronic water level meter was lowered into the well to the top of the water column that remained in the well to record drawdown of the water column during purging and well stabilization.



Once the tubing and water level meter were secured down-well, the pump was set to its lowest pumping rate, the pump was turned on, the pump start time was recorded, and the pumping rate was slowly increased until groundwater discharge began. The discharged groundwater was collected in a five-gallon bucket. The pumping rate was measured using a stop watch and graduated cylinder. Drawdown of the water column in the well was monitored using the water level meter and the flow rate of the pump was adjusted as necessary until the drawdown was less than 0.3 feet.

Purging continued until the water clarity visibly improved. The HDPE discharge tubing was then connected to the inflow port of a flow through cell and water quality multi-parameter meter using silicon tubing. A length of HDPE tubing was connected to the outflow port of the flow through cell using silicon tubing that discharged purged groundwater passing through the cell to a five-gallon bucket.

Following filling of the flow through cell, water quality parameters, depth to groundwater, and the pumping rate was recorded on the dedicated field sheets at five-minute intervals for a minimum of 45-minutes and until stabilization of the water quality parameters was achieved. The pumping rate was adjusted as necessary so that water table drawdown did not exceed 0.3 feet. Groundwater stabilization was considered achieved once the minimum purge time of 45 minutes was met, the total volume of water purged exceeded the volume of drawdown prior to sample collection, and three consecutive water quality parameter readings were within the limits listed below:

- Turbidity (10% for values greater than 1NTU)
- Temperature (3%)
- pH (0.1 Unit)
- Oxygen reduction potential (10 millivolts)
- Specific Conductance (3%)
- Dissolved oxygen (10%)

Once the groundwater was stabilized, groundwater sampling began. Prior to sample collection, the pump was turned off and disconnected from the flow through cell. The pump was then restarted, the discharge rate was adjusted to approximately 200-300 milliliters per minute (ml/min) and groundwater was allowed to discharge for approximately one minute. Labels were filled out using an indelible ink marker and affixed to laboratory-supplied and preserved sample containers. The sampling time was recorded on the well-dedicated field sheets. Wearing three layers of nitrile gloves, the sample containers were filled, the caps were secured, and the containers were gently agitated in an up and down manner to allow the preservative to dissolve. The filled sample containers were then placed in re-sealable plastic bags which in turn were placed in bubble wrap bags. The groundwater samples were packed in coolers on ice and transported under chain-of-custody via UPS courier to NLS for PFC analysis by USEPA Method 537.

Following sampling, the water level meter and sample tubing was removed from the well and the tubing was discarded as solid waste. The water level meter was decontaminated by triple rinsing with PFC-free water. All HDPE and silicon tubing was changed between sampling locations. All



purge water was transferred to the secured onsite holding tank for later characterization and offsite disposal.

The Phase II RI groundwater sample analytical results are discussed below in Section 5.2.3.

#### 4.2.4 Surface Water Sampling Procedures

Consistent with UMC's Phase II RIWP, UMC collected two surface water samples from the Hoosic River and one surface water sample from the retention pond located at the southern end of the 1467 Route 346 property. Figure 6a depicts the surface water sample locations, designated as SW-1 and SW-2 collected from the Hoosic River and SW-3 collected from the 1467 Route 346 property retention pond. Two field technicians engaged in the surface water sampling; one serving as the sampler and the other serving as an assistant to label sample containers and record observations. Surface water sample SW-1 was collected immediately downstream of the storm water outfall referenced above. Sample SW-2 was collected at a location that is generally coincident with the northern-most Site property boundary. UMC collected surface water sample SW-3 from the near southern-most portion of the 1467 Route 346 property retention pond.

The surface water samples were collected consistent with UMC's SOP DCN1-44. Prior to sample collection, labels were filled out by the assistant as described above and affixed to appropriate laboratory-supplied and preserved containers. The sampler then donned three pairs of nitrile gloves and, using a laboratory-supplied, certified pre-cleaned and non-preserved container collected water directly from the river/pond taking care not to disturb and collect bottom sediment. The sampler then transferred the water to the sample containers, secured caps on the containers, and gently agitated the containers in an up and down motion to thoroughly dissolve the preservative. The filled sample containers were then placed in re-sealable plastic bags, packed in coolers on ice, and transported under chain-of-custody to NLS for PFC analysis by USEPA Method 537. The sample containers used for collection of water directly from the river/pond were sample-dedicated and discarded as solid waste after each use.

Following sampling, the sample locations were documented using a hand-held GPS instrument. All relevant information and observations pertaining to the sample location including an inventory of potential PFC-containing items in the immediate area, if any, were recorded in a Site dedicated field book.

The Phase II RI surface water sample analytical results are discussed below in Section 5.2.4.

#### 4.2.5 Sediment Sampling Procedures

Consistent with UMC's Phase II RIWP, UMC collected five sediment samples from along the foot of the embankment that parallels the east side of the Hoosic River to assess potential PFC impacts to sensitive receptors in that area. Figure 6b indicates the approximate sediment sample locations, designated as Sed-1 through Sed-5. Due to the steep and overgrown nature of the embankment, two field technicians were again engaged in the sediment sampling; one serving as the sampler and the other serving as an assistant to label containers and record observations. The sediment samples were collected from the most downstream location first, then proceeding upstream to eliminate the potential of false positives from disturbed sediment.

Sediment sample Sed-1 was collected from the outfall that receives storm water runoff from the Site property and potentially historically received discharge from the now inactive floor drain



system located inside the Site warehouse. Sediment samples Sed-2 through Sed-5 were collected at approximate evenly-spaced intervals north of the outfall, with Sed-5 collected at a location generally coincident with the northern-most boundary of the Site property. These samples were collected within 10 feet or less of the river, well within the seasonal high water level.

The sediment samples were collected consistent with UMC's SOP DCN1-44. The sediment samples were collected as a composite of the relatively shallow zero to 6-inch depth interval. Prior to sample collection, labels were filled out by the assistant as described above and affixed to appropriate laboratory-supplied containers. The sampler then donned three pairs of nitrile gloves and, using a pre-cleaned stainless steel hand trowel, removed loose organic debris, if any, from an approximately 10-inch diameter area around the sample location. The sampler then removed the underlying zero to 6-inch interval of sediment and homogenized it in a pre-cleaned stainless steel bowl. The sampler then transferred the sediment to the sample containers. The sediment samples were packed in coolers on ice, and transported under chain-of-custody to SGS for PFC analysis by USEPA Method 537 Modified.

In addition to sediment samples collected for PFC analysis, UMC collected one composite sediment sample consisting of sediment from each sample location. The sediment was homogenized in a stainless steel bowl, placed in appropriate containers and submitted to SGS for TOC analysis by Standard Method 5310B, total iron analysis by USEPA Method 6010C, and grain size analysis by ASTM D-422.

The sediment samples were visually classified for grain size, texture, moisture content, organic content, and evidence of staining or impacts and all relevant information and observations pertaining to the sample location including an inventory of potential PFC-containing items in the immediate area were noted and recorded by the assistant in a Site-dedicated field notebook.

The sample locations were documented using a hand-held GPS instrument. The sampler changed gloves and the sampling equipment was decontaminated between each sampling location by triple rinsing using PFC-free water.

The Phase II RI sediment sample analytical results are discussed below in Section 5.2.2.

#### 4.2.6 Phase II RI QA/QC Sampling

During Phase II RI activities, UMC collected QA/QC samples for each "like" media (i.e., groundwater/surface water and soil/sediment) at a frequency of one duplicate and one MS/MSD sample per every 20 samples collected.

UMC also collected one aqueous equipment blank sample per working day during groundwater sampling for QA/QC purposes. Because dedicated sample tubing was used at each groundwater sampling location, no equipment blank samples related to the groundwater sampling were collected. Because dedicated laboratory-supplied sample containers were used at each surface water sampling location, no equipment blank samples related to the surface water sampling were collected. Equipment blank samples related to the soil/sediment sampling were collected by first decontaminating the sampling equipment (i.e. hand trowel and mixing bowl) as described above. PFC-free water was then poured over the equipment and collected in appropriate laboratory-supplied and preserved containers. In addition, UMC collected one equipment blank sample by



pouring PFC-free water through a disposable macro-core sleeve to demonstrate the sleeves are PFC-free.

UMC collected field blank samples on each day that media sampling was conducted to assess ambient air conditions. One field blank sample was collected each sampling day proximate to active sampling locations as described above in Section 4.1.7.

UMC labeled the QA/QC samples as described above and pack the samples in coolers on ice. The groundwater/surface water QA/QC samples and soil/sediment QA/QC samples were transported under chain-of-custody to SGS for PFC analysis by USEPA Method 537 and USEPA Method 537 Modified, respectively. A discussion of the Phase II RI QA/QC sampling results and data usability is provided below in Section 5.3.

#### 4.2.7 Hydrogeologic Data Collection Procedures

##### 4.2.7.1 Groundwater Elevation Measurements

On October 25, 2016, UMC measured the depth to groundwater in all Study Area monitoring wells installed during Phase II RI activities using an electronic water level meter. The measurements were made relative to the top of the PVC riser pipe in each well. The water level meter was decontaminated between each well by triple rinsing the meter in PFC-free water. Table 1 lists the October 25, 2016 depth to groundwater measurements collected by UMC and the groundwater elevation observed in each well, calculated by subtracting the depth to groundwater from the PVC riser elevation provided by VSE.

The resultant groundwater elevation data was used to assess the horizontal and vertical groundwater gradient in shallow, intermediate, and deep intervals across the Study Area, discussed below in Section 5.2.6.

##### 4.2.7.2 Hydraulic Conductivity Testing

Following the collection of groundwater samples, UMC conducted rising and falling head slug testing in each of the monitoring wells installed during Phase II RI activities to assess the hydraulic conductivity in shallow, intermediate, and deep intervals.

Slug testing involves the removal or adding of water from the well or otherwise displacing water in the well with a mechanical slug (i.e. an object of known volume), resulting in a rise or fall of water level in the well. Changes in water level are then recorded as the water level either rises (rising head) or falls (falling head) back to static level. The rate of water level change is a function of the hydraulic conductivity of the formation and the geometry of the well and screened interval. When conducted in sufficient number both spatially and vertically across an area, slug tests are valuable for assessing subsurface heterogeneity and isotropy.

UMC conducted the slug testing consistent with procedures conveyed to UMC from the VTDEC in an e-mail correspondence dated August 25, 2016. Accordingly, UMC conducted the slug testing a minimum of 24 hours following the collection of groundwater samples from any given well to allow the groundwater level in the well to return to static level. Prior to beginning the slug testing, UMC measured the static groundwater level in each well using an electronic water level meter and installed a pressure transducer suspended on nylon string approximately three feet into the water column to record water level changes during the testing. The transducer was linked



via hard wiring to a laptop computer and synchronized with the computer to record real-time water level variations during testing. Static water level readings, test start and stop times, and well construction details necessary for slug test data analysis were noted on well-specific field sheets.

Following lowering of the transducer and collection of the static water level in the well, UMC lowered a disposable polyethylene bailer into the well, allowing the bailer to fill completely while suspended in the water column and then allowing the water level to stabilize to within 90% or more of the static level. UMC then noted the test start time and removed the water-filled bailer, effectively displacing the water level in the well downward to perform a rising head test. UMC then monitored the groundwater level in the well using the water level meter until the level stabilized to within 90% or more of the static level and recorded the test stop time, completing the rising head test.

Following completion of the rising head test, UMC slowly dropped the water-filled bailer back into the well, effectively displacing the water level in the well upward to perform a falling head test. UMC again monitored the groundwater level in the well using the water level meter until the level stabilized to within 90% or more of the static level and recorded the falling head test start and stop times. UMC notes that falling head tests were only conducted in those wells where the screened interval in the well was completely submerged below the static water level, as any water in the well above the water table would flow out into the well pack resulting in erroneous data.

UMC donned three pairs of nitrile gloves during the slug testing and decontaminated the water level meter and transducer following the completion of testing in each well by triple-rinsing the instruments with PFC-free water.

UMC analyzed the collected slug test data for each well by the Hvorslev or van Camp method. Table 2 summarizes the slug test results, discussed below in Section 5.2.6.

The next section discusses UMC's observations, analysis, and results obtained during the Phase I and II RI activities.

## **5. NATURE AND EXTENT OF IMPACTS**

The nature and extent section of this Phase I and II RIR will present a comprehensive understanding of the Study Area related contaminants that pose the most significant risk to human health and the environment and exceed the published VTDEC and USEPA regulatory criteria. Sampling results from previous investigations were considered when interpreting site-related contamination. Also, this section will discuss the vertical and horizontal extents of contamination and any data gaps, as necessary.

### **5.1 Phase I RI Data Analysis and Observations**

#### **5.1.1 Waterloo<sup>APS</sup> Profiling Observations**

Cascade provided UMC with a report titled "Final Data Package for Waterloo<sup>APS</sup> Profiling Services" dated July 7, 2016 (Cascade report). Appendix I contains a copy of the Cascade report. The report contains plots that document the profiling data that was collected during Waterloo<sup>APS</sup> profiling including:



- The rate of probe advancement in feet per minute (ft/min).
- $I_K$  data recorded during probe advancement.
- The change in  $I_K$  following cessation of probe advancement (i.e.  $I_K$  increases, decreases, or remains steady).
- The depths where groundwater sampling was attempted and whether or not the attempts were successful.
- Stabilized physiochemical data at those depths where groundwater samples were collected.
- Depth of probe advancement.

As indicated on the plots, the rate of probe advancement generally ranged between approximately 6 ft/min and 24 ft/min with rates occasionally exceeding 30 ft/min. No clear correlation between penetration rate and  $I_K$  values was observed. Penetration rates generally decreased to rates of less than approximately 6 ft/min as the competent bedrock surface was approached.

Waterloo<sup>APS</sup> profiling was generally conducted to depths corresponding to Geoprobe<sup>®</sup> refusal at each profiling point, assumed to correspond to the approximate competent bedrock surface. The depths to bedrock were later generally confirmed by sonic drilling conducted during Phase II RI activities. Exceptions include PP-3, PP10, and PP-30 which were advanced to depths between approximately 5 feet and 13 feet deeper during sonic drilling, indicating Geoprobe<sup>®</sup> refusal on cobbles or glacial till material during Waterloo<sup>APS</sup> profiling. Overall, the Waterloo<sup>APS</sup> profiling points were conducted to an average depth of approximately 50 feet bgs. The depth to bedrock was generally observed to be significantly deeper along the western margin of the Site property as compared to the eastern boundary. The depth to bedrock and overburden thickness in the Study Area is discussed further below in Section 5.2.1 based on overall Phase I and Phase II RI observations.

As discussed above,  $I_K$  values obtained by Waterloo<sup>APS</sup> profiling can only be qualitatively compared to hydraulic conductivity values ranging between approximately  $10^{-5}$  to  $10^{-2}$  cm/sec, corresponding generally to very fine sand and silt to well sorted sand or sand and gravel mixtures (Reference 4). Accordingly, Waterloo<sup>APS</sup> profiling provides an indirect means of assessing subsurface hydrogeologic conditions. As indicated on the profiling plots in Appendix I, stratigraphic intervals with  $I_K$  values of approximately four and interbedded intervals with  $I_K$  values of approximately of three or less were typically observed during Waterloo<sup>APS</sup> profiling. Relatively thick intervals with  $I_K$  values of three or less were commonly observed below a depth of approximately 15 feet bgs.  $I_K$  values in this range indicate hydraulic conductivity values of  $10^{-3}$  or potentially less, typical of hydraulically confining silt and clay intervals or semi-confining very fine sand and silt intervals.  $I_K$  values greater than four were occasionally observed, indicating intervals with hydraulic conductivity values of  $10^{-2}$  or potentially higher, typical of more permeable sand or sand and gravel mixtures.

Consistent with UMC's Phase I RIWP, monitoring well cluster locations and specific depth intervals for the installation of well screens were selected in part on Waterloo<sup>APS</sup> groundwater sampling results (discussed below) and on analysis of  $I_K$  data. Phase II RI activities and data analysis included the preparation of geologic cross sections based on direct observation of soil collected during sonic drilling and the collection of rising and falling head hydraulic conductivity



testing conducted in finished monitoring wells. Accordingly, Study Area hydrogeology is discussed further below in Section 5.2.6 based on overall Phase I and Phase II RI findings.

### 5.1.2 Waterloo<sup>APS</sup> Groundwater Sampling Results and Discussion

Table 3 summarizes the depth of Geoprobe<sup>®</sup> refusal, the depth of groundwater sample collection, and the groundwater sample analytical results obtained during Phase I RI Waterloo<sup>APS</sup> profiling, and compares the results to both the VTDEC and USEPA DWHAs. Samples are identified by the profiling point from which they were collected followed by the sampling depth in parenthesis expressed in feet bgs (i.e. PP-3(55.8)). As indicated on Table 3, bedrock refusal was encountered at a depth of approximately 10 feet bgs at points PP-1 and PP-42. Dry soil conditions were observed in the borings and no groundwater samples were collected. Bedrock refusal was encountered at a depth of approximately 52 feet bgs at point PP-2 and five attempts were made at various depths to collect groundwater samples from the boring during Waterloo<sup>APS</sup> profiling. However, these attempts as well as multiple attempts at other points (noted on the Waterloo<sup>APS</sup> profiling plots in Appendix I) were unsuccessful as the intervals did not produce groundwater at practicable rates.

Appendix J contains laboratory reports provided to UMC by NLS summarizing Phase I RI groundwater sampling results for the remaining profiling points. A discussion of the results and the horizontal and vertical distribution of PFC impacts to groundwater based on those results follows.

#### 5.1.2.1 Waterloo<sup>APS</sup> Groundwater Sampling Results

Between one and four groundwater samples were collected from Waterloo<sup>APS</sup> profiling points PP-3 through PP-41, PP-43, and PP-44. In total, 100 groundwater samples were collected during profiling including, five duplicate samples collected at points PP-12, PP-19, PP-34, PP-38, and PP-43. As noted on Table 3, the USEPA Method 537 analysis includes the PFC analytes PFOA, PFOS, perfluorobutanesulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), and perfluorononanoic acid (PFNA). Laboratory analysis of Waterloo<sup>APS</sup> groundwater samples did not detect PFBS, PFHxS, or PFNA in concentrations exceeding laboratory reporting limits. PFHpA was detected in 12 of the 100 Waterloo<sup>APS</sup> groundwater samples at concentrations ranging from 3.47 ppt to 14.70 ppt. To UMC's knowledge, no DWHAs for PFHpA are established by the VTDEC or USEPA. Further, PFHpA is not considered a Contaminant of Concern (COC) for the Site property.

3 Groundwater samples did not detect PFOS at concentrations exceeding the laboratory reporting limit of 13 ppt.

Laboratory 3, laboratory analysis of 33 of the 100 Waterloo<sup>APS</sup> groundwater samples collected did not detect PFOA in concentrations exceeding the laboratory reporting limit of 6.7 ppt, including all four of the samples collected at point PP-11.

Laboratory analysis of 67 of the 100 Waterloo<sup>APS</sup> groundwater samples detected PFOA in concentrations ranging from 7.04 ppt to 400 ppt. Laboratory analysis of 22 of these samples did not detect PFOA in concentrations exceeding the VTDEC or USEPA DWHA for PFOA of 20 ppt and 70 ppt, respectively.

Laboratory analysis of 45 of the 100 Waterloo<sup>APS</sup> groundwater samples detected PFOA at concentrations ranging from 20.10 ppt in sample PP-16(12.4) to 400 ppt in sample PP-41(13.5),



exceeding the VTDEC DWHA for PFOA of 20 ppt. Analysis of five of these samples detected PFOA in concentrations ranging from 97.8 ppt in sample PP-29(36.2) to 400 ppt in sample PP-41(13.5), exceeding the USEPA DWHA for PFOA of 70 ppt. Waterloo<sup>APS</sup> groundwater sampling results exceeding the VTDEC DWHA for PFOA of 20 ppt are highlighted in red on Table 3. Those exceeding the USEPA DWHA for PFOA of 70 ppt are highlighted in yellow.

5.1.2.2 Discussion of Waterloo<sup>APS</sup> Groundwater Sampling Results

Figure 5 depicts the horizontal and vertical distribution of PFOA impacts to groundwater detected during Waterloo<sup>APS</sup> profiling. The Waterloo<sup>APS</sup> profiling indicates the horizontal distribution of PFOA impacts to groundwater, regardless of the sampling interval, appears to be highest in magnitude near the north end and east side of the Site property. This area includes profiling points PP-24, PP-27, PP-29, PP-30, and PP-41 where PFOA concentrations were observed to exceed the USEPA DWHA for PFOA of 70 ppt.

The following table summarizes the vertical distribution of PFOA impacts to groundwater based on Waterloo<sup>APS</sup> groundwater sample analytical results and considering approximate 25-foot thick depth intervals.

<b>Depth Interval (feet bgs)</b>	<b>Number of Samples Collected</b>	<b>Percentage Exceeding Reporting Limits</b>	<b>Average Concentration Exceeding Reporting Limits (ppt)</b>	<b>Percentage Exceeding VTDEC DWHA</b>	<b>Average Concentration Exceeding VTDEC DWHA (ppt)</b>
<25	44	98	51	75	62
25-50	32	47	27	25	37
>50	24	38	25	17	40

As indicated on the above table, Waterloo<sup>APS</sup> sampling indicates the vertical distribution of PFOA impacts to groundwater is generally higher in magnitude in the shallow groundwater interval as compared to deeper intervals. The greater number of samples collected in the shallow interval as compared to deeper intervals reflects the shallower depth to bedrock observed along the eastern boundary of the Site property as compared to the western boundary, as well as, the generally lower  $I_k$  values observed in deeper intervals. However, analysis of approximately 98% of the samples collected at depths less than 25 feet bgs detected PFOA at concentrations exceeding laboratory reporting limits as compared to approximately 38% to 47% of the samples collected from deeper intervals. Analysis of 75% of the samples collected at depths less than 25 feet bgs detected PFOA at concentrations exceeding the VTDEC DWHA for PFOA of 20 ppt, as compared to 17% to 25% of the samples collected from deeper intervals. In addition, four of the five samples with PFOA concentrations exceeding the USEPA DWHA of 70 ppt were collected from depths less than 25 feet bgs.

Groundwater samples collected from depths less than 25 feet bgs, with detections of PFOA exceeding reporting limits, had an average concentration of approximately 51 ppt while samples collected from deeper depths had average PFOA concentrations between 25 ppt and 27 ppt. Of the samples exceeding VTDEC DWHA, an average PFOA concentration of 62 ppt was detected in samples collected from depths less than 25 feet bgs as compared to between 37 ppt and 40 ppt detected in the deeper intervals.



The horizontal and vertical distribution of PFOA impacts to groundwater across the Study Area are discussed further below in Section 5.2.3, based on overall Phase I and Phase II RI findings.

## 5.2 Phase II RI Data Analysis and Observations

### 5.2.1 Phase II RI Test Boring Observations and Discussion

Phase II RI activities included the advancement of test borings at 16 Waterloo<sup>APS</sup> profiling points on the Site property and two points on the 1467 Route 346 property, designated as MM-1 through MM-16, and BP-1 and BP-2, respectively, on Figures 6a and 6b. A discussion of Phase II RI test boring observations follows.

#### 5.2.1.1 Phase II RI Soil and Sediment Observations and Discussion

##### 5.2.1.1.1 Soil Observations and Discussion

Apparent top soil consisting of one to two feet of dark brown to black sandy or sandy silt loam with varying amounts of gravel was observed in Phase II RI test borings conducted in grass-covered portions of the Study Area. With the exception of test borings BP-1 and BP-2 conducted on the 1467 Route 346 property, apparent fill material consisting generally of brown, fine to course-grained sand or sandy silt with varying amounts of gravel and cobbles was generally observed in the test borings below the top soil or from the ground surface to depths ranging between approximately one and ten feet bgs. The fill material was generally dry and elevated above saturated soil and static groundwater levels.

Relatively small amounts of solid waste material including fragments of wood, brick, asphalt, concrete, metal, and glass were occasionally observed in the fill material. Metal fragments, metal piping, and pieces of copper wire were observed in the approximately 8 to 10-foot thick interval of fill material at MM-9. Four attempts were required at MM-9 before the boring could be advanced to its final depth of approximately 61 feet bgs, with obstructions encountered as deep as 10 feet bgs. Test boring MM-9 is located in a tree and brush covered area south of the retention pond that is slightly elevated relative to the surrounding Site property. A limited amount of solid waste material including metal fragments and pieces of dimensioned lumber was observed on the ground surface or partially buried in this area.

Soil observed in the 1467 Route 346 property BP-1 and BP-2 test borings appeared to be largely undisturbed and native in origin. This soil, as well as, apparent native soil underlying fill material in the remainder of the Study Area, consists generally of fine to coarse sand or silty fine to medium sand with varying amounts of gravel and occasional gravel lenses, underlain by sandy silt or silt/clay mixtures occasionally interbedded with coarser sands and gravels. The soil intervals vary greatly in thickness, ranging up to approximately 20 feet. Based on drilling rates and direct observation, non-cohesive soil densities ranged from loose to dense while cohesive soils ranged from soft to very stiff. This native sequence is interpreted to be representative of Holocene-age river floodplain and tributary alluvium underlain by Pleistocene-age glacio-lacustrine deposits with occasional interbeds of glacio-fluvial deposits.

The sequence described above generally extends to depths within approximately 3 to 20 feet of the bedrock surface. The intervening material generally consists of medium to very dense mixtures of clay, silt, sand, gravel, and occasional cobbles. Exceptions include borings MM-10 and MM-11 where the material was absent and overburden was observed to be thinner as

compared to nearby borings. This material is interpreted to be representative of Pleistocene-age basal till or glacial outwash material.

Figures 7a and 7b depict geologic cross-sections A-A' and B-B', constructed longitudinally (north to south) along the west and east sides, respectively, of the Study Area. The cross-sections depict the generalized overburden stratigraphy of the Study Area, indicating the primary constituents observed in each interval. As indicated on the cross-sections, the intervals are highly variable in thickness and are discontinuous across the Study Area. This indicates that, where present and depending on vertical hydraulic gradients, there is the potential for PFC solute transport to deeper intervals through semi-confining sandy silt or silt/clay intervals.

#### *5.2.1.1.2 Sediment Observations and Discussion*

UMC removed approximately two inches of organic debris from each sediment sample location during Phase II RI activities, exposing underlying undisturbed sediment. The sediment samples generally consisted of silty sand with a significant percentage of gravel, interpreted to be relatively recently deposited as river alluvium.

#### *5.2.1.1.2 Phase II RI Bedrock Observations and Discussion*

The Study Area test borings were advanced to bedrock refusal using either sonic or Geoprobe<sup>®</sup> drilling methods. The depth to bedrock and therefore the thickness of overlying soil, varied between approximately 10 feet bgs at Waterloo<sup>APS</sup> profiling point PP-42 (where no monitoring well cluster was installed) and 97 feet bgs at well cluster BP-2. Refusals using either sonic or Geoprobe<sup>®</sup> methods were generally abrupt with little or no evidence observed of a weathered bedrock interval. Geoprobe<sup>®</sup> refusals were occasionally encountered in very hard glacial till material overlying bedrock. With the exception of MM-1, refusals were generally encountered at slightly deeper depths using sonic drilling methods. At MM-1, Geoprobe<sup>®</sup> refusal during advancement of profiling point PP-2 was encountered at a depth of approximately 52 feet bgs. However, during sonic drilling, refusal was encountered at approximately 48 feet bgs indicating a slightly higher bedrock surface at the off-set location.

Often during sonic drilling, pieces of bedrock were recovered, allowing for direct observation. The bedrock was observed to consist of a dark-gray schist, similar in appearance to the exposed bedrock along the scarp that generally defines the eastern boundary of the Study Area. The bedrock is interpreted to be representative of the Walloomsac Formation.

Figure 8 depicts inferred bedrock surface elevation contours and the thickness of overburden at each monitoring well cluster based on test boring observations and ground surface elevation data provided by VSE. Bedrock is generally closest to the ground surface and therefore the overlying soil is generally thinnest along the eastern boundary of the Site property, closest to the bedrock scarp east of Route 346. Figure 8 indicates that the bedrock surface generally slopes downward from east to west at a slope of approximately 0.15 feet per foot (ft/ft) between MM-4 and MM-12 and between BP-1 and BP-2. Assuming this slope remains relatively constant, the bedrock surface at a point 300 feet west of the Site property (and west the Hoosic River), and 300 feet west of the 1467 Route 346 property (still east of the Hoosic River) is anticipated to be approximately 120 feet bgs.



## 5.2.2 Phase II RI Soil and Sediment Sample Analytical Results and Discussion

Table 4 summarizes the Phase II RI surficial soil sample and sediment sample laboratory analytical results. Table 5 summarizes the deep soil sample analytical results. To UMC's knowledge, there are no VTDEC standards for PFCs in sediment. Therefore, Tables 4 and 5 compare both the soil and sediment sample PFC analytical results to the VTDEC screening values for PFCs in surface soil established in the March 10, 2016 VTDOH Memorandum. Figure 6b depicts the soil and sediment sample locations and the horizontal and vertical distribution of PFC impacts. Appendix J contains laboratory reports provided to UMC by SGS summarizing Phase II RI soil and sediment sample results.

Tables 4 and 5 also summarize the results of the additional analyses conducted including soil and sediment sample TOC and iron concentrations and sample grain size distribution. Results of these analyses in terms of relative magnitude and distribution are discussed collectively below in Section 5.2.2. The potential influence of these parameters on the fate and transport of PFCs in the environment is discussed below in Section 6.

A discussion of the shallow and deep soil sample and sediment sample PFC analytical results follows.

### 5.2.2.1 Surficial Soil Sample PFC Analytical Results and Discussion

Table 4 presents the laboratory analytical results for the surficial soil samples collected during Phase II RI activities. The PFCs PFBS, PFHxS, PFNA, PFHpA, and PFOS were not detected at concentrations exceeding laboratory reporting limits.

PFOA was detected in 13 of the surficial soil samples at concentrations or estimated concentrations ranging from 0.00125 mg/Kg in samples MM-7(12-18") and MM-12(12-18") to 0.0544 mg/Kg in sample MM-2(18-24"). These concentrations do not exceed the VTDEC screening value for PFOA in surface soil of 0.30 mg/Kg.

However, as indicated on Table 4 and Figure 6b, analysis of the surficial soil samples collected in test borings MM-7 and MM-9 from the 6-inch to 12-inch, 12-inch to 18-inch, and 18-inch to 24-inch intervals detected PFOA at concentrations or estimated concentrations exceeding laboratory reporting limits. As discussed above, test boring MM-9 was conducted in a slightly elevated and vegetated area where solid waste material was observed on the ground surface and to a depth of approximately 8 to 10 feet bgs. Test boring MM-7 was conducted immediately northwest of this area. Based on these observations, the area may contain solid waste material that is actively leaching PFOA to groundwater.

### 5.2.2.2 Deep Soil Sample PFC Analytical Results and Discussion

Table 5 presents the laboratory analytical results for the deep soil samples collected during Phase II RI activities. Analysis of the samples did not detect the PFCs PFBS, PFHxS, PFNA, PFHpA, or PFOS at concentrations exceeding laboratory reporting limits.

PFOA was detected in deep soil sample MM-14(7-17') at a concentration of 0.00830 mg/Kg. This concentration does not exceed the VTDEC screening value for PFOA in surface soil of 0.30 mg/Kg. Analysis of the remaining deep soil samples did not detect PFOA at concentrations exceeding laboratory reporting limits.



### *5.2.2.3 Sediment Sample PFC Analytical Results and Discussion*

Table 4 and Table 5 present the laboratory analytical results for the sediment samples collected during Phase II RI activities. Analysis of the samples did not detect PFCs at concentrations exceeding laboratory reporting limits.

### *5.2.2.4 Additional Soil and Sediment Sample Analytical Results and Discussion*

#### *5.2.2.4.1 TOC Analytical Results*

TOC was detected in analysis of the composite surficial soil samples in concentrations ranging from 1,510 mg/Kg in sample MM-16(0-2') to 43,500 mg/Kg in sample MM-5(0-2'). TOC was detected in analysis of the composite sediment sample (designated as SED-COMP on Table 4) at a concentration of 16,000 mg/Kg (.

TOC was not detected in analysis of the composite deep soil samples MM-12(12-22'), MM-12(43-48'), MM-13(20-25'), MM-15(5-15'), MM-15(63-68'), or BP-2(10-20') in concentrations exceeding laboratory reporting limits. Analysis of the remaining samples detected TOC in concentrations ranging from 1,210 mg/Kg in sample MM-8(35-40') to 18,300 mg/Kg in sample MM-6(5-15').

These data indicate that TOC is generally more widespread and concentrations are higher in magnitude in the shallow zero to two foot soil interval as compared to deeper intervals, likely the result of increased organic activity in shallow soil and sediment.

#### *5.2.2.4.2 Iron Analytical Results*

Total iron was detected in analysis of the composite surficial soil samples at concentrations ranging from 4,260 mg/Kg in sample MM-1(0-2') to 72,200 mg/Kg in sample MM-5(0-2'). Total iron was detected in analysis of the composite sediment sample at a concentration of 21,900 mg/Kg.

Total iron was detected in analysis of the composite deep soil samples at concentrations ranging from 13,500 mg/Kg in sample BP-1(37-42') to 34,000 mg/Kg in sample MM-15(5-15').

Overall, soil and sediment total iron concentrations are generally within the same order of magnitude, indicating no significant variation either horizontally or vertically in the Study Area.

#### *5.2.2.4.3 Grain Size Distribution*

The laboratory reports in Appendix J report the grain size distribution of soil and sediment samples collected during Phase II RI activities in terms of the percentage of gravel, sand, and colloidal (silt/clay) sized particles in each sample.

The percentage of gravel observed in the samples ranged as high as 69.5% in deep soil sample MM-4(73-78') with corresponding percentages of sand, and silt/clay of 26.4% and 4.1%, respectively. Sample MM-4(73-78') was collected on top of bedrock and is interpreted to be representative of highly permeable sandy gravel with a relatively minor amount of silt/clay, typical of glacial outwash material.

The percentage of sand observed in the samples ranged as high as 88.1% in deep soil sample BP-2(10-20) with corresponding percentages of gravel, and colloidal material of 0.6% and 11.3%,



respectively. This grain size distribution is representative of moderately permeable silty sand with minor amounts of gravel, typical of river floodplain alluvium.

The percentage of silt/clay observed in the samples ranged as high as 99.3% in deep soil sample BP-2(50-55) with virtually no gravel, and less than 1% sand. This grain size distribution is representative of relatively impermeable silt and clay mixtures typical of glacio-lacustrine material.

These results are consistent with UMC's direct observations of soil during sampling, generally indicating silty sand or sandy silt intervals with varying amounts of gravel interpreted as floodplain alluvium, underlain by similar intervals interbedded with silt/clay intervals interpreted as glacio-lacustrine material, which are in turn underlain by gravelly sand or sandy gravel interpreted as till or glacial outwash material overlying bedrock.

### 5.2.3 Phase II RI Groundwater Sampling Results and Discussion

Between October 31 and November 2, 2016, UMC collected groundwater samples from monitoring well clusters installed during Phase II RI activities. Table 6 summarizes the well screen intervals from which the samples were collected, and the groundwater sample PFC analytical results compared to both the VTDEC and USEPA DWHAs. The groundwater samples are identified as being collected from either shallow (S), intermediate (I), or deep (D) intervals (i.e. BP-1S, BP-1I, and BP-1D).

Figure 6a depicts the monitoring well locations and PFC analytical results. Appendix J contains laboratory reports provided to UMC by NLS summarizing Phase II RI groundwater sampling results. A discussion of the results and the horizontal and vertical distribution of PFC impacts to groundwater based on those results follows.

#### 5.2.3.1 Phase II RI Groundwater Sampling Results

Forty four groundwater samples were collected during the Phase II RI groundwater sampling event, including three duplicate samples collected from MM-1D, MM-5S, and MM-8S. As noted on Table 6, analysis of the samples did not detect the PFCs PFBS or PFHxS at concentrations exceeding laboratory reporting limits. PFNA was detected in analysis of groundwater sample MM-2S at an estimated concentration of 2.36 ppt. PFHpA was detected in 32 of the 44 groundwater samples at concentrations or estimated concentrations ranging from 1.06 ppt in sample BP-2D to 13.4 ppt in sample MM-2S. As discussed above, to UMC's knowledge no DWHAs are established for these analytes by the VTDEC or the USEPA and they are not considered COCs for the Site property.

Laboratory analysis of groundwater sample MM-16S detected PFOS at an estimated concentration of 4.0 ppt. PFOS was not detected in analysis of the remaining Phase II RI groundwater samples in concentrations exceeding laboratory reporting limits.

Analysis of groundwater samples MM-5D, MM-10D, BP-2I did not detect PFOA at concentrations exceeding laboratory reporting limits.

Analysis of groundwater samples MM-7S, MM-9S, MM-10D, MM-12I, MM-12D, MM-15S, BP-2S, and BP-2D detected PFOA at concentrations or estimated concentrations ranging from



2.36 ppt in sample MM-12D to 12.7 ppt in MM-12I. These concentrations do not exceed the VTDEC or USEPA DWHAs for PFOA of 20 ppt and 70 ppt, respectively.

Laboratory analysis of 34 of the 44 groundwater samples collected during the Phase II RI sampling event detected PFOA at concentrations ranging from 21.60 ppt in sample MM-4S to 180 ppt in sample MM-13S, exceeding the VTDEC DWHA for PFOA of 20 ppt. These samples include MM-1D, MM-2S, MM-11S, MM-13S, and BP-1S with detected PFOA concentrations ranging from 77.8 ppt in sample BP-1S to 180 ppt in MM-13S, exceeding the USEPA DWHA for PFOA of 70 ppt. In addition, analysis of sample MM-16S detected PFOA at a concentration of 125 ppt and PFOS at an estimated concentration of 4.0 ppt. The sum concentration of PFOA and PFOS detected in sample MM-16S of 129 ppt exceeds both the VTDEC and USEPA DWHAs for those analytes of 20 ppt and 70 ppt, respectively.

With the exception of sample MM-16S, PFOS was not detected in analysis of the Phase II RI groundwater samples in concentrations exceeding laboratory reporting limits.

*5.2.3.2 Discussion of Phase II RI Groundwater Sampling Results*

Figure 6a depicts the horizontal and vertical distribution of PFOA impacts to groundwater detected during the Phase II RI groundwater sampling event. As with Waterloo<sup>APS</sup> groundwater sampling results, the highest magnitude PFOA impacts observed during Phase II RI sampling, including those exceeding the USEPA DWHA of 70 ppt, are observed near the north end and east side of the Site property. Similarly, impacts appear to be greater on the east side of the 1467 Route 346 property in the vicinity of well cluster BP-1 where the USEPA DWHA is also exceeded, as compared to the west side of the property in the vicinity of cluster BP-2. As discussed above, a municipal waste water line is located along the east side of Route 346 in the vicinity of the 1467 Route 346 property that crosses beneath Route 346 and traverses north to south along the east side of the Site property, before terminating at the pump house on the WWTF property. Based on the horizontal distribution of PFOA impacts, particularly to the relatively shallow groundwater interval (discussed below), the waste water line may be acting as a preferential pathway for groundwater migration and PFOA solute transport.

The following table summarizes the vertical distribution of PFOA impacts to groundwater based on Phase II RI groundwater sample analytical results and considering approximate 25-foot thick depth intervals.

<b>Depth Interval (feet bgs)</b>	<b>Number of Samples Collected</b>	<b>Number of Samples Exceeding Reporting Limits</b>	<b>Average Concentration Exceeding Reporting Limits (ppt)</b>	<b>Percentage Exceeding VTDEC DWHA</b>	<b>Average Concentration Exceeding VTDEC DWHA (ppt)</b>
<25	21	21	56	81	68
25-50	14	13	38	79	44
50-75	7	6	44	71	51
>75	2	2	16	50	28

As indicated on the above table, analysis of 42 of the 44 groundwater samples collected during the Phase II RI sampling event detected PFOA at concentrations exceeding laboratory reporting



limits. However, analysis of approximately 80% of the samples collected between zero and 50 feet bgs detected PFOA at concentrations exceeding the VTDEC DWHA for PFOA of 20 ppt, as compared to between 50% to 70% of the samples collected from deeper intervals.

Of the samples exceeding VTDEC DWHA's, an average PFOA concentration of approximately 68 ppt was detected in samples collected at depths less than 25 feet bgs and averages of between 28 ppt and 51 ppt were detected in the deeper intervals. Of the six samples with PFOA concentrations exceeding the USEPA DWHA for PFOA of 70 ppt, five were collected from depths less than 25 feet bgs with concentrations ranging between 77.8 ppt and 180 ppt, while one sample was collected from the 25 to 50 foot interval with a concentration of 97.4 ppt.

These results and the Waterloo<sup>APS</sup> groundwater sampling results within similar depth intervals, indicate that solute transport of PFOA from relatively shallow to deeper intervals is evident. However, the frequency and magnitude of PFOA impacts to groundwater both horizontally and vertically across the Study Area appears to be generally higher in the shallow groundwater interval as compared to deeper intervals. In addition, UMC notes that while the data indicates a surficial source or sources of groundwater PFOA impacts are evident, the overall pervasiveness of PFCs documented to be present in the environment suggests that an off-Site source or sources may be contributing to the impacts, particularly to those observed in deeper intervals.

#### 5.2.4 Phase II RI Surface Water Sampling Results and Discussion

Table 6 and Figure 6a summarize surface water sample analytical results obtained during UMC's Phase II RI activities. Appendix XXX contains laboratory reports provided to UMC by NLS summarizing Phase II RI surface water sampling results.

Laboratory analysis of surface water samples SW-1 and SW-2, collected from the Hoosic River west of the Site property, as well as analysis of sample SW-3, collected from the retention pond on the 1467 Route 346 property did not detect PFCs at concentrations exceeding laboratory reporting limits.

These results indicate that surface water in the vicinity of the Study Area has not been impacted with PFCs above laboratory limits. However, analysis of a surface water sample collected from the retention pond during UMC's March 2016 IRI, detected PFOA (17.6 ppt) and PFOS (7.26) at a sum concentration of 24.86 ppt, exceeding the VTDEC DWHA for the sum concentration of those analytes of 20 ppt. As discussed above, the retention pond is currently lined with an apparently impermeable membrane with water level in the pond maintained by surface water runoff.

#### 5.2.5 Vault Contents Analytical Results and Discussion

As discussed above, UMC observed pellet material in four vaults located inside the Site property warehouse. UMC collected one composite sample of the material designated as VP-Comp and submitted the sample to ALS for total PFC and TCLP analysis by USEPA method 537 Modified. Appendix J contains a copy of the laboratory report provided to UMC by ALS summarizing the composite sample VP-Comp analytical results. A discussion of the results follows.

##### 5.2.5.1 Total PFC Analysis

Analysis of the composite sample VP-Comp detected PFOA at a concentration of 1.3 nanograms per gram (ng/g) which equates to 0.0013 mg/Kg. The PFCs perfluorohexanoic acid (PFHxA) and

perfluoropentanoic acid (PFPA) were detected in the sample at concentrations of 0.0032 mg/Kg and 0.0013 mg/Kg, respectively.

Analysis of composite sample VP-Comp did not detect PFOA in concentrations exceeding either the VTDEC or USEPA Soil Screening Values for PFOA of 0.30 mg/Kg and 16 mg/Kg, respectively.

#### 5.2.5.2 TCLP Analysis

TCLP analysis of composite sample VP-Comp detected the following PFCs:

• Perfluorobutanoic Acid (PFBA)	12 nanograms per liter (ng/L)
• PFHpA	57 ng/L
• PFHxA	64 ng/L
• PFNA	10 ng/L
• PFOS	21 ng/L
• PFOA	110 ng/L
• PFPA	180 ng/L

Considering a detected total mass concentration of PFOA of 0.0013 mg/Kg, and PFOA and PFOS leachate concentrations of 21 ng/L and 110 ng/L, respectively, the material in the vaults has the potential to produce and continue to produce leachate containing PFOA and PFOS. Therefore, the material is a potential on-going source of the observed PFOA and PFOS impacts to Site groundwater.

#### 5.2.6 Phase II RI Hydrogeologic Findings and Discussion

Phase II RI hydrogeologic activities included an assessment of Study Area groundwater flow direction, groundwater horizontal and vertical gradients, and overburden hydraulic conductivity values. The following sections summarize Phase II RI hydrogeologic-related findings and provide an overall discussion of those findings.

##### 5.2.6.1 Groundwater Flow Direction and Horizontal Gradient Findings

On October 25, 2016, UMC measured the depth to overburden groundwater in monitoring wells installed during Phase II RI activities. Table 1 lists the groundwater elevation in each well in feet amsl based on VSE survey data and the October 25, 2016 depth to groundwater measurements collected by UMC. In addition, Table 1 lists the depth bgs and the elevation of the top and bottom of the screened intervals in each monitoring well installed during Phase II RI activities based on VSE survey data. Figures 9a, 9b, and 9c depict overburden groundwater elevation contours for monitoring wells with screened intervals ranging from 25 feet or less bgs, 25 to 50 feet bgs, and greater than 50 feet bgs, respectively.

Table 1 and Figures 9a and 9b indicate the groundwater elevations at clusters MM-1 and MM-2, located in the northern-most portion of the Site property and screened in intervals less than 50 feet bgs, range from approximately 520.93 feet to 521.93 feet amsl. The elevations at clusters BB-1 and BP-2, located in the southern-most portion of the 1467 Route 346 property and screened in intervals less than 50 feet bgs, range from approximately 523.81 feet to 525.82 feet amsl. These data indicate that groundwater flow direction in intervals less than 50 feet bgs is from the 1467 Route 346 property south to the Site property at a horizontal gradient of approximately 0.002 ft/ft to 0.005 ft/ft.



Also, as depicted on Figures 9a and 9b indicate the groundwater elevations at clusters MM-7 and MM-10, located in the southern-most portion of the Site property and screened in intervals less than 50 feet bgs, range from approximately 522.69 feet to 524.53 feet amsl. The elevations at cluster MM-15, located on the PFD #2 property and screened in intervals less than 50 feet bgs, range from approximately 526.72 feet to 528.14 feet amsl. These data indicate that groundwater flow direction in intervals less than 50 feet bgs is from the PFD #2 property north to the Site property at a horizontal gradient of approximately 0.004 ft/ft to 0.009 ft/ft. UMC notes that the PFD #2 water supply well was operational on October 25, 2016 during collection of the depth to groundwater measurements. However, based on the radius of influence under pumping conditions of 3,000 feet documented for the PFD #2 water supply well and the groundwater elevation data discussed above, UMC assumes that the well was not actively pumping at that time.

Figure 9c indicates a groundwater elevation of approximately 521.73 feet amsl was observed in well MM-5D, located immediately south of the Site warehouse and screened at an interval greater than 50 feet bgs. An elevation of 526.83 feet amsl was observed in well MM-15D, also screened at an interval greater than 50 feet bgs. These data indicate that groundwater flow direction in the southern portion of the Site property at intervals greater than 50 feet bgs is also from the PFD #2 property north to the Site property at a horizontal gradient of approximately 0.005 ft/ft. However, as indicated on Figure 9c, a groundwater elevation of approximately 521.99 feet amsl was observed in well MM-2D, while an elevation of 521.03 feet amsl was observed in well BP-2D. These data indicate that groundwater flow direction in the northern portion of the Site property at intervals greater than 50 feet bgs is to the north at a horizontal gradient of approximately 0.001 ft/ft.

Figures 9a, 9b, and 9c indicate that groundwater elevations in the larger portion of the Site property (i.e. in monitoring well clusters south of MM-1 and MM-2 and north of MM-7 and MM-10) range from between 520.93 feet and 521.75 feet amsl, regardless of the screened interval depth. These data indicate that groundwater flow direction in the larger portion of the Site property is from east to west towards the Hoosic River with gradients between approximately 0.0004 ft/ft and 0.003 ft/ft.

#### 5.2.6.2 Groundwater Vertical Gradient Findings

The water level data presented on Table 1 and Figure 10 were used to identify the vertical gradients observed in monitoring well clusters screened between shallow and deep intervals in two-well clusters, and between shallow and intermediate and intermediate and deep intervals in three-well clusters. Overall, vertical gradients across the Study Area are generally upward and relatively small in magnitude. As indicated on Table 1, upward vertical gradients are evident in two-well clusters MM-1, MM-6, and MM-10, with screened intervals 50 feet bgs or less, and in MM-2, MM-4, MM-5, and MM-9, with screened intervals 50 feet bgs or more. Upward vertical gradients are also evident in three-well clusters: MM-3 between both deep and intermediate intervals (>50 feet bgs) and intermediate and shallow intervals (<50 feet bgs); MM-8 between the deep and intermediate intervals (>50 feet bgs); MM-12 between both deep and intermediate and intermediate and shallow intervals (each <50 feet bgs); MM-13 between the intermediate and shallow intervals (< 50 feet bgs); MM-15 between the deep and intermediate intervals (>50 feet bgs); and, BP-2 between deep and intermediate intervals (>50 feet bgs). These upward vertical



gradients range in magnitude from approximately 0.002 ft/ft to 0.09 ft/ft, with an overall average of 0.022 ft/ft.

Table 1 indicates downward vertical gradients are evident in three-well clusters: MM-7 between both deep and intermediate and intermediate and shallow intervals (each <50 feet bgs); MM-8 between the intermediate and shallow intervals (< 50 feet bgs); MM-13 between the deep and intermediate intervals (< 50 feet bgs); MM-15 between the intermediate and shallow intervals (<50 feet bgs); BP-1 between both deep and intermediate and intermediate and shallow intervals (each <50 feet bgs); and, BP-2 between the intermediate and shallow intervals (> 50 feet bgs). These downward vertical gradients ranged in magnitude from approximately 0.001 ft/ft to 0.10 ft/ft, with an overall average of 0.056 ft/ft.

#### 5.2.6.3 Hydraulic Conductivity Findings

Table 2 summarizes the hydraulic conductivity values obtained during Phase II RI slug testing. The table lists the screened interval in each well and the rising and, as applicable, falling head results obtained for each well expressed in feet per second (ft/sec) and feet per day (ft/day). The table allows a comparison of hydraulic conductivity values obtained in screened intervals ranging from less than 25 feet bgs, 25 feet to 50 feet bgs, and greater than 50 feet bgs. Soil types typical of the values are listed based on literature reviewed by UMC (Reference 4).

As discussed above, falling head tests were only conducted in those wells where the screened interval in the well was completely submerged below the static water level. Accordingly, in wells screened at less than 25 feet bgs, falling head tests were conducted only in well MM-13I and BP-2S. Both falling and rising head tests were conducted in wells screened greater than 25 feet bgs. Falling and rising head test results were generally within the same order of magnitude for each well tested. The exception was well BP-2S with a falling head test result an order of magnitude higher than the rising head result.

With the exception of the well BP-2S falling head test results, hydraulic conductivity values obtained during slug testing ranged from  $10^{-1}$  to  $10^{+2}$  ft/day. Results in the range of  $10^{-1}$  ft/day were obtained in monitoring wells MM-5S, MM-7S, MM-8S, and MM-10S screened at depths less than 25 feet bgs, and MM-1D, MM10D, and BP-1I screened at between 25 feet and 50 feet bgs, and BP-2I screened at greater than 50 feet bgs. Results in the range of  $10^{+2}$  ft/day were obtained in all other wells.

#### 5.2.6.4 Discussion of Hydrogeologic Findings

As discussed above, the larger part of the Site property sits in a basin within the 100-year floodplain of the Hoosic River that receives surface water runoff from surrounding more elevated areas. The basin is defined by Route 346 and the bedrock scarp to the east, the railroad right-of-way to the west, and the slightly elevated southern-most portion of the Site property. The northern portion of the basin is defined by an embankment in the northern-most portion of the Site property that slopes upward to a hilltop occupied by the 1235 Route 346 and 1277 Route 346 properties. The hill slopes downward to the north from the 1235 Route 346 and 1277 Route 346 properties, terminating at the southern edge of the 1467 Route 346 property retention pond and south of monitoring well clusters BP-1 and BP-2. Assuming the 1235 Route 346 and 1277 Route 346 property water supply wells were advanced to bedrock, the hill is composed of overburden material on the order of 86 feet (depth of the 1277 Route 346 property well) to 97 feet (depth of the 1235 Route 346 property well) thick.

The physiography described above is generally reflected by the groundwater elevation contours depicted on Figures 9a, 9b, and 9c. Based on available data, groundwater recharge on the Site property is the result of infiltration of meteoric water and surface water runoff from the surrounding more elevated areas, and groundwater flowing under hydraulic gradient through overburden materials in elevated areas to the north and south. Site groundwater then flows under hydraulic gradient from the Site property westward, likely seasonally discharging to the Hoosic River and/or passing beneath the river to deeper overburden portions of the river basin. This pattern indicates that PFC impacts observed in monitoring well cluster BP-1, as well as impacts documented by the VTDEC in the 1277 Route 346 and 1235 Route 346 property water supply wells, may not be the result of historical Site property activities. The impacts may instead be the result of generally poor housekeeping practices observed on the 1467 Route 346, 1277 Route 346, and/or 1235 Route 346 properties or from unidentified source(s) north of the 1467 Route 346 property. In addition, PFC-impacted groundwater flowing under hydraulic gradient through overburden material from the 1467 Route 346, 1277 Route 346, and/or 1235 Route 346 properties may be contributing to PFC impacts to groundwater observed on the Site property.

The vertical hydraulic gradient data indicates that, although low in magnitude, upward gradients are evident in the lower-most interval of all monitoring well clusters with screened intervals set at 50 feet or more bgs. As indicated on Figure 10, these clusters include MM-2, MM-3, MM-4, MM-5, and MM-9, located on the Site property, cluster MM-8, located on the WWTF property, cluster MM-15, located on the PFD #2 property, and cluster BP-2, located on the 1467 Route 346 property. Further, the data indicates that upward vertical gradients are observed in all of the monitoring well clusters installed on the Site property with the exception of both intervals in three-well cluster MM-7 and the lower-most interval in three-well cluster MM-13. Although low magnitude upward vertical gradients were generally observed throughout the Study Area, downward vertical gradients observed in some areas likely allow the transport of PFOA impacted groundwater to deeper intervals.

As indicated on Table 2, hydraulic conductivity values in the range of  $10^{-1}$  ft/day are typical of relatively low or moderately transmissive very fine sand and silt mixtures, whereas values in the range of  $10^{+2}$  ft/day are typical of more highly transmissive well-sorted sand or well-sorted sand with various amounts of gravel. The soil types indicated by hydraulic conductivity testing are generally similar to those logged during the direct observation of soil collected during boring advancement. The results indicate that monitoring well screens were generally set in relatively permeable intervals capable of solute transport of constituents and were occasionally set in less permeable semi-confining intervals. As discussed above,  $I_K$  values typical of hydraulically confining silt and clay intervals were observed during Waterloo<sup>APS</sup> profiling and intervals of this nature were observed during direct observations of soil during sonic drilling. These data indicate that the overall Study Area groundwater system consists of highly transmissive intervals interbedded with semi-confining or confining intervals that impede the vertical migration of groundwater.

### 5.3 QA/QC SAMPLING AND DATA USABILITY

A discussion of Phase I and Phase II RI QA/QC sampling results and data usability follows. In general, all data reviewed as part of this Phase I and II RIR was determined to be usable for its intended purpose. A detailed discussion of the Phase I and Phase II RI QA/QC sampling and analysis follows.



### 5.3.1 Phase I RI QA/QC Sampling

Table 3 summarizes Phase I RI QA/QC Waterloo<sup>APS</sup> groundwater sample analytical results. As indicated on the table, Phase I RI QA/QC sampling included the collection and laboratory analysis of five duplicate samples, 13 field blank samples, and 13 equipment blank samples. In addition, five of the Waterloo<sup>APS</sup> groundwater samples were submitted for MS/MSD analysis.

Relative percent differences obtained in the duplicate samples ranged from 6.37% in sample PP-12(10.5) to 9.08% in sample PP-43(11.5). Laboratory analysis of the field blank and equipment blank samples did not detect PFCs in concentrations exceeding laboratory reporting limits. Analysis of MS/MSD samples PP-11(16) and PP-38(53.7) did detect PFCs in concentrations exceeding laboratory reporting limits. Analysis of MS/MSD samples PP-16(40.3), PP-33(14.3), and PP-44(15) detected PFOA at concentrations of 20.10 ppt, 33.10 ppt, and 25.40 ppt, respectively.

### 5.3.2 Phase II RI QA/QC Sampling

#### 5.3.2.1 Soil and Sediment QA/QC Sampling

Table 4 summarizes Phase II RI QA/QC soil and sediment sample analytical results. As indicated on the table, soil and sediment QA/QC sampling conducted during Phase II RI activities included the collection and laboratory analysis of seven duplicate samples, 13 field blank samples, and 13 equipment blank samples. In addition, five of the soil samples were submitted for MS/MSD analysis.

Analysis of the duplicate, field blank, and equipment blank samples did not detect PFCs in concentrations exceeding laboratory reporting limits. Analysis of surficial MS/MSD soil sample MM-3(0-6") and deep soil samples MM-5(72-77'), MM-15(35-40'), and MM-16(7-17') did not detect PFCs in concentrations exceeding laboratory reporting limits. Analysis of surficial MS/MSD soil sample MM-13(18-24") detected PFOA at an estimated concentration of 0.00259 ppt.

#### 5.3.2.2 Groundwater and Surface Water QA/QC Sampling

Table 6 summarizes Phase II RI QA/QC groundwater and surface water sample analytical result. As indicated on the table, groundwater and surface water QA/QC sampling conducted during Phase II RI activities included the collection and laboratory analysis of three duplicate samples, and three field blank samples. In addition, three of the groundwater samples were submitted for MS/MSD analysis.

Relative percent differences obtained in the duplicate samples ranged from 1.27% in sample MM-9S to 12.17% in sample MM-1D. Laboratory analysis of the field blank samples did not detect PFCs in concentrations exceeding laboratory reporting limits. Analysis of MS/MSD groundwater sample MM-5D did not detect PFCs in concentrations exceeding laboratory reporting limits. Analysis of MS/MSD groundwater sample MM-7I detected PFOA at a concentration of 31.4 ppt. Analysis of MS/MSD groundwater sample MM-16S detected PFOS at an estimated concentration of 4.0 ppt and PFOA at a concentration of 31.4 ppt.

## 5.4 INVESTIGATION DERIVED WASTE

The Phase I and Phase II RI activities resulted in the generation of an estimated volume of 10,000 gallons of waste water during boring advancement, decontamination of equipment, monitoring



well development, and groundwater sampling. On October 31, 2016, UMC collected a sample of the waste water from the holding tank using a disposable polyethylene bailer and submitted the sample to NLS for PFC analysis by USEPA Method 537. Appendix J contains a copy of the laboratory report provided to UMC by NLS summarizing the waste water sample analytical results. Analysis of the waste water sample, designated as FT103116, detected PFOA at a concentration of 40.8 ppt and PFHpA at an estimated concentration of 2.62 ppt. As of the time of writing of this Phase I and II RIR, UMC is in consultation with the VTDEC regarding waste water disposal options. Consequently, the holding tank and waste water remains on the Site property pending resolution of this issue.

The Phase II RI activities resulted in the generation of soil spoils during the advancement of test borings. On October 31, 2016, UMC collected a sample of waste soil from the roll-off. The sample was collected as a composite of five grab samples from evenly spaced intervals in the roll-off, homogenized in a stainless steel bowl. UMC submitted the waste soil sample, designated as RO103116, to SGS for PFC analysis by USEPA Method 537 Modified, Resource Conservation and Recovery Act (RCRA) eight metals analysis by USEPA Method 6010C, total volatile organic compound (VOC) analysis by USEPA Method 8260, total semi-volatile organic compound (SVOC) analysis by USEPA Method 8270, total pesticides analysis by USEPA Method 8081, total herbicides analysis by USEPA Method 8151, total polychlorinated biphenyl (PCB) analysis by USEPA Method 8082, ignitability and flashpoint analysis by USEPA Method 1030, corrosivity/pH by USEPA Method 9045, reactive sulfide by USEPA Method 7.3.4.1, and reactive cyanide by USEPA Method 7.3.4.2. Appendix J contains a copy of the laboratory report provided to UMC by SGS summarizing the waste soil sample analytical results.

Waste soil sample analytical results were within acceptable limits for disposal as non-hazardous material at the Waste Management, Inc. (WM) Turnkey Landfill located in Rochester, New Hampshire. On January 13, 2017, Goulet Trucking Company, under the direction of WM and UMC, transported the roll-off and waste soil to the Turnkey Landfill for disposal. Appendix J contains a copy of the waste soil disposal manifest naming APU as generator of the soil and indicating a total of 9.05 tons of soil was disposed of at the Turnkey Landfill.

## 6. CONTAMINANT FATE AND TRANSPORT

The chemical and physical properties of PFOA and PFOS are documented as follows (References 5 and 6):

Property	PFOA	PFOS
Chemical Formula	C <sub>8</sub> HF <sub>15</sub> O <sub>2</sub>	C <sub>8</sub> HF <sub>17</sub> O <sub>3</sub> S
Molecular Weight	414.09 g/mol	500.13 g/mol
Boiling Point	192.4 °C	258-260 °C
Melting Point	54.3 °C	No data
Vapor Pressure	0.525 mm Hg at 25 °C	2.0 x10 <sup>-3</sup> mm Hg at 25 °C



<b>Henry's Law Constant</b>	Not measureable	Not measureable
<b>K<sub>ow</sub></b>	Not measureable	Not measureable
<b>K<sub>oc</sub></b>	2.06	2.57
<b>Solubility in Water</b>	9.50 x 10 <sup>3</sup> mg/L at 25 °C	680 mg/L
<b>Half-life in Water</b>	Stable	Stable
<b>Half-life in Air</b>	Stable when bound	Stable

**Notes:**

K<sub>ow</sub> = octanol-water partition coefficient; K<sub>oc</sub> = organic carbon-water partitioning coefficient.

PFCs include the sub-categories perfluoroalkyl carboxylates and perfluoroalkyl sulfonic acids. PFOA is a perfluoroalkyl carboxylate that is produced synthetically as the salt ammonium perfluorooctanoate (APFO) and has historically been used as an aqueous dispersion agent (additive) in the manufacture of certain fluoropolymers, including Gore-Tex<sup>®</sup>, Stainmaster<sup>®</sup>, and Scotchgard<sup>®</sup>. Polytetrafluoroethylene, historically manufactured under the registered trade name Teflon<sup>®</sup>, is produced during the polymerization of tetrafluoroethylene. All of these products are documented to contain residual concentrations of PFOA. PFOS is a perfluoroalkyl sulfonic acid produced commercially from perfluorooctanesulfonyl fluoride (POSF), an intermediate used to synthesize other fluoro-chemicals. PFOS is not typically associated with Teflon<sup>®</sup> production but is used in a variety of applications including the manufacture of fire-fighting foam. However, the PFC containing pellet material sampled and tested from the onsite vaults contained PFOA and PFOS above laboratory detection limits. In addition to manufacturing-related sources, studies have shown that PFOA and PFOS are produced as end products of the degradation of fluorotelomer alcohols by microorganisms and by abiotic processes.

Both PFOA and PFOS are water soluble and have been found in all forms of precipitation and other water sources, including but not limited to surface water, groundwater, and drinking water, as well as the effluent from waste water treatment facilities, sewerage sludge, and landfill leachate. Neither adsorb easily to sediments or aquifer soil and therefore tend to stay in the water column. However, studies indicate that limited adsorption of PFOA and PFOS to soil occurs at near neutral pH, controlled by the electrostatic adsorption on ferric oxide minerals. Conversely, at higher pH, adsorption is controlled by soil organic carbon content. The near neutral pH observed in Study Area groundwater as well as the relatively high total Fe concentrations observed, suggests that adsorption to soil may be occurring. However, the near absence of PFOA or PFOS detected in Study Area soil suggests that adsorption is minimal and that the vast majority of PFOA and PFOS mass is suspended in the water column.

Both PFOA and PFOS are stable in the environment and resistant to hydrolysis, photolysis, volatilization, and biodegradation processes. The ionic carbon-fluoride bonds are strong, do not react with acids and bases, and are resistant to oxidation and reduction processes. As discussed above, both PFOA and PFOS can be formed by environmental degradation of related substances or precursor compounds. However, no effective biodegradation or abiotic degradation processes



for the PFOA or PFOS end products have conclusively been demonstrated. The only dissipation mechanisms in water are dilution, advection, and sorption.

Studies indicate that PFOA and PFOS bioaccumulate in animals and humans through direct ingestion or inhalation by binding to proteins in the liver, kidneys, and serum, and that they are slowly eliminated without biotransformation. Half-lives appear to be on the order of days in animals but on the order of years in humans. This half-life and the detection of both PFOA and PFOS in many food products including meat and grains, and food packaging materials, results in continued exposure that could increase body burdens through time.

Both PFOA and PFOS have a low volatility in ionized form, but can be released as aerosols or adsorb to particles in air enabling them to be transported long distances. This coupled with their relative chemical and biological stability in water results in PFOA and PFOS being ubiquitous at a global scale, found in virtually all environmental media including Arctic snow and ice caps, and ocean water to depths in excess of 3,000 feet. In a study conducted in the urban area around Albany, New York (Reference 8), total and individual concentrations of PFCs were measured in environmental media including air, rain, snow, surface water runoff, and lake water to identify sources and pathways of PFCs to urban waterbodies. Total PFC concentrations ranged from 8.28 picograms per cubic meter ( $\text{pg}/\text{m}^3$ ) to  $16.0 \text{ pg}/\text{m}^3$  in bulk air (the sum of vapor and particulate phases), 0.91 ppt to 13.2 ppt in rain water, 0.91 ppt to 23.9 ppt in snow, 1.11 ppt to 81.8 ppt in surface water runoff, and 9.49 ppt to 35.9 ppt in lake water. PFOA was the predominant PFC detected, accounting for in excess of 35% of the total PFC concentrations in all environmental media analyzed. PFOA was detected in snow and surface water runoff samples in concentrations as high as 19.6 ppt and 29.3 ppt, respectively, approaching or exceeding the VTDEC DWHA for PFOA of 20 ppt. Based on these data and the regular influx of rain, snow, and surface water runoff to the relatively low-lying Site property, as well as the potential influx of airborne PFC-containing aerosols and particulates, these media are likely significant contributors to the PFC impacts observed on the property.

#### 6.1 PFC-Impacted Groundwater Distribution and Transport Mechanisms

Groundwater impacts observed on the Site property are likely the result of PFC-impacted leachate and PFCs adsorbed to soil particles infiltrating through the unsaturated overburden to the groundwater table, driven by the meteoric water and surface water runoff. Once reaching the groundwater table, PFCs are dissipated through the relatively shallow groundwater interval by dilution and advection. The thickness of overburden material is generally thinner in the northern and eastern margins of the Site property. PFC impacts to groundwater are generally higher in magnitude in this area indicating less advection and dilution is occurring. In addition, backfill material installed under and around the municipal waste water line located in the area may be acting as a preferential pathway for shallow groundwater flow and the solute transport of PFC-impacted groundwater.

PFC impacts to groundwater are generally higher in magnitude and frequency in the relatively shallow groundwater interval as compared to deeper intervals. This condition reflects Study Area hydrogeologic conditions that are characterized by a leaky groundwater system consisting of highly transmissive intervals interbedded with semi-confining or confining intervals that impede the vertical migration of groundwater. Although low magnitude upward vertical gradients were generally observed throughout the Study Area, downward vertical gradients observed in some areas likely allow the transport of PFOA impacted groundwater to deeper intervals.

The generally lower concentrations in deeper intervals may be a result of higher transmissivities in the intervals, allowing for higher groundwater flow rates and faster contaminant transport. The generally observed upward vertical gradients may have the effect of reducing the downward movement of PFCs, resulting in lower concentrations in deeper intervals. Furthermore, the silt/clay intervals may act as storage areas, releasing the PFCs over time due to their lower transmissivities as compared to the sand/gravel intervals.

Based on available groundwater elevation data depicted on Figures 9a and 9b, groundwater flow direction in the northern portion of the Study Area in relatively shallow groundwater intervals, is from the 1467 Route 346 property south to the Site property. Conversely, as depicted on Figure 9c, groundwater flow direction in this portion of the Study Area in relatively deeper intervals is apparently reversed, flowing from south to north. Groundwater flow direction in the southern portion of the Study Area (assuming non-pumping conditions at the PFD #2 municipal water supply well) is from the PFD #2 property north to the Site property in both shallow and deep intervals. These conditions indicate that groundwater impacts on properties north and south of the Site property may be attributable to up gradient sources.

After converging on the Site property from the north and south, groundwater in relatively shallow intervals flows under hydraulic gradient westward seasonally discharging to the Hoosic River and/or passing beneath the river, likely resulting in a reduction PFC impacts due to advection and dilution. Groundwater flow in relatively deeper intervals is likely driven by a northwesterly component that directs groundwater towards the center of the glacially scoured Hoosic River basin, again likely resulting in a reduction PFC impacts due to advection and dilution.

## 6.2 CONCEPTUAL SITE MODEL

Between 1948 and 1986, the Site property was occupied by a wire and cable manufacturing facility. The facility underwent many phases of expansion during that time period and, beginning in 1951, initiated the use of Teflon<sup>®</sup> coated wire which was terminated with facility closure in 1986. UMC initiated Phase I and Phase II RI activities in the Study Area to assess potential PFC impacts to soil, sediment, surface water, and groundwater. The activities were initiated at the request of the VTDEC in response to the detection of PFOA in the PFD #2 municipal water supply well located approximately 1,000 feet south of the Site property warehouse. To the best of UMC's knowledge, PFOA and PFOS are the only PFCs with VTDEC or USEPA-established DWHAs and as such are the PFC related COCs for the Study Area.

The following discussion is the current PFC related Conceptual Site Model (CSM) for the Study Area based on the historical information summarized above, as well as, the data generated during Phase I and Phase II RI activities. This CSM is a dynamic document subject to change as additional information becomes available.

### 6.2.1 Overview of Study Area PFC Impacts

PFC concentrations in Study Area soil, sediment, and surface water collected during Phase I and Phase II RI activities are non-detect or minimal, in no case exceeding applicable VTDEC or USEPA standards. PFC impacts to Study Area overburden groundwater are generally widespread, with PFOA concentrations often exceeding the VTDEC DWHA for PFOA of 20 ppt and occasionally exceeding the USEPA DWHA for PFOA of 70 ppt. To date, the horizontal and



vertical extent of PFC impacts to overburden groundwater in the Study Area have not been delineated.

### 6.2.2 Potential Sources of PFCs

Potential onsite sources are associated with the sub-floor vaults located inside the Site warehouse contain PFOA and have the potential of producing PFOA leachate. As such, the material, as well as material likely in other vaults that were not opened, are considered a potential historical and on-going source of the observed PFC-related impacts to groundwater. Other potentially on-going sources may include other areas in the warehouse used for storage of the materials, the warehouse floor drain system and associated endpoints, the now inactive “Sewerage Control System”, and areas on the Site property where the disposal of PFC-impacted waste may have occurred. These areas include the wooded area in the southern portion of the property where metal fragments, metal piping, and pieces of wire were observed in test borings and the area north of the warehouse including the embankment sloping upward to the northerly abutting 1235 Route 346 property where limited amounts of solid waste material was observed on the ground surface.

Literature reviewed by UMC indicates that the automobile industry, including but not limited to, automobile parts, treatments used on automobile components, and automobile fluid additives are known to contain PFCs. For example, the corrosion of chrome plating, degradation of treated carpeting, and the degradation of treated vinyl and wire coatings typically found in motor vehicles can result in the release of PFCs to the environment. Further, literature reviewed by UMC indicates that landfills and salvage yards have been documented to be source areas of PFC-related impacts to the environment. VTDEC ANR Sheet #46.1, revised in June 2014 and titled “Permit and License Information”, states in part that “Salvage yards, formerly known as “junkyards”, are licensed under V.S.A. Title 24, Chapter 61” and defines the “Criteria for Jurisdiction” for the designation of salvage yards as “Any place of outdoor storage or deposit of junk/junk motor vehicles, whether or not in connection with a business” and “Any place of outdoor storage or deposit of four (4) or more junk vehicles that are visible to any portion of a public highway”. The document also states that a “.....Certificate of Registration is required for the operation of salvage yards in Vermont” and that “.....the salvage yards must have a current municipal Certificate of Approved Location and must meet ANR regulatory standards”. The VTDEC ANR 2016-2017 listing of permitted salvage yards in Vermont does not list the 1235, 1277, or 1467 Route 346 properties. Based on these conditions and UMC’s observations, the 1235, 1277, and 1467 Route 346 properties meet the Criteria for Jurisdiction for designation as salvage yards. Consequently, UMC considers the properties potential up gradient sources of the PFC impacts observed on the Site property.

Another source of PFCs to the site are precipitation events, based on the regular influx of rain, snow, and surface water runoff to the relatively low-lying Site property, as well as the potential influx of airborne PFC-containing aerosols and particulates, these media are likely significant contributors to the PFC impacts observed on the Site property.

Also, a wide variety of industrial and commercial enterprises have historically operated in the Hoosic River drainage, drawing hydroelectric power from and discharging water to the river. These enterprises include, but are not limited to, lumber mills, paper mills, manufactured gas plants, leather and shoe factories, textile mills, bulk oil storage facilities, landfills, automotive salvage yards, and automotive service and repair facilities, as well as electrical component and



wire and cable manufacturing facilities. Operations conducted at some of these facilities potentially or likely involved the use of PFC-based products.

## 7. PHASE I AND PHASE II RI CONCLUSIONS

Based on the data collected during these Phase I and Phase II RI activities, UMC concludes the following:

- Based on Phase I and Phase II RI sampling results, UMC concludes that Study Area sediment and surface water have not been significantly impacted with PFCs as a result of Site property activities. PFOA was reported in analysis of soil samples at estimated concentrations or concentrations several orders of magnitude less than applicable soil quality standards. Therefore, UMC concludes that Study Area sediment, surface water, and soil have not been significantly impacted with PFCs as a result of historical Site property activities.
- Analysis of Phase I and Phase II RI groundwater samples detected PFOS in one sample at an estimated concentration only. PFOS is not typically associated with the production of Teflon®. Therefore, UMC concludes that PFOS impacts to groundwater are de minimis and are not the result of historical Site property activities.
- Analysis of Phase I and Phase II RI groundwater samples detected PFOA at concentrations exceeding the VTDEC DWHA for PFOA of 20 ppt and occasionally exceeding the USEPA DWHA for that analyte of 70 ppt across the greater portion of the Study Area. Further, PFOA concentrations often exceeded DWHAs throughout the entire thickness of the overburden groundwater system. Based on these conditions, UMC concludes that the horizontal and vertical extent of PFC impacts to groundwater, particularly in the thicker overburden aquifer system west of the Study Area, has not been delineated.
- Although variable, PFOA concentrations in groundwater are generally higher in frequency and magnitude in the relatively shallow groundwater interval as compared to deeper intervals. UMC concludes that this condition is the result of the overall Study Area hydrogeologic conditions characterized by a leaky groundwater system consisting of highly transmissive intervals interbedded with semi-confining or confining intervals that impede the vertical migration of groundwater to deeper intervals. In addition, UMC concludes that, although low magnitude upward vertical gradients were generally observed throughout the Study Area, downward vertical gradients observed in some areas allow the transport of PFOA impacted groundwater to deeper intervals.
- Based on a review of available Site property information and UMC's overall Site property and test boring observations, the wooded area located south of the retention pond and the embankment in the northern portion of the property where solid waste materials were observed, as well as the former Site property sewerage control system located south of the warehouse, are considered potential source areas of PFCs and PFC leachate to Site property groundwater.
- Laboratory analysis of a composite sample of materials observed in subfloor vaults located in the Site property warehouse indicates the material contains PFCs and are capable of producing PFC leachate. As such, UMC concludes the material is a potential source of PFC impacts to groundwater observed on the Site property.
- UMC was not provided with schematics indicating construction details of the warehouse floor drain system and was not able to conclusively trace the flow paths and end points of



the system due to general clogging of the system piping with sediment. UMC concludes that the sediment and water observed in the system piping is a potential source of PFC impacts to groundwater observed on the Site property.

- Owing to its location in a relatively low-lying area within the 100-year flood plain of the Hoosic River, the Site property is subject to the influx and accumulation of meteoric water and surface water runoff, and is prone to flooding during major storm events, occasionally impacting the interior of the warehouse. UMC concludes that the infiltration of this water provides the primary mechanism for the downward migration of PFCs and PFC-impacted leachate to the shallow groundwater interval. In addition, based on the documented ubiquitous nature of PFCs in rainwater, snowmelt, and surface water runoff, UMC concludes that this water is an on-going source of PFC impacts to groundwater on the Site property and in the overall Study Area.
- Based on the nature of the Hoosic River overburden aquifer system and the documented ubiquitous and persistent nature of PFCs in groundwater and other environmental media, UMC concludes that PFOA impacts to groundwater from up gradient sources in the Hoosic River drainage have contributed to and will continue to contribute to the PFOA impacts to groundwater observed on the Site property and the overall Study Area.
- Based on groundwater elevation data collected during Phase II RI activities, the PFD #2 property municipal water supply well and monitoring well cluster MM-15 are located hydraulically up gradient of the Site property. Therefore, UMC concludes that although the PFC impacts to groundwater observed in those wells is likely in part the PFD #2 municipal result of water table drawdown, the impacts may also in part be attributable to up gradient sources in the Hoosic River drainage. In addition, UMC concludes that groundwater quality may improve to levels below DWHAs in the PFD #2 municipal water supply well and monitoring well cluster MM-15 once the new municipal well comes on-line and pumping is discontinued at the current well.
- Based on groundwater elevation data collected during Phase II RI activities, the 1235, 1277, and 1467 Route 346 properties are located hydraulically up gradient of the Site property. In addition, the properties likely meet the VTDEC ANR Criteria for Jurisdiction for designation as salvage yards. Based on these conditions, UMC concludes that the groundwater PFC impacts observed on the properties are likely attributable to sources on the properties themselves or to as yet unidentified sources and are not the result of historical Site property activities. Further, UMC concludes that groundwater PFC impacts observed on the properties are likely contributing to impacts observed on the Site property. Therefore, APU respectfully declines responsibility for the PFC impacts observed on the 1235, 1277, and 1467 Route 346 properties, as well as for the quarterly sampling and annual maintenance of the 1235 Route 346, mitigation system.

APU has authorized UMC to undertake RI and immediate response actions out of an abundance of caution in order to proactively protect the public health and welfare, and the environment. By doing so, APU is not admitting to any liability for the presence of PFCs or the remediation of PFCs and fully reserves all of its rights to contest any and all liability, including but not limited to, the right to contest the VTDOH-established regulatory standard for PFOA as being artificially low and unnecessary to protect human health and the environment, arbitrary and capricious and, as a result, unenforceable.



## 8. RECOMMENDATIONS FOR ADDITIONAL SITE WORK

UMC recommends that, on behalf of APU, UMC confer with VTDEC officials to discuss the overall findings and conclusions summarized in this Phase I and Phase II RI Report. Based on those discussions and on behalf of APU, UMC will then prepare and submit a Phase III RI and Limited Remedial Action (RA) work plan to the VTDEC for their review and approval. UMC anticipates that the work plan will include the following elements:

- The expansion of the Study Area to include the installation of up to three additional monitoring well clusters generally west and northwest of the Site property. The clusters will include wells advanced to bedrock and screened at relatively shallow, intermediate, and deep intervals with the objective of delineating the horizontal and vertical extent of PFC impacts in the Study Area overburden groundwater system. UMC notes that the relatively thin and generally vadose zone soil conditions along the bedrock scarp east of the Site property preclude assessment of the overburden groundwater system in that area.
- The excavating of test pits in the wooded area located south of the Site property retention pond, the embankment in the northern portion of the property, and in the vicinity of the former sewerage control system with the objective of assessing the areas as potential sources of PFCs and PFC leachate to groundwater.
- Assessment of the unopened vaults in the Site property warehouse and the removal and disposal of the PFC containing material and water contained in the vaults and associated piping. UMC's preliminary discussions with potential contractors indicates the waste can be disposed of as non-hazardous material.
- Cleaning out to the extent practicable of the water and material clogging the Site property warehouse floor drain system and capping of the drains to mitigate potential impacts to groundwater from the system.
- The collection of rain, snow, and surface water runoff samples from the Site property, and the collection of storm water samples from the storm water system and surface water samples from the minor stream that traverses the western margin of the Site property. These samples will be submitted for PFC analysis with the objective of assessing environmental media for PFC impacts that are likely contributing to PFC impacts to groundwater observed on the Site property and the overall Study Area.



## 9. LIST OF REFERENCES

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## 10. LIST OF ACRONYMS AND ABBREVIATIONS

%	Percent
Action Plan	UMC Comprehensive Voluntary Response Action Plan dated April 19, 2016
ALS	ALS Environmental Laboratory, Kelso, WA
amsl	Above Mean Sea Level
ANR	VTDEC Agency of Natural Resources
APA Appraisal Report	Atlantic & Pacific Appraisals, on behalf of GCC, titled "Real Estate Appraisal Report of Real Estate Interests Owned by The Penn Central Corporation, General Cable" dated June 1988
APFO	Ammonium Perfluorooctanoate
APU	American Premier Underwriters, Inc.
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
bgs	Below Ground Surface
Cascade	Cascade Technical Services, Montpelier, Vermont
Cascade Report	Final Data Package for Waterloo <sup>APS</sup> Profiling Services dated July 7, 2016
cm/sec	Centimeters Per Second
COC	Contaminant of Concern
CSM	Conceptual Site Model
D	Deep
DCN	Document Control Number
DO	Dissolved Oxygen
DWHA	Drinking Water Health Advisory
EDR	Environmental Data Resources, Inc.
FEMA	United States Department of Homeland Security Federal Emergency Management Agency
ft/day	Feet Per Day
ft/ft	Feet Per Foot
ft/min	Feet Per Minute
ft/sec	Feet Per Second
ft/yr	Feet Per Year
g/mol	Grams Per Mole

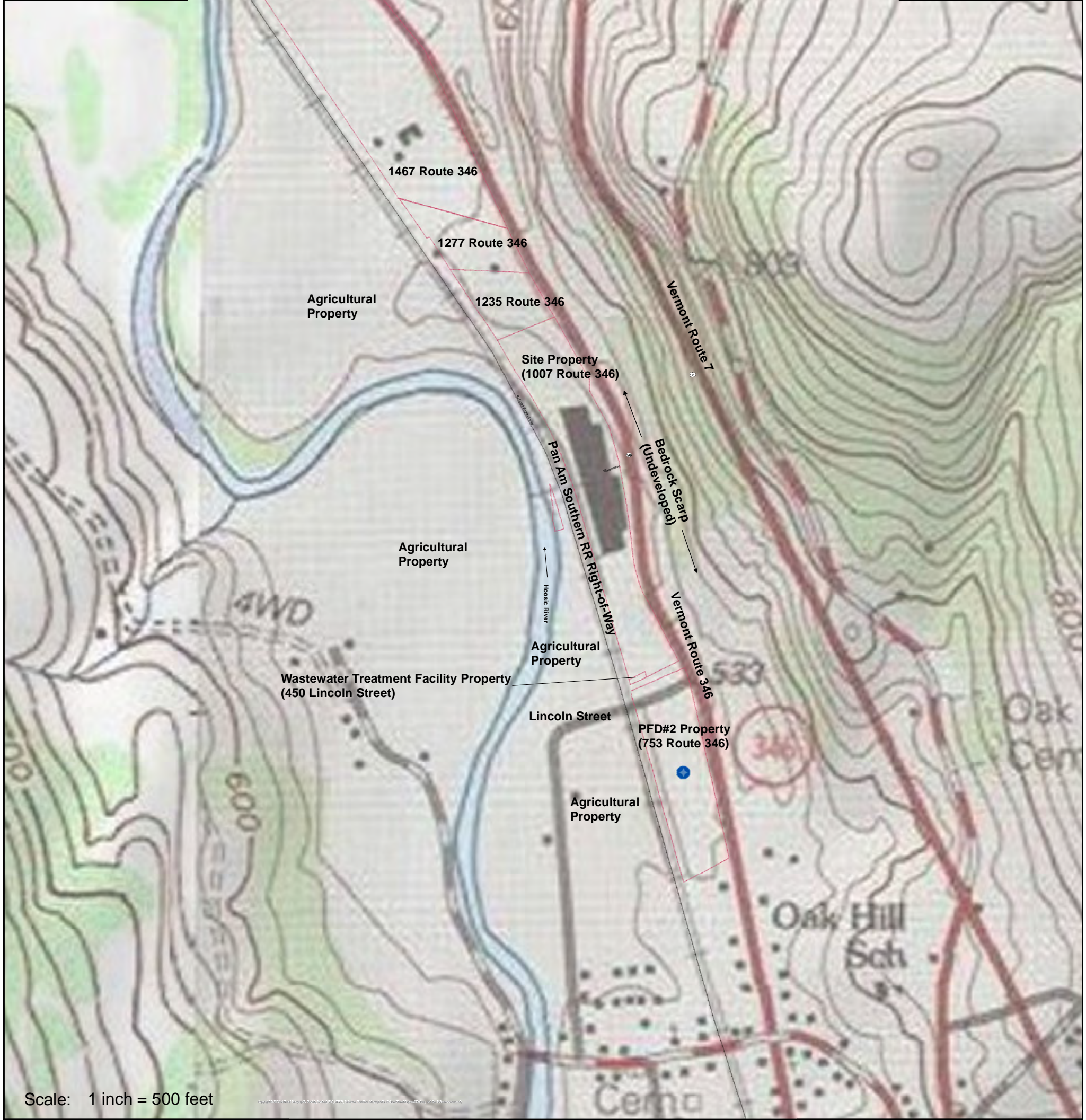
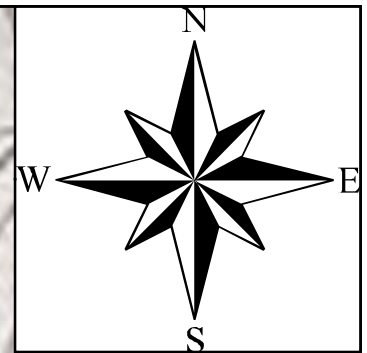


GAC	Granular Activated Carbon
gal/day	Gallon Per Day
GCC	General Cable Corporation
gpm	Gallons Per Minute
GPR	Ground Penetrating Radar
HDPE	High Density Polyethylene
I	Intermediate
IDW	Investigation Derived Waste
I <sub>k</sub>	Formation Index of Hydraulic Conductivity
IOCPP	VTDEC Investigation and Remediation of Contaminated Properties Procedure” dated April 5, 2012
IRI	Immediate Response Investigation
IRIR	Immediate Response Investigation Report and Phase II RIWP
IRWP	UMC Immediate Response Work Plan dated March 28, 2016
July 1968 Schematic	VTDEC provided figure dated July 1, 1968
K	Hydraulic Conductivity
K <sub>OC</sub>	Organic Carbon-Water Partitioning Coefficient
K <sub>OW</sub>	Octanol-Water Partition Coefficient
LNAPL	Light Non-Aqueous Phase Liquid
Metcalf & Eddy Report	VTDEC Final Remedial Investigation Report, Volume I, Pownal Tannery Superfund Site, Pownal, Vermont”, dated July 2002
mg/Kg	milligrams per kilogram
mg/L	Milligrams Per Liter
mL	Milliliters
ml/min	Milliliters Per Minute
Mm Hg	Millimeters of Mercury
MMC	Mack Molding Company
MS/MSD	Matrix Spike and Matrix Spike Duplicate
MW	Monitoring Well
ng/g	Nanograms Per Gram
ng/L	Nanograms Per Liter
NLS	Northern Lake Service, Inc., Crandon, Wisconsin
NTU	Nephelometric Turbidity Unit



°C	Degrees Celsius
One Call	Vermont State Dig Safely One Call
ORP	Oxidation/Reduction Potential
PCB	Polychlorinated Biphenyl
PFBA	Perfluorobutanoic Acid
PFBS	perfluorobutanesulfonic acid
PFC	Perfluorinated Compound
PFD#2	Pownal Fire District #2, 753 Route 346, Pownal, Vermont
PFHpA	perfluoroheptanoic acid
PFHxA	Perfluorohexanoic Acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluorononanoic acid
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanedulfonic Acid
PFPA	Perfluoropentanoic Acid
pg/m <sup>3</sup>	picograms per cubic meter
Phase I and II RIR	UMC Phase I and II Remedial Investigation Report
POSF	Perfluorooctanesulfonyl Fluoride
PP	Profiling Point
ppt	Parts Per Trillion
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance and Quality Control
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RIWP	UMC Phase I Remedial Investigation Work Plan dated June 2, 2016
RW	Recovery Well
S	Shallow
SC	Specific Conductance
SED	Sediment
SGS	SGS-Accutest of New England, Marlborough, Massachusetts
Site	Former Warren Wire Facility Plant #1, 1007 Route 346, Pownal , Vermont
SLS	Subterra Locating Services

SMS	Site Management System
SOP	Standard Operating Procedure
Summit	Summit Drilling Company, Inc., Bridgewater, New Jersey
SVOC	Semi- Volatile Organic Compound
SW	Surface Water
TCLP	Toxic Characteristic Leaching Procedure
TOC	Total Organic Carbon
UMC	Unicorn Management Consultants, LLC
UPS	United Parcel Service
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
VSE	Vermont Survey and Engineering, Inc.
VTDEC	Vermont Department of Environmental Conservation
VTDEC First Letter	VTDEC Letter Correspondence dated April 19, 2016
VTDOH	Vermont Department of Health
Warehouse Schematic	Figure prepared by J.F. Willey dated March 21, 1983
Waterloo <sup>APS</sup>	Waterloo Advanced Profiling System
WM	Waste Management, Inc., Turnkey Landfill, Rochester, New Hampshire
WWC	Warren Wire Company
WWTF	Waste Water Treatment Facility, 450 Lincoln Street, Pownal, Vermont
yd <sup>3</sup>	Cubic Yard



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**Figure 1**

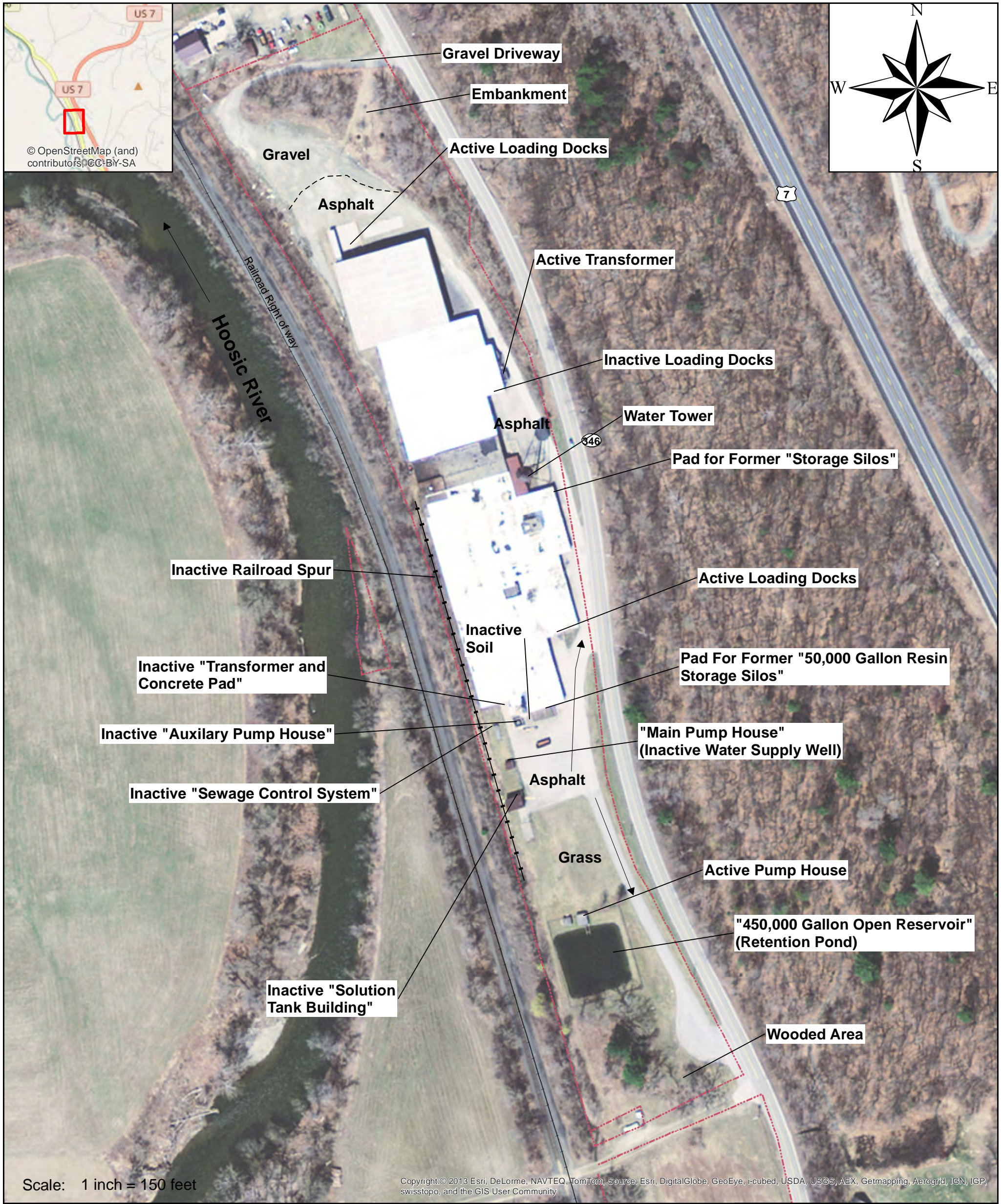
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Project #: 2010	Author: RTM
Created: 6/9/15	Revised: 4/12/17
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**Phase I and II Remedial Investigation Report  
 Former General Cable Facility  
 1007 Vermont Route 346  
 Pownal, VT  
 VTDEC, SMS Site #87-0129**

**Locus Plan & Study Area Properties**


**Legend**

- USA Topo Maps
- PFD#2 Municipal Water Supply Well
- Site Boundaries



Scale: 1 inch = 150 feet

Copyright: © 2013 Esri, DeLorme, NAVTEQ, TomTom, Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**Figure 2**

Project Name: Pownal, VT	
Project #: 2010	Author: RTM
Created: 6/9/15	Revised: 4/12/17
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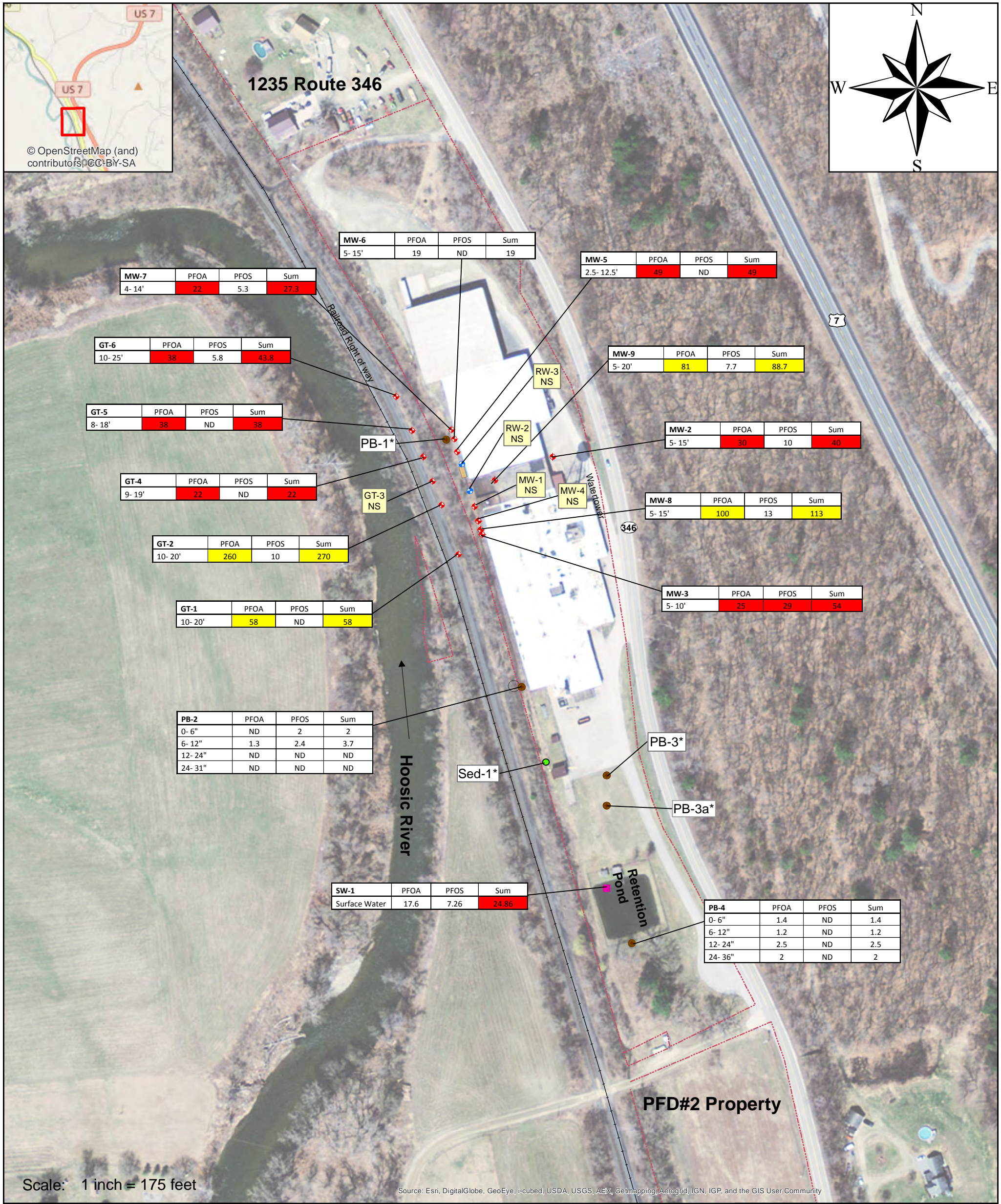
**Phase I and II Remedial Investigation Report  
Former General Cable Facility  
1007 Vermont Route 346  
Pownal, VT  
VTDEC, SMS Site #87-0129**

**Present-Day Site Property Features**

Features in parentheses are depicted on the warehouse schematic provided by the VTDEC

**Legend**

----- Site Boundaries



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**Figure 3**

Project Name: Pownal, VT

Project #:	2010	Author:	RTM
Created:	6/9/15	Revised:	4/12/17

File: Figure3\_IRIResults

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Former General Cable Facility  
1007 Vermont Route 346  
Pownal, VT  
VTDEC, SMS Site #87-0129**

**UMC's March 2016 Immediate Response Investigation  
Sampling Results**

\* Next to the ID indicates all depths of the boring were non-detect for PFC's  
Red Shading indicates VTDEC DWHA of 20 ppt is exceeded.  
Yellow Shading indicates EPA DWHA of 70 ppt is exceeded.  
Results shown are the higher of either the 537M or 537 method.  
NS= Not Sampled  
ND= Non- Detect

**Legend**

- Sediment Location- 2016
- Surface Water Sample- 2016
- Soil Borings- 2016
- ◆ Monitoring Well (Screened Interval)
- Recovery Well
- Catch Basin
- Site Boundaries



Scale: 1 inch = 125 feet

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



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**Figure 4**

Project Name: Pownal, VT

Project #: 2010 Author: RTM

Created: 6/9/15 Revised: 4/12/17

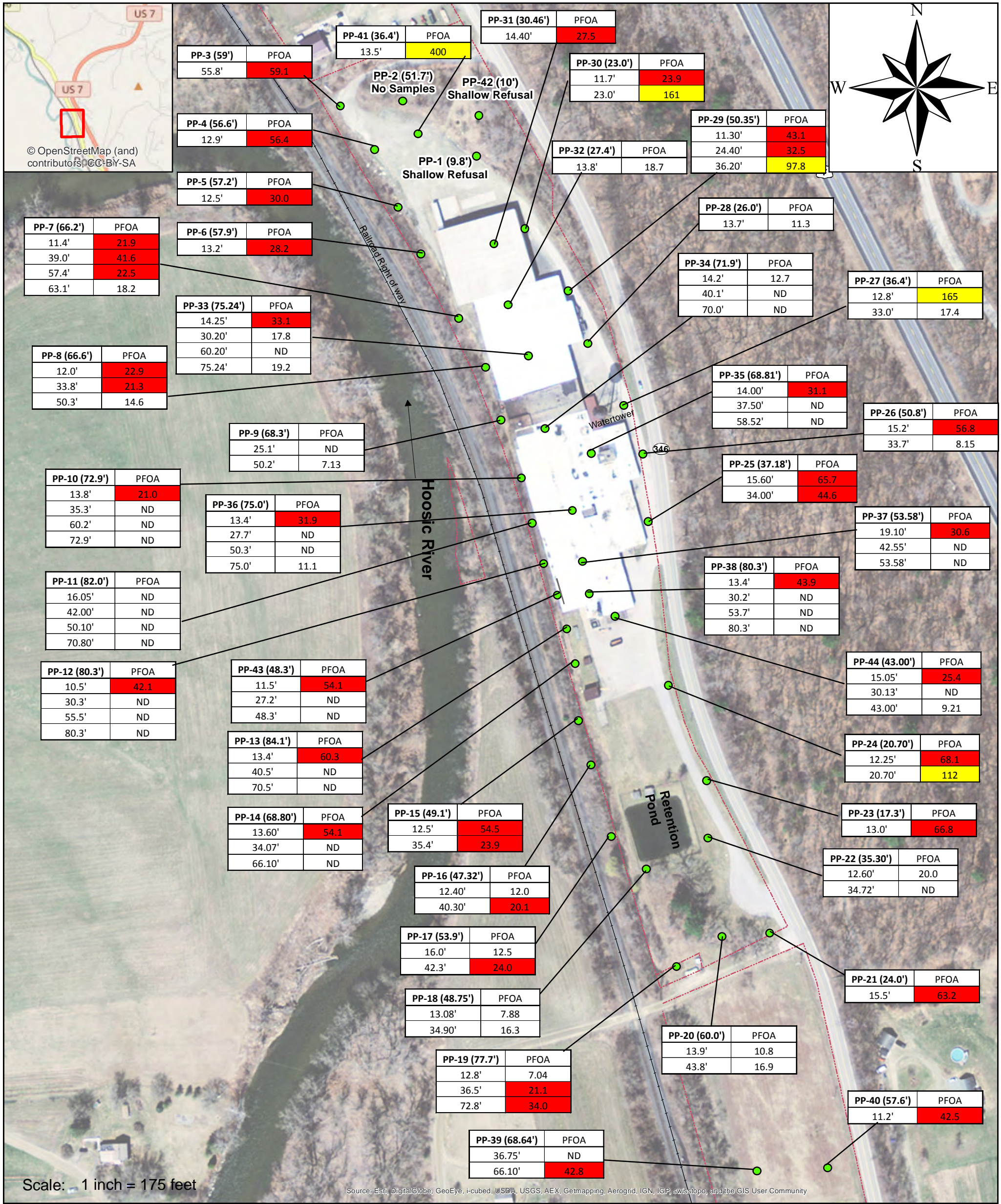
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**Phase I and II Remedial Investigation Report  
Former General Cable Facility  
1007 Vermont Route 346  
Pownal, VT  
VTDEC, SMS Site #87-0129**

**Site Property Underground Utilities  
and Floor Drain System**

**Legend**

- Culvert
- Sewer Manhole
- Drain Inlet
- Pipe Leaving Building/ Stream Bank
- Floor Drain
- Man hole
- Storage Tank
- Sump
- Municipal Sewer Line
- Potential Drainage Path
- Drainage Ditch
- Railroad
- Underground Storm Water Line
- Old USD Location
- Possible Solution Tanks
- Trench Drain
- Trench Sump



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**Figure 5**

Project Name: Pownal, VT

Project #: 2010 Author: RTM

Created: 6/9/15 Revised: 4/12/17

File: Figure5\_Waterloo

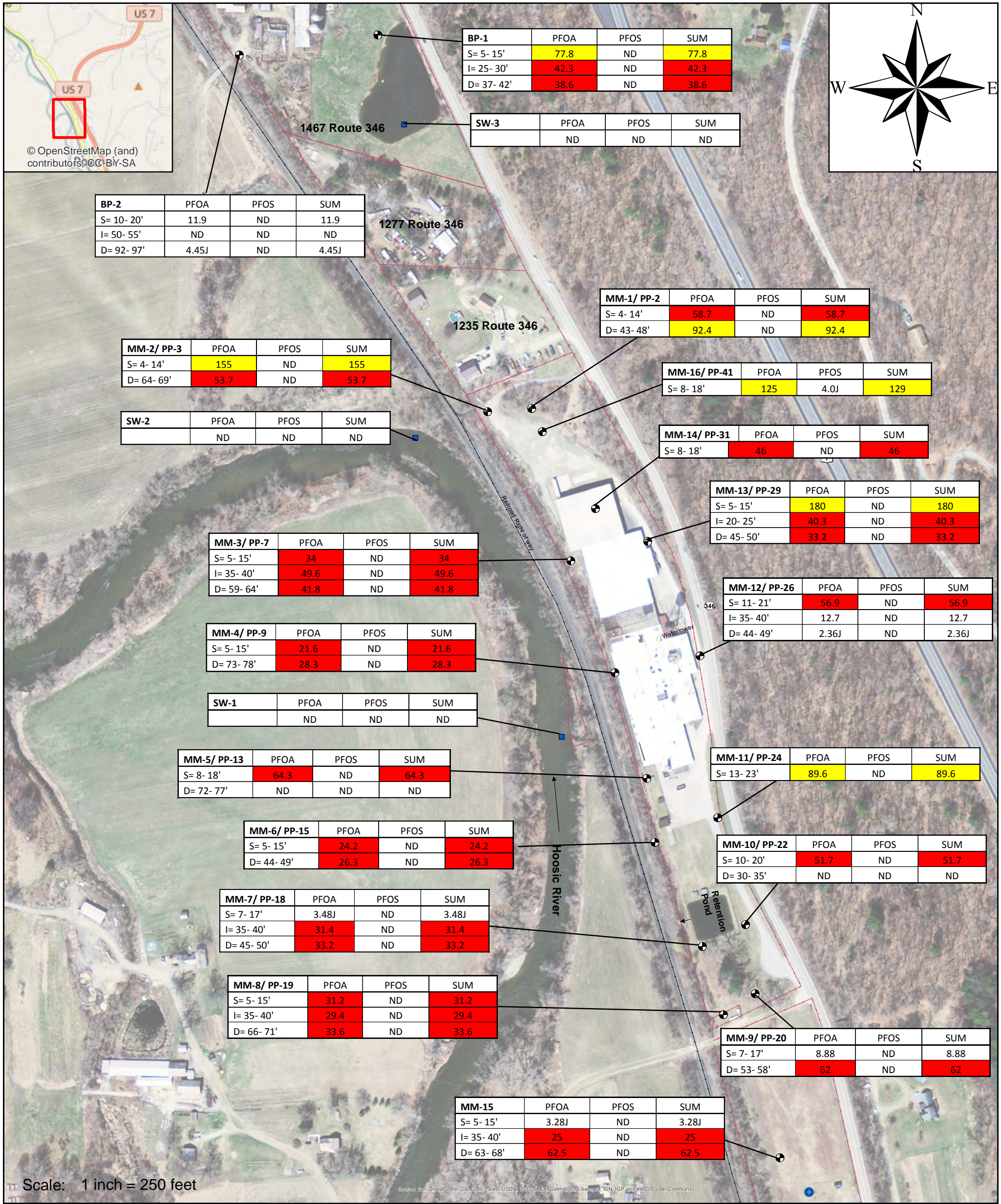
**Phase I and II Remedial Investigation Report  
Former General Cable Facility  
1007 Vermont Route 346  
Pownal, VT  
VTDEC, SMS Site #87-0129**

**Phase I Waterloo Groundwater Sampling Results**

Probe Refusal Depth (feet bgs) is next to each ID.  
Red Shading indicates VTDEC DWHA of 20 ppt is exceeded.  
Yellow Shading indicates EPA DWHA of 70 ppt is exceeded.  
ND= Non- Detect  
PFOS was ND in all locations

**Legend**

- Final Waterloo Profiling Points- 2016
- - - Site Boundaries



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**Figure 6a**

Project Name: Pownal, VT	
Project #: 2010	Author: RTM
Created: 6/9/15	Revised: 4/12/17
File: Figure6a_Gwresults	

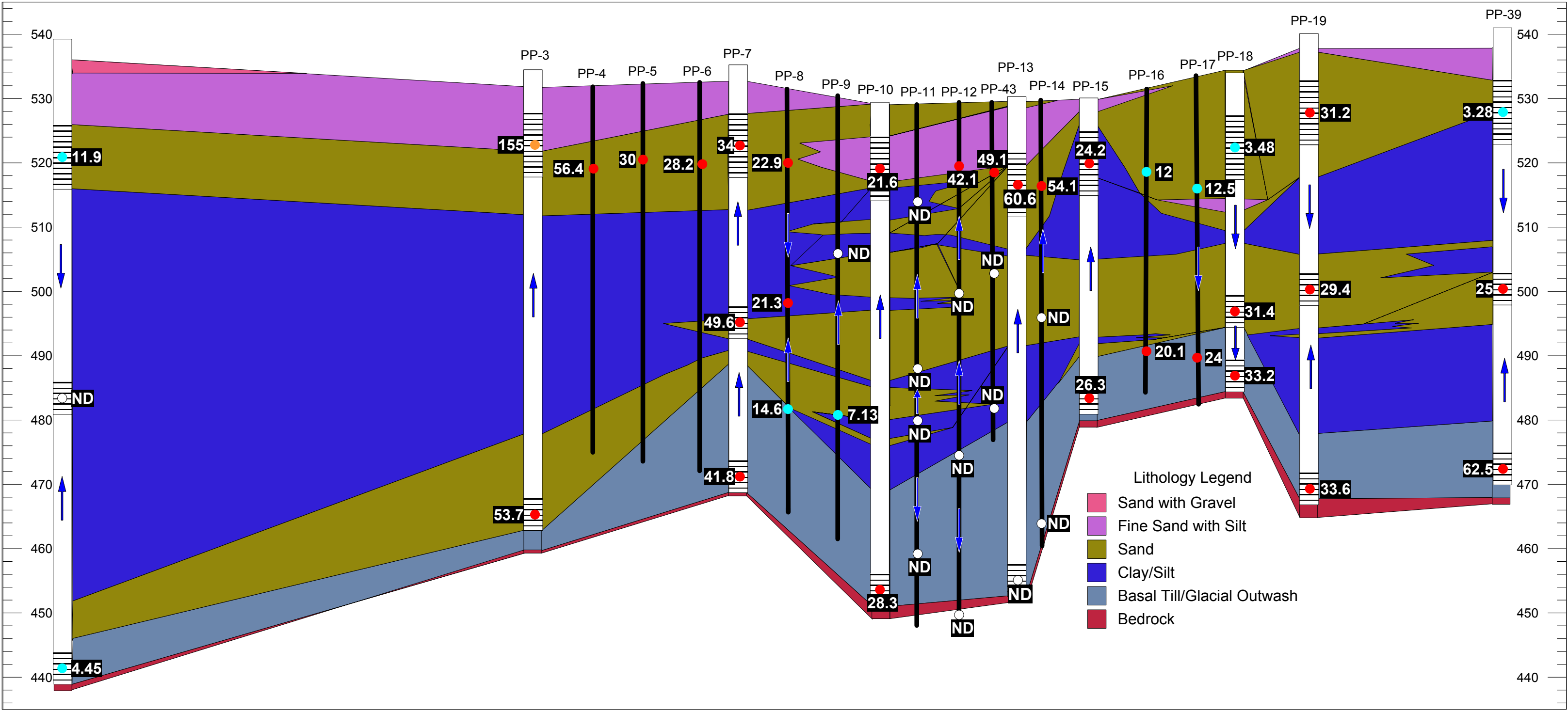
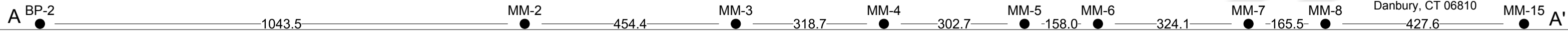
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 Pownal, VT  
 VTDEC, SMS Site #87-0129**

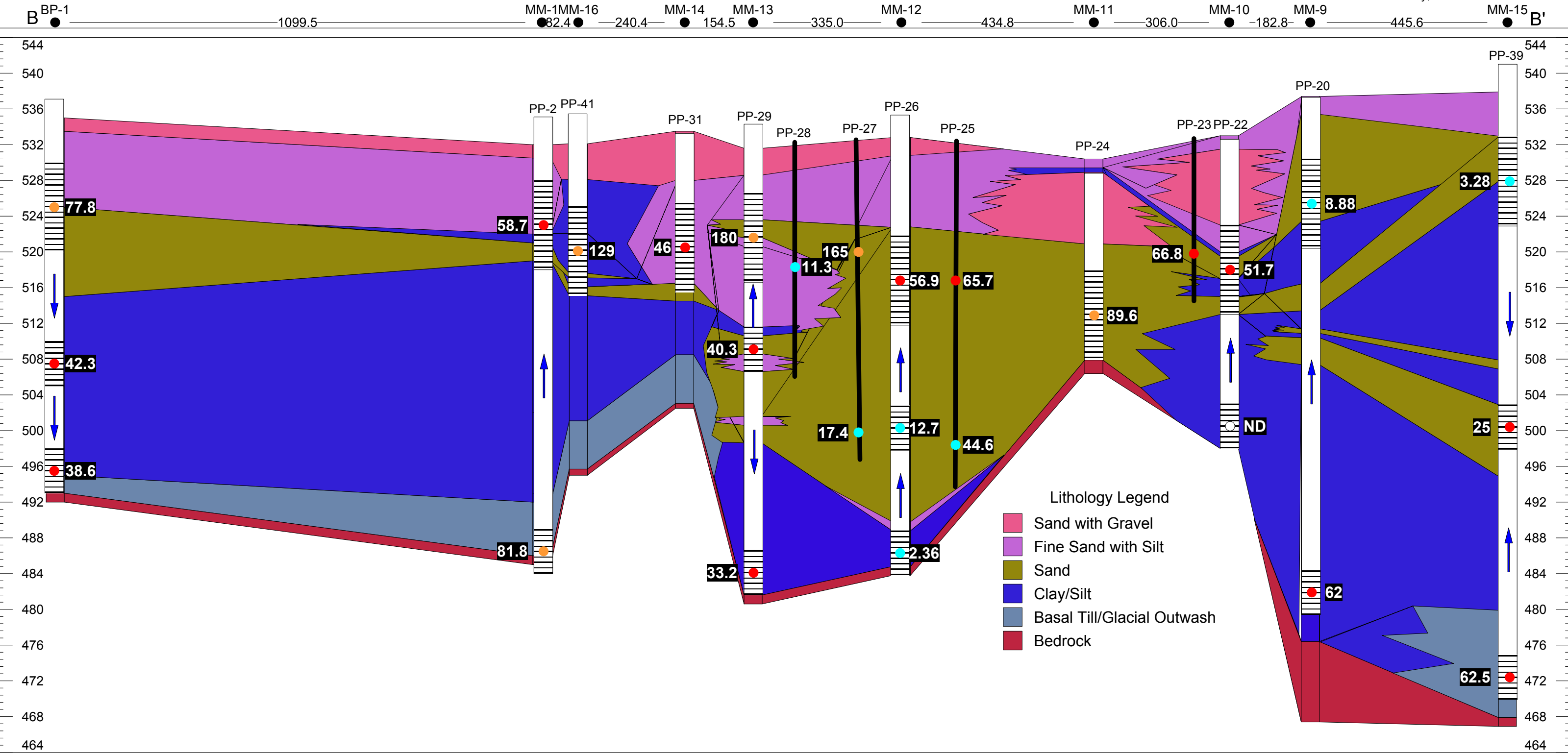
**Phase II Groundwater and Surface Water  
 Sampling Results**

Red Shading indicates VTDEC DWHA of 20 ppt is exceeded.  
 Yellow Shading indicates EPA DWHA of 70 ppt is exceeded.  
 ND= Non- Detect  
 (j)= Indicates estimated concentration  
 MM-1(PP-2)- Denotes monitoring well cluster and corresponding Waterloo profiling point

**Legend**

- Final Well Locations
- Pownal Municipal Well
- Surface Water Location
- Site Boundaries

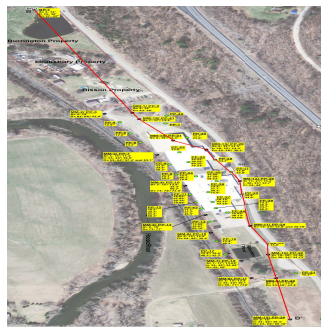


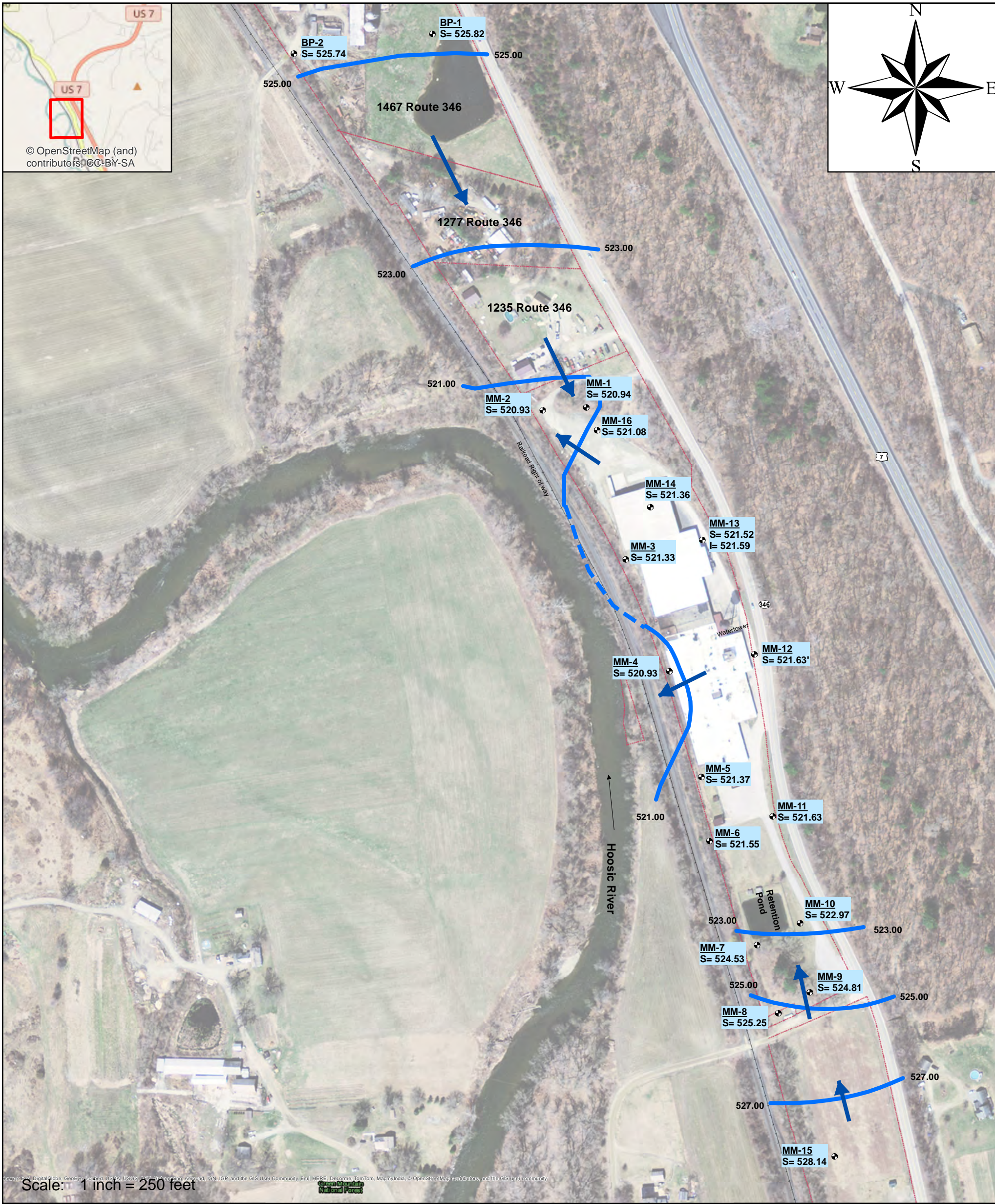


**PFOA & PFOS Concentrations**

- = PFOA & PFOS not detected above laboratory detection limits of 2.3 ppt and 3.8 ppt, respectively.
- (Cyan) = PFOA & PFOS detected at concentrations or estimated concentrations but not above criteria.
- (Red) = PFOA & PFOS concentrations exceeded the Vermont Department of Environmental Conservation (VTDEC) Drinking Water Criteria of 20 ppt.
- (Orange) = PFOA & PFOS concentrations exceeded both the Environmental Protection Agency (EPA) and VTDEC Drinking Water Criteria of 70 ppt and 20 ppt, respectively.

↓ ↑ = Vertical Hydraulic Gradient





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**Figure 9a**

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VTDEC, SMS Site #87-0129**

**Shallow Groundwater Elevation Contour Map**

Groundwater Elevations in feet amsl

Generated using groundwater elevations observed  
in monitoring wells with screened intervals  
between zero and 25 ft. bgs

Based on depth to groundwater measurements  
collected 10/25/16

**Legend**

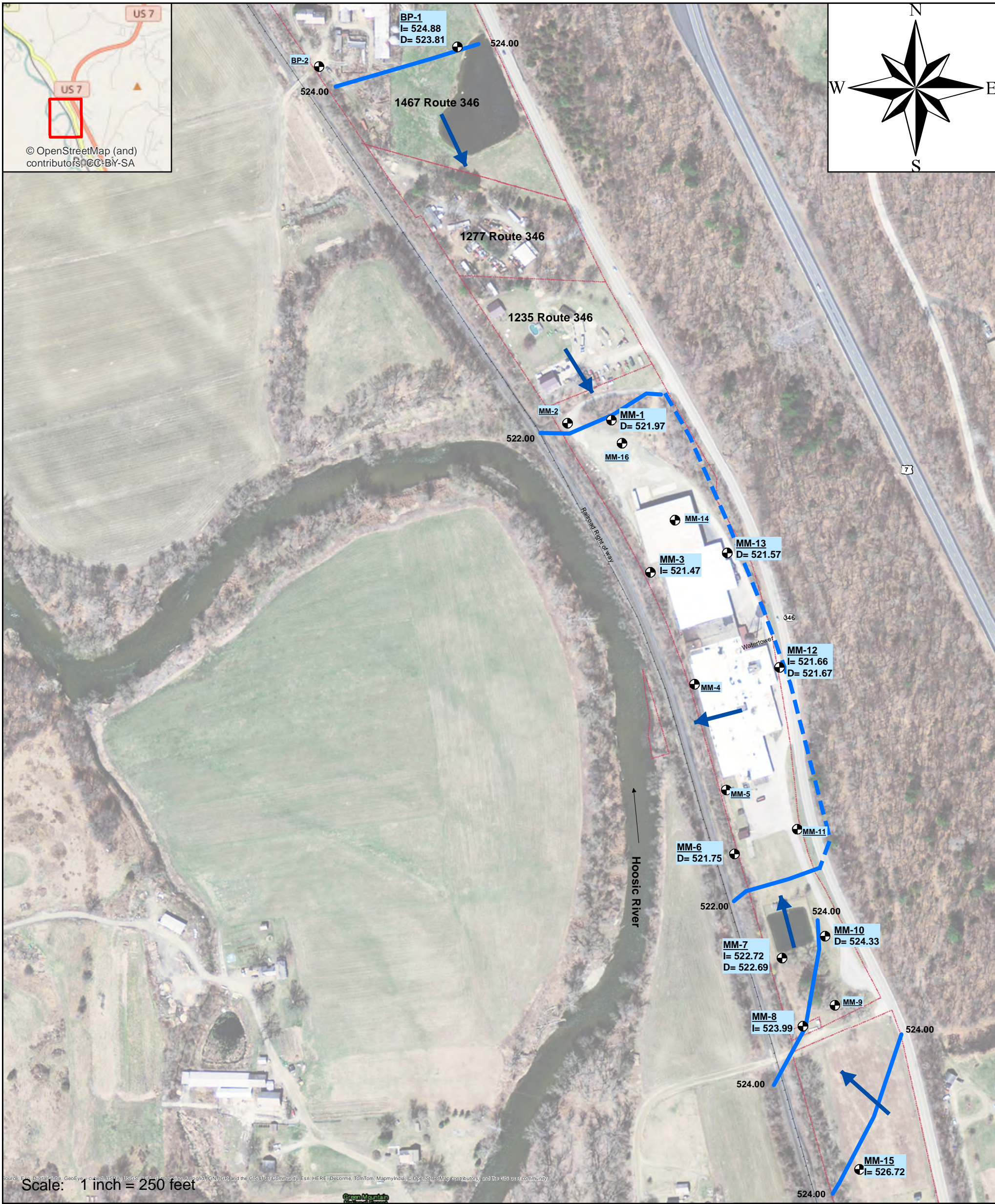
- Final Well Locations
- Inferred Groundwater Flow
- Groundwater Elevation Contour- 2 ft.
- Site Boundaries

Project Name: Pownal, VT

Project #: 2010 Author: RTM

Created: 6/9/15 Revised: 3/23/17

File: Figure9a\_25ft



Scale: 1 inch = 250 feet



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**Figure 9b**

**Phase I and II Remedial Investigation Report  
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VTDEC, SMS Site #87-0129**

**Intermediate Groundwater Elevation Contour Map**

Groundwater Elevations in feet amsl

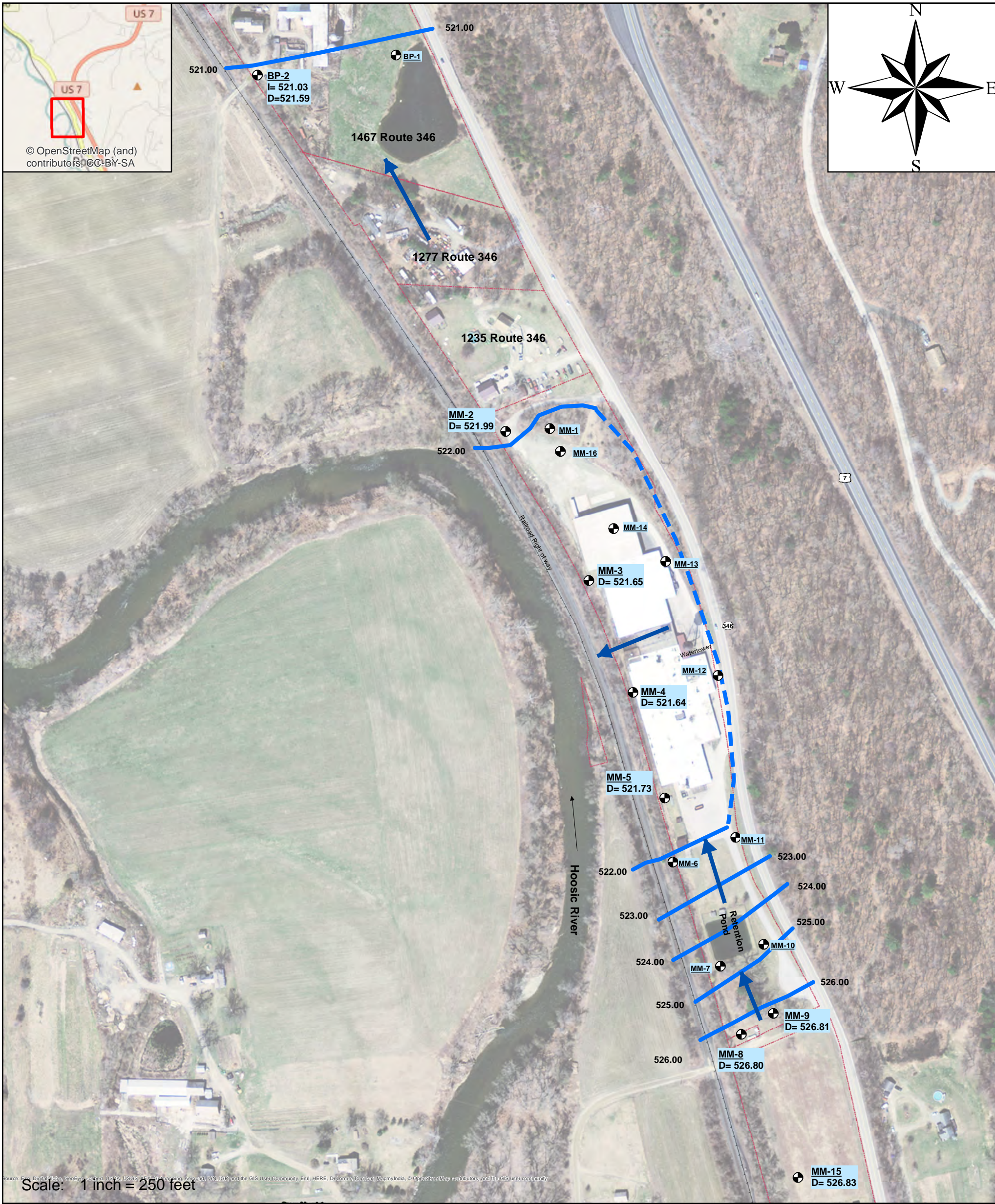
Generated using groundwater elevations observed in monitoring wells with screened intervals between 25- 50 ft. bgs

Based on depth to groundwater measurements collected on 10/25/16

**Legend**

- Final Well Locations
- Inferred Groundwater Flow
- Groundwater Elevation Contour- 2 ft.
- Site Boundaries

Project Name: Pownal, VT	
Project #: 2010	Author: RTM
Created: 6/9/15	Revised: 3/22/17
File: Figure9b_Intermediate	



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**Figure 9c**

**Phase I and II Remedial Investigation Report  
Former General Cable Facility  
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VTDEC, SMS Site #87-0129**

**Deep Groundwater Elevation Contour Map**

Groundwater Elevations in feet amsl

Generated using groundwater elevations observed in monitoring wells with screened intervals >50 ft. bgs

Based on depth to groundwater measurements collected on 10/25/16

**Legend**

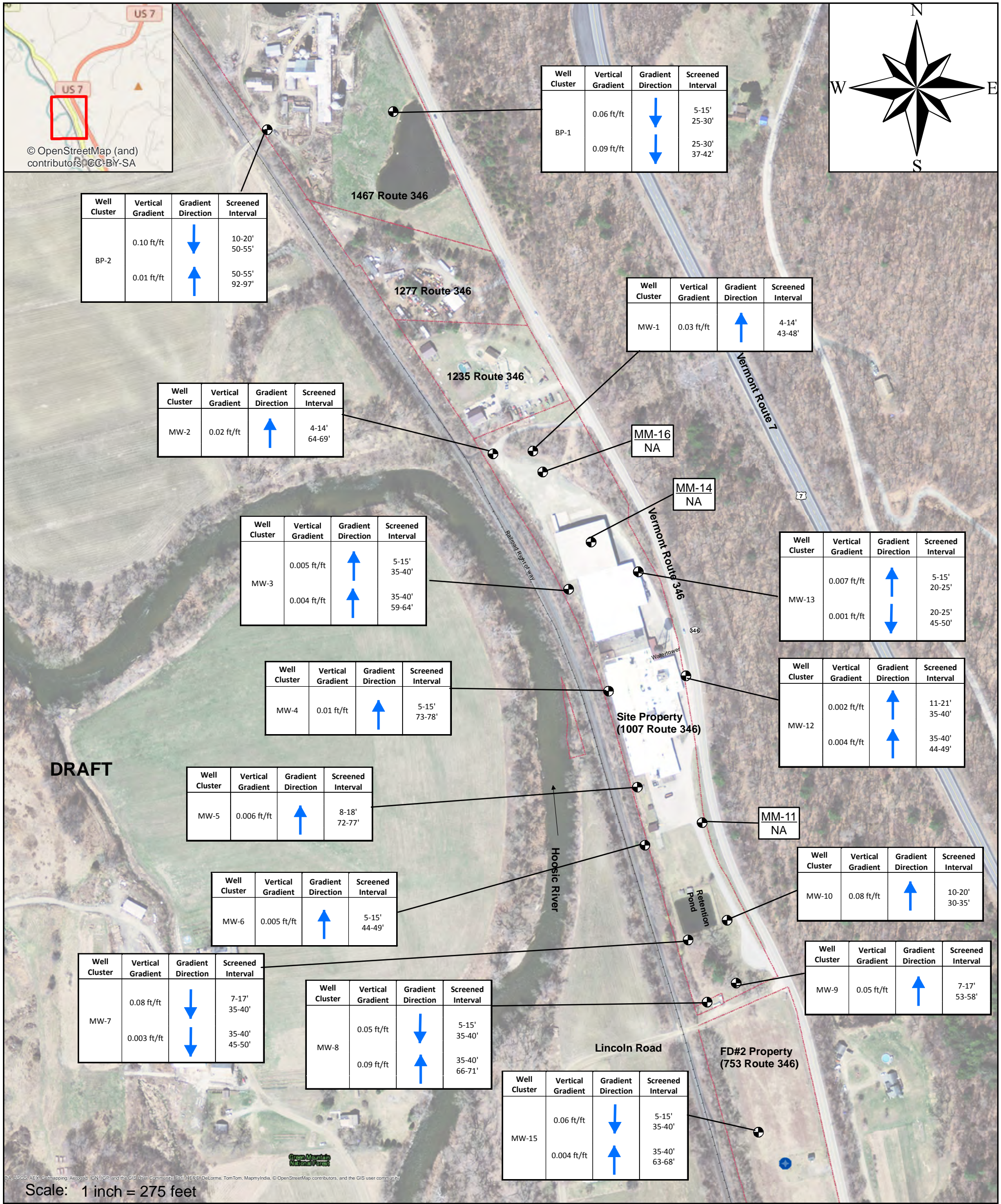
- Final Well Locations
- Inferred Groundwater Flow
- Groundwater Elevation Contour- 1 ft.
- Site Boundaries

Project Name: Pownal, VT

Project #: 2010 Author: RTM

Created: 6/9/15 Revised: 3/21/17

File: Figure9c\_Deep



DRAFT

Scale: 1 inch = 275 feet

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**Figure 10**

Project Name: Pownal, VT	
Project #: 2010	Author: RTM
Created: 6/9/15	Revised: 3/27/17
File: Figure10_gradient	

**Phase I and II Remedial Investigation Report  
 Former General Cable Facility  
 1007 Vermont Route 346  
 Pownal, VT  
 VTDEC, SMS Site #87-0129**

**Groundwater Vertical Gradient Map**

Vertical Gradients are in ft/ ft  
 Based on depth to groundwater measurements collected 10/25/16  
 NA= Not Applicable

**Legend**

- ⊙ Final Well Locations
- ⊕ FD#2 Municipal Water Supply Well
- Site Boundaries
- ↑ Upward Gradient
- ↓ Downward Gradient

**Table 1  
Monitoring Well Survey and Groundwater Elevation Data**

**Phase I and Phase II Remedial Investigation Report  
Former General Cable Facility  
1007 Vermont Route 346  
Pownal, VT  
VTDEC, SMS Site #87-0129**

Monitoring Well ID	Waterloo Profiling Point	Well Diameter (inches)	Ground Surface Elevation (feet amsl)	Depth to Bedrock (feet bgs)	Bedrock Elevation (feet amsl)	Screened Intervals (feet bgs)	Top of Screen Elevation (feet amsl)	Bottom of Screen Elevation (feet amsl)	PVC Casing Elevation (feet amsl)	Date: October 25, 2016				
										Depth to Groundwater (feet below top of PVC casing)	Depth to Groundwater (feet bgs)	Groundwater Column Thickness (feet)	Groundwater Elevation (feet amsl)	Vertical Gradient (ft/ft)
MM-1S	PP-2	2	532.11	52	480	4 to 14	528.11	518.11	534.52	13.58	11.17	2.83	520.94	Upward 0.03
MM-1D			532.00			43 to 48	489.00	484.00	534.48	12.51	10.03	37.97	521.97	
MM-2S	PP-3	2	531.78	72	460	4 to 14	527.78	517.78	534.24	13.31	10.85	3.15	520.93	Upward 0.02
MM-2D			531.80			64 to 69	467.80	462.80	534.27	12.28	9.81	59.19	521.99	
MM-3S	PP-7	2	532.85	66	467	5 to 15	527.85	517.85	535.15	13.82	11.52	3.48	521.33	Upward 0.005
MM-3I			532.85			35 to 40	497.85	492.85	535.15	13.68	11.38	28.62	521.47	
MM-3D			532.74			59 to 64	473.74	468.74	535.02	13.37	11.09	52.91	521.65	Upward 0.004
MM-4S	PP-10	2	529.17	78	451	5 to 15	524.17	514.17	528.77	7.84	8.24	6.76	520.93	Upward 0.01
MM-4D			529.13			73 to 78	456.13	451.13	528.87	7.23	7.49	70.52	521.64	
MM-5S	PP-13	2	529.49	84	446	8 to 18	521.49	511.49	529.12	7.75	8.12	9.88	521.37	Upward 0.006
MM-5D			529.58			72 to 77	457.58	452.58	529.16	7.43	7.85	69.15	521.73	
MM-6S	PP-15	2	530.00	50	480	5 to 15	525.00	515.00	529.63	8.08	8.45	6.55	521.55	Upward 0.005
MM-6D			529.94			44 to 49	485.94	480.94	529.49	7.74	8.19	40.81	521.75	
MM-7S	PP-18	2	534.41	51	483	7 to 17	527.41	517.41	533.97	9.44	9.88	7.12	524.53	Downward 0.08
MM-7I			534.41			35 to 40	499.41	494.41	533.97	11.25	11.69	28.31	522.72	
MM-7D			534.41			45 to 50	489.41	484.41	533.87	11.18	11.72	38.28	522.69	Downward 0.003
MM-8S	PP-19	2	537.82	73	465	5 to 15	532.82	522.82	540.24	14.99	12.57	2.43	525.25	Downward 0.05
MM-8I			537.82			35 to 40	502.82	497.82	540.24	16.25	13.83	26.17	523.99	
MM-8D			537.82			66 to 71	471.82	466.82	540.03	13.23	11.02	59.98	526.80	Upward 0.09
MM-9S	PP-20	2	537.46	61	476	7 to 17	530.46	520.46	536.95	12.14	12.65	4.35	524.81	Upward 0.05
MM-9D			537.42			53 to 58	484.42	479.42	536.89	10.08	10.61	47.39	526.81	
MM-10S	PP-22	2	533.01	35	498	10 to 20	523.01	513.01	532.50	9.53	10.04	9.96	522.97	Upward 0.08
MM-10D			533.01			30 to 35	503.01	498.01	532.50	8.17	8.68	26.32	524.33	
MM-11S	PP-24	2	530.44	23	507	13 to 23	517.94	507.94	530.06	8.43	8.81	13.69	521.63	NA
MM-12S	PP-26	2	532.80	51	482	11 to 21	521.80	511.80	535.30	13.67	11.17	9.84	521.63	Upward 0.002
MM-12I			532.80			30 to 35	502.80	497.80	535.30	13.64	11.14	23.87	521.66	
MM-12D			532.77			44 to 49	488.77	483.77	535.31	13.64	11.10	37.90	521.67	Upward 0.004
MM-13S	PP-29	2	531.60	51	481	5 to 15	526.60	516.60	534.11	12.59	10.08	4.92	521.52	Upward 0.007
MM-13I			531.60			20 to 25	511.60	506.60	534.11	12.52	10.01	14.99	521.59	
MM-13D			531.60			45 to 50	486.60	481.60	534.12	12.55	10.03	39.97	521.57	Downward 0.001
MM-14S	PP-31	2	533.54	30	504	8 to 18	525.54	515.54	533.26	11.90	12.18	5.82	521.36	NA
MM-15S	PP-39	2	537.82	70	468	5 to 15	532.82	522.82	539.97	11.83	9.68	5.32	528.14	Downward 0.06
MM-15I			537.82			35 to 40	502.82	497.82	539.97	13.25	11.10	28.90	526.72	
MM-15D			537.91			63 to 68	474.91	469.91	540.04	13.21	11.08	56.92	526.83	Upward 0.004
MM-16S	PP-41	2	532.15	36	496	7 to 17	525.15	515.15	534.40	13.32	11.07	5.93	521.08	NA
BP-1S	NA	2	534.98	42	493	5 to 15	529.98	519.98	537.12	11.30	9.16	5.84	525.82	Downward 0.06
BP-1I			534.98			25 to 30	509.98	504.98	537.12	12.24	10.10	19.90	524.88	
BP-1D			534.98			37 to 42	497.98	492.98	537.35	13.54	11.17	30.83	523.81	Downward 0.09
BP-2S	NA	2	535.90	97	439	10 to 20	525.90	515.90	538.33	12.59	10.16	9.84	525.74	Downward 0.1
BP-2I			535.90			50 to 55	485.90	480.90	538.33	17.30	14.87	40.13	521.03	
BP-2D			535.87			92 to 97	443.87	438.87	538.31	16.72	14.28	82.72	521.59	Upward 0.01

**Notes:**

- 1) Monitoring well ground surface and top of polyvinyl chloride (PVC) casing elevations were surveyed by Vermont Surveying and Engineering, Inc. (VSE) on October 24, 2016.
- 2) Elevations are expressed in feet above mean sea level (amsl) relative to benchmark BM-1 established by VSE at the northeast corner of the water tower located east of the Site building.
- 3) Benchmark BM-1 was surveyed by VSE on June 17, 2015 at an elevation of 533.56 feet amsl.
- 4) Boring depths and screened intervals are expressed in feet below the ground surface (bgs).
- 5) NA indicates not applicable; Waterloo<sup>APS</sup> profiling points were not conducted proximate to monitoring well clusters BP-1 or BP-2.
- 6) Ten feet of well screen were set in shallow (S) borings. Five feet of well screen were set in intermediate (I) and deep (D) borings.
- 7) Deep interval monitoring wells were installed in an initial boring conducted at each location; shallow and, as applicable, intermediate interval monitoring wells were installed in a second boring approximately 5 feet from the initial boring.
- 8) Depths to bedrock correspond to the thickness of overburden in feet and is based on depth of refusal during sonic drilling with the exception of MM-14 and MM-16 which are based on Geoprobe refusal during Waterloo profiling.
- 9) Depths to bedrock and bedrock elevations are rounded to the nearest foot for each well cluster.
- 10) The depth to groundwater and groundwater elevation values reported on this table were collected on October 25, 2016, approximately 48 hours or more following monitoring well development.
- 11) Vertical gradients are expressed in feet per foot (ft/ft) between shallow and deep intervals in two-well clusters, and between shallow and intermediate and intermediate and deep intervals in three-well clusters.
- 12) Vertical gradients were estimated using the "Environmental Protection Agency (EPA) On-line Tools for Site Assessment Calculation", available at the web site <https://www3.epa.gov/ceampub/learn2model/part-two/onsite/vgradient.html>.

**Table 2**  
**Monitoring Well Hydraulic Conductivity Testing**

**Phase I and Phase II Remedial Investigation Report**  
**Former General Cable Facility**  
**1007 Vermont Route 346**  
**Pownal, VT**  
**VTDEC, SMS Site #87-0129**

Range of Screened Intervals (feet bgs)	Monitoring Well ID	Screened Interval (feet bgs)	Test Type	Hydraulic Conductivity (ft/s)	Hydraulic Conductivity (ft/day)	Soil Type
<25	MM-1S	4 to 14	Rising	0.00018	16	Well-Sorted Sand
	MM-2S	4 to 14	Rising	0.00083	72	Well-Sorted Sand
	MM-3S	5 to 15	Rising	0.00059	51	Well-Sorted Sand
	MM-4S	5 to 15	Rising	0.00030	26	Well-Sorted Sand
	MM-5S	8 to 18	Rising	0.00005	4	Very Fine Sand/Silt
	MM-6S	5 to 15	Rising	0.00039	34	Well-Sorted Sand
	MM-7S	7 to 17	Rising	0.00007	6	Very Fine Sand/Silt
	MM-8S	5 to 15	Rising	0.00002	2	Very Fine Sand/Silt
	MM-9S	7 to 17	Rising	0.00027	23	Well-Sorted Sand
	MM-10S	10 to 20	Rising	0.00001	1	Very Fine Sand/Silt
	MM-11	13 to 23	Rising	0.00022	19	Well-Sorted Sand
	MM-12S	11 to 21	Rising	0.00023	20	Well-Sorted Sand
	MM-13S	5 to 15	Rising	0.00040	35	Well-Sorted Sand
	MM-13I	20 to 25	Rising	0.00012	10	Well-Sorted Sand
			Falling	0.00013	11	Well-Sorted Sand
	MM-14	8 to 18	Rising	0.00190	164	Well-Sorted Sand, some Gravel
	MM-15S	5 to 15	Rising	0.00014	12	Well-Sorted Sand
	MM-16S	7 to 17	Rising	0.00500	432	Well-Sorted Sand, some Gravel
	BP-1S	5 to 15	Rising	0.00032	28	Well-Sorted Sand
			Falling	0.00210	181	Well-Sorted Sand, some Gravel
BP-2S	10 to 20	Rising	0.01160	1,002	Well-Sorted Sand, and Gravel	
		Falling	0.00005	4	Very Fine Sand/Silt	
25-50	MM-1D	43 to 48	Rising	0.00005		4
			Falling	0.00009	8	
	MM-3I	35 to 40	Rising	0.00012	10	Well-Sorted Sand
			Falling	0.00013	11	
	MM-6D	44 to 49	Rising	0.00056	48	Well-Sorted Sand
			Falling	0.00056	48	
	MM-7I	35 to 40	Rising	0.00051	44	Well-Sorted Sand
			Falling	0.00060	52	
	MM-7D	45 to 50	Rising	0.00045	39	Well-Sorted Sand
			Falling	0.00030	26	
	MM-8I	35 to 40	Rising	0.00045	39	Well-Sorted Sand
			Falling	0.00045	39	
	MM-10D	30 to 35	Rising	0.00002	1	Very Fine Sand/Silt
			Falling	0.00002	1	
	MM-12I	30 to 35	Rising	0.00072	62	Well-Sorted Sand
			Falling	0.00095	82	
	MM-12D	44 to 49	Rising	Not Tested		
			Falling	Not Tested		
	MM-13D	45 to 50	Rising	0.00029	25	Well-Sorted Sand
			Falling	0.00029	25	
MM-15I	35 to 40	Rising	0.00065	56	Well-Sorted Sand	
		Falling	0.00072	62		
BP-1I	25 to 30	Rising	0.00002	1	Very Fine Sand/Silt	
		Falling	0.00001	1		
BP-1D	37 to 42	Rising	0.00057	49	Well-Sorted Sand	
		Falling	0.00082	71		
>50	MM-2D	64 to 69	Rising	0.00036	31	Well-Sorted Sand
			Falling	0.00036	31	
	MM-3D	59 to 64	Rising	0.00090	78	Well-Sorted Sand
			Falling	0.00080	69	
	MM-8D	66 to 71	Rising	0.00027	23	Well-Sorted Sand
			Falling	0.00031	27	
	MM-9D	53 to 58	Rising	0.00060	52	Well-Sorted Sand
			Falling	0.00022	19	
	MM-15D	63 to 68	Rising	0.00047	41	Well-Sorted Sand
			Falling	0.00042	36	
	BP-2I	50 to 55	Rising	0.00001	1	Very Fine Sand/Silt
			Falling	0.00001	1	
	MM-4D	73 to 78	Rising	0.00200	173	Well-Sorted Sand, some Gravel
			Falling	0.00150	130	
	MM-5D	72 to 77	Rising	0.00020	17	Well-Sorted Sand
			Falling	0.00020	17	
	BP-2D	92 to 97	Rising	0.00045	39	Well-Sorted Sand
			Falling	0.00045	39	

**Notes:**

1. Falling head tests were only conducted in those wells where the screened interval in the well was completely submerged below the static water level.
2. Hydraulic conductivity testing was not conducted in monitoring well MM-12D due to equipment failure.

**Table 3**  
**Phase I Waterloo<sup>APS</sup> Profiling Results**

**Phase I and Phase II Remedial Investigation Report**  
**Former General Cable Facility**  
**Vermont Route 346**  
**Pownal, Vermont**  
**VTDEC, SMS Site #87-0129**

**Waterloo<sup>APS</sup> Groundwater Sample Results**

Profiling Point ID	EPA Drinking Water Criteria (ppt)	VTDOH** Drinking Water Health Advisory (ppt)	PP-1	PP-2	PP-3	PP-4	PP-5	PP-6	PP-7				PP-8			PP-9		PP-10					
Probe Refusal Depth (feet bgs)			9.8	51.7	59	56.6	57.2	57.9	66.2				66.6			68.3		72.9					
Groundwater Sample Depth (feet bgs)					55.8	12.90	12.50	13.20	11.40	39.00	57.40	63.10	12.00	33.80	50.30	25.10	50.20	13.80	35.30	60.20	72.90		
Sampling Date					6/15/2016	6/15/2016	6/15/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/13/2016	6/14/2016	6/13/2016	6/14/2016	6/14/2016	6/14/2016		
Lab ID					927776	927771	927772	927790	927783	927784	927785	927786	927787	927788	927789	927781	927782	927772	927773	927774	927775		
PFC Analytes																							
Perfluorobutanesulfonic Acid (PFBS)	NS	NS	Shallow refusal - no groundwater encountered	No groundwater samples collected after multiple attempts	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Perfluoroheptanoic Acid (PFHpA)	NS	NS			4.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	NS	NS			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic Acid (PFOA)	70	20			59.10	56.40	30.00	28.20	21.90	41.60	22.50	18.20	22.90	21.30	14.60	ND	7.13	21.00	ND	ND	ND	ND	
Perfluorononanoic Acid (PFNA)	NS	NS			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	70	20			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sum of PFOA and PFOS**	NS	20			59.1	56.4	30	28.2	21.9	41.6	22.5	18.2	22.9	21.3	14.6	ND	7.13	21	ND	ND	ND	ND	
Stabilized Field Parameters																							
Head (feet bgs)	NS	NS			9.7	10.9	10.4	11.0	10.5	11.6	12.0	11.7	9.2	9.5	9.4	8.2	7.8	8.5	7.4	7.4	7.4	7.5	
Specific Conductance (µS/cm)	NS	NS			932	1022	862	905	872	1033	1058	1037	725	1006	976	970	955	958	867	928	928	924	
Dissolved Oxygen (ppm)	NS	NS			2.77	0.39	3.78	3.35	6.38	0.26	0.32	0.88	0.54	0.5	0.28	1.35	0.63	0.75	0.79	0.71	0.84		
pH	NS	NS			7.58	6.43	6.82	7.17	7	6.97	7	7.05	7.16	7.59	7.63	7.77	7.68	7.29	7.25	7.25	7.3		
Oxygen Reduction Potential (mV)	NS	NS			199	-37	74.4	85.8	99.1	-83.5	-63.7	-29.4	-106	-121	-123	103	179	43.5	98.9	92.9	69.2		

**Notes:**

- \* indicates Waterloo<sup>APS</sup> probe refusal was not encountered.
- Concentration units are in parts per trillion (ppt).
- \*\* A June 22, 2016 Memorandum from the Vermont Department of Health (VTDOH) to the Vermont Department of Environmental Conservation (VTDEC) establishes a Drinking Water Health Advisory (DWHA) of 20 ppt for the individual or sum concentration of the perfluorinated compounds (PFCs) perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS).
- PFOA/PFOS concentrations highlighted in red exceed the DWHA of 20 ppt established by the VTDOH.
- PFOA/PFOS concentrations highlighted in yellow exceed both the Environmental Protection Agency (EPA) drinking water standard and the VTDOH DWHA of 70 ppt and 20 ppt, respectively.
- ND indicates analyte was not detected in concentrations exceeding laboratory reporting limits.
- NC indicates no head measurements were collected due to transducer error.

**QA/QC Sample Results**

QA/QC Sample ID	EB060616	FB060616	EB060716	FB060716	FB060816	EB060816	PP16(40.3) MS/MSD	EB060916	FB060916	EB061316	FB061316	FB061016	EB061016	PP11(16) MS/MSD	EB061416	FB061416	FB061516	EB061516	FB061616	EB061616		
Sampling Date	6/6/2016	6/6/2016	6/7/2016	6/7/2016	6/8/2016	6/8/2016	6/9/2016	6/9/2016	6/9/2016	6/13/2016	6/13/2016	6/10/2016	6/10/2016	6/9/2016	6/14/2016	6/14/2016	6/15/2016	6/15/2016	6/16/2016	6/16/2016		
Lab ID	926065	926066	926067	926068	926075	926076	926086/87	926088	926089	926495	926496	926506	926507	926563/64	927793	927794	927795	927796	927797	927798		
PFCs																						
PFBS	ND	ND	ND	ND	ND	ND	See NLS Lab report 261508 and discussion in text	ND	ND	ND	ND	ND	ND	See NLS Lab report 261606 and discussion in text	ND	ND	ND	ND	ND	ND		
PFHpA	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND
PFHxS	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND
PFOA	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND
PFNA	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND
PFOS	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND

**Notes:**

- Quality assurance and quality control (QA/QC) sampling included the collection of field blank samples (assigned "FB" designations) and equipment blank samples (assigned "EB" designations) on a daily basis and the collection of groundwater duplicate and matrix spike/matrix spike duplicate (MS/MSD) samples at frequency of one per every 20 groundwater samples collected.
- Duplicate sample results (assigned "DUP" designations) are tabulated with their corresponding sample results to allow comparison.
- QA/QC sample results as they relate to data usability are discussed in the text.

**Table 3**  
**Phase I Waterloo<sup>APS</sup> Profiling Results**

**Phase I and Phase II Remedial Investigation Report**  
**Former General Cable Facility**  
**Vermont Route 346**  
**Pownal, Vermont**  
**VTDEC, SMS Site #87-0129**

**Waterloo<sup>APS</sup> Groundwater Sample Results (con't)**

Profiling Point ID	PP-11				PP-12				PP-13			PP-14			PP-15		PP-16		PP-17		PP-18		
Probe Refusal Depth (feet bgs)	82				80.3*				84.1			68.8			49.1		47.32		53.9		48.75		
Groundwater Sample Depth (feet bgs)	16.05	42.00	50.10	70.80	10.5	DUP B 10.5	30.30	55.50	80.30	13.40	40.50	70.50	13.60	34.07	66.10	12.50	35.40	12.40	40.30	16.00	42.30	13.08	34.90
Sampling Date	6/13/2016	6/13/2016	6/13/2016	6/13/2016	6/13/2016		6/13/2016	6/13/2016	6/13/2016	6/10/2016	6/10/2016	6/10/2016	6/10/2016	6/10/2016	6/10/2016	6/9/2016	6/10/2016	6/8/2016	6/9/2016	6/9/2016	6/10/2016	6/8/2016	6/8/2016
Lab ID	926502	926503	926504	926505	926497	926501	926498	926499	926500	926513	926514	926515	926510	926511	926512	926509	926077	926085	926090	926508	926080	926081	
PFC Analytes																							
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.51	ND	ND	4.48	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic Acid (PFOA)	ND	ND	ND	ND	42.10	39.50	ND	ND	ND	60.30	ND	ND	54.10	ND	ND	54.50	23.90	12.00	20.10	12.50	24.00	7.88	16.30
Perfluorononanoic Acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sum of PFOA and PFOS**	ND	ND	ND	ND	42.1	39.5	ND	ND	ND	60.3	ND	ND	54.1	ND	ND	54.5	23.9	12.00	20.1	12.5	24	7.88	16.3
Stabilized Field Parameters																							
Head (feet bgs)	8.7	7.6	7.6	7.9	8.2		7.5	7.3	7.7	8.5	7.3	6.9	8.6	8.2	NC	8.3	8.7	NC	NC	10.5	12.1	9.0	10.6
Specific Conductance (µS/cm)	862	850	867	839	743		891	850	881	675	919	870	624	715	782	606	571	504.4	594.4	363	598	336	560
Dissolved Oxygen (ppm)	0.53	0.74	0.48	0.44	2.99		0.68	1.55	1.39	4.02	0.61	1.18	3.16	0.67	0.67	3.27	4.15	6.79	6.07	6.06	0.9	4.52	8.05
pH	7.61	7.66	7.58	7.58	6.98		7.22	7.34	7.24	6.87	7.44	7.5	6.98	7.59	7.7	6.92	7.68	7.11	7.59	7.09	7.74	6.99	8.18
Oxygen Reduction Potential (mV)	197	64	31.9	21	128.8		107.3	79.3	51.7	105.5	105.3	102.3	218	168	84	137.4	54.2	67.4	138	145	208	145	166

**QA/QC Sample Results**

QA/QC Sample ID	FB061716	EB061716	EB062016	FB062016	PP44(15) MS/MSD	PP38(53.7) MS/MSD	FB062116	EB062116	PP33(14.3) MS/MSD	FB062216	EB062216
Date	6/17/2016	6/17/2016	6/20/2016	6/20/2016	6/9/2016	6/20/2016	6/21/2016	6/21/2016	6/21/2016	6/22/2016	6/22/2016
Lab ID	928386	928387	928392	928393	928400/01	929197/98	929200	929207	929213/14	929218	929220
PFCs											
PFBS	ND	ND	ND	ND	See NLS Lab report 262005 and discussion in text	See NLS Lab report 262234 and discussion in text	ND	ND	See NLS Lab report 262234 and discussion in text	ND	ND
PFHpA	ND	ND	ND	ND			ND	ND		ND	ND
PFHxS	ND	ND	ND	ND			ND	ND		ND	ND
PFOA	ND	ND	ND	ND			ND	ND		ND	ND
PFNA	ND	ND	ND	ND			ND	ND		ND	ND
PFOS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

**Table 3**  
**Phase I Waterloo<sup>APS</sup> Profiling Results**

**Phase I and Phase II Remedial Investigation Report**  
**Former General Cable Facility**  
**Vermont Route 346**  
**Pownal, Vermont**  
**VTDEC, SMS Site #87-0129**

**Waterloo<sup>APS</sup> Groundwater Sample Results (con't)**

Profiling Point ID	PP-19				PP-20		PP-21	PP-22		PP-23	PP-24		PP-25		PP-26		PP-27		PP-28	PP-29			PP-30
Probe Refusal Depth (feet bgs)	73.7				60		24	35.3		17.3	20.7		37.18		50.8		36.4		26	50.35			23
Groundwater Sample Depth (feet bgs)	12.80	36.50	DUP A 36.50	72.80	13.90	43.80	15.50	12.60	34.72	13.00	12.25	20.70	15.60	34.00	15.20	33.70	12.80	33.00	13.70	11.30	24.40	36.20	11.70
Sampling Date	6/8/2016	6/8/2016		6/8/2016	6/7/2016	6/8/2016	6/7/2016	6/7/2016	6/7/2016	6/7/2016	6/6/2016	6/7/2016	6/16/2016	6/17/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016	6/16/2016
Lab ID	926082	926083	926078	926084	926072	926079	926074	926069	926073	926070	926064	926071	928381	928388	928383	928382	928385	928384	927799	927778	927779	927780	927791
<b>PFC Analytes</b>																							
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ND	ND	ND	ND	3.68	ND	ND	3.97	ND	7.97	4.17	ND	3.76	ND	14.70	ND	ND	3.69	ND	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic Acid (PFOA)	7.04	19.50	21.10	34.00	10.80	16.90	63.20	20.00	ND	66.80	68.10	112.00	65.70	44.60	56.80	8.15	165.00	17.40	11.30	43.10	32.50	97.80	23.90
Perfluorononanoic Acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sum of PFOA and PFOS**	7.04	19.50	21.1	34	10.8	16.9	63.2	20	ND	66.8	68.1	112	65.7	44.6	56.8	8.15	165	17.4	11.3	43.1	32.5	97.8	23.9
<b>Stabilized Field Parameters</b>																							
Head (feet bgs)	NC		NC	NC	11.1	10.5	NC	10.1	9.1	NC	8.5	8.8	11.6	11.8	11.8	11.5	8.8	10.7	9.9	10.3	NC	10.6	9.9
Specific Conductance (µS/cm)	386.6	630	758	541	736	738	778	475	669	1016	1425	1020	847	669	953	858	1008	982	923	829	911	867	830
Dissolved Oxygen (ppm)	5.97	2.95	2.15	5.99	0.38	5.19	3.38	2.15	0.3	5.02	2.73	2.53	4.55	4	2.94	0.82	5.03	0.1	3.47	5.31	7.22	0.55	3.33
pH	7.22	7.62	7.6	6.78	7.81	6.77	7.44	7.66	6.76	6.55	7.11	6.76	7.18	7.39	7.66	6.7	6.97	7.63	6.9	7.18	7.14	7.66	7.66
Oxygen Reduction Potential (mV)	104.6	90.9	75.3	164.2	-152	71.1	112	-52	69	115	89	39.6	123	102	-13	76.9	-70.1	52	57.3	52.2	20.2	127	127

**Table 3**  
**Phase I Waterloo<sup>APS</sup> Profiling Results**

**Phase I and Phase II Remedial Investigation Report**  
**Former General Cable Facility**  
**Vermont Route 346**  
**Pownal, Vermont**  
**VTDEC, SMS Site #87-0129**

**Waterloo<sup>APS</sup> Groundwater Sample Results (con't)**

<b>Profiling Point ID</b>	<b>PP-30</b>	<b>PP-31</b>	<b>PP-32</b>	<b>PP-33</b>				<b>PP-34</b>				<b>PP-35</b>			<b>PP-36</b>				<b>PP-37</b>			<b>PP-38</b>	
<b>Probe Refusal Depth (feet bgs)</b>	23	30.46	27.4	75.24*				71.9				68.81			75*				53.58			80.3*	
<b>Groundwater Sample Depth (feet bgs)</b>	23.00	14.40	13.80	14.25	30.20	60.20	75.24	14.20	DUP E 14.20	40.10	70.00	14.00	37.50	58.52	13.40	27.70	50.30	75.00	19.10	42.55	53.58	13.40	30.20
<b>Sampling Date</b>	6/16/2016	6/22/2016	6/22/2016	6/21/2016	6/22/2016	6/22/2016	6/22/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/21/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016
<b>Lab ID</b>	927792	929224	929222	929212	929217	929221	929223	929210	929216	929215	929219	929204	929211	929209	929203	929205	929206	929208	929125	929199	929201	928395	928404
<b>PFC Analytes</b>																							
<b>Perfluorobutanesulfonic Acid (PFBS)</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Perfluoroheptanoic Acid (PFHpA)</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Perfluorohexanesulfonic Acid (PFHxS)</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Perfluorooctanoic Acid (PFOA)</b>	161.00	27.50	18.70	33.10	17.80	ND	19.20	12.50	12.70	ND	ND	31.10	ND	ND	31.90	ND	ND	11.10	30.60	ND	ND	43.90	ND
<b>Perfluorononanoic Acid (PFNA)</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Perfluorooctanesulfonic Acid (PFOS)</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Sum of PFOA and PFOS**</b>	161	27.5	18.7	33.1	17.8	ND	19.2	12.50	12.70	ND	ND	31.10	ND	ND	31.90	ND	ND	11.10	30.60	ND	ND	43.90	ND
<b>Stabilized Field Parameters</b>																							
<b>Head (feet bgs)</b>	9.8	12.8	12.7	12.3	12.5	12.4	NC	12.4	12.5	11.8	12.0	12.0	NC	12.7	12.3	12.0	NC	12.6	12.4	NC	12.0	11.4	
<b>Specific Conductance (µS/cm)</b>	803	781	934	950	939	760	795	919	883	637	1114	840	853	979	915	875	647	838	853	794	747	886	
<b>Dissolved Oxygen (ppm)</b>	0.66	4.3	5.51	0.19	0.58	0.37	0.33	0.42	0.64	1.12	0.66	0.84	1.05	3.84	0.32	0.44	0.04	1.25	0.67	1.64	2.63	0.46	
<b>pH</b>	7.45	7.31	7	7.12	7.43	7.49	7.47	7.18	7.16	7.4	7.27	7.44	7.58	6.89	7.3	7.2	7.82	7.41	7.39	7.53	6.81	7.14	
<b>Oxygen Reduction Potential (mV)</b>	70	69	85	-25	23	-16	-91	-110	4	61	107	-0.5	11	82	39	52	-306	35	33	46.7	106	32	

**Table 3**  
**Phase I Waterloo<sup>APS</sup> Profiling Results**

**Phase I and Phase II Remedial Investigation Report**  
**Former General Cable Facility**  
**Vermont Route 346**  
**Pownal, Vermont**  
**VTDEC, SMS Site #87-0129**

**Waterloo<sup>APS</sup> Groundwater Sample Results (con't)**

Profiling Point ID	PP-38 (con't)			PP-39	PP-40	PP-41	PP-42	PP-43			PP-44			
Probe Refusal Depth (feet bgs)	80.3*			68.64	57.6	36.4	10	48.3			43			
Groundwater Sample Depth (feet bgs)	DUP D 30.20	53.70	80.30	36.75	66.10	11.20	13.50	11.50	DUP C 11.50	27.20	48.30	15.05	30.13	43.00
Sampling Date	6/20/2016	6/20/2016	6/20/2016	6/17/2016	6/17/2016	6/17/2016	6/22/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016	6/20/2016
Lab ID	928405	929196	929202	928389	928390	928391	929225	928396	928394	928397	928398	928399	928402	928403
<b>PFC Analytes</b>														
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ND	ND	3.47	ND	5.80	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic Acid (PFOA)	ND	ND	ND	ND	42.80	42.50	400.00	49.40	54.10	ND	ND	25.40	ND	9.21
Perfluorononanoic Acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sum of PFOA and PFOS**	ND	ND	ND	ND	42.80	42.50	400.00	49.40	54.10	ND	ND	25.40	ND	9.21
<b>Stabilized Field Parameters</b>														
Head (feet bgs)	11.4	11.3	12.1	10.2	10.1	10.3	12.2	8.8	8.0	8.1	12.7	12.3	12.5	
Specific Conductance (µS/cm)	886	870	887	685	720	539	1069	758	908	909	743	841	825	
Dissolved Oxygen (ppm)	0.46	0.69	0.91	0.58	1.4	6.42	0.55	1.91	0.44	0.35	0.44	0.28	0.22	
pH	7.14	7.2	7.13	7.77	7.63	7.07	6.44	6.79	7.22	7.18	7.33	7.28	7.33	
Oxygen Reduction Potential (mV)	32	59	99	-99	31.7	118.5	-27	101	87	81	141	95	7	

Shallow refusal -  
no groundwater  
encountered

Table 4  
Surficial Soil and Sediment Sample Results

Phase I and Phase II Remedial Investigation Report  
Former General Cable Facility  
Vermont Route 346  
Pownal, Vermont  
VTDEC, SMS Site #87-0129

Sample ID	EPA Residential Soil Screening Level (mg/Kg)	VTDOH Screening Value for Surface Soil (mg/Kg)	MM-1(0-6")	MM-1(6-12")	MM-1(12-18")	MM-1(18-24")	MM-1(0-2')	MM-2(0-6")	MM-2(6-12")	MM-2(12-18")	MM-2(18-24")	MM-2(0-2')	MM-3(0-6")	MM-3(6-12")	MM-3(12-18")	MM-3(18-24")	DUP100616A	MM-3(0-2')	MM-4(0-6")	MM-4(6-12")	MM-4(12-18")	MM-4(18-24")	MM-4(0-2')
			PP-20					PP-3					PP-7					PP-10					
Corresponding Waterloo Point	Sampling Date	Lab Sample ID	10/5/2016	10/5/2016	10/5/2016	10/5/2016	10/6/2016	10/5/2016	10/5/2016	10/5/2016	10/5/2016	10/5/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016
PFC Analytes			FA37662-58	FA37662-59	FA37662-60	FA37662-61	MC48222-21	FA37662-62	FA37662-63	FA37662-64	FA37662-65	MC48222-23	FA37662-71	FA37662-72	FA37662-73	FA37662-74	MC48222-30	FA37662-76	FA37662-77	FA37662-78	FA37662-79	MC48222-31	
Perfluoroheptanoic Acid (PFHpA)	NE	NE	<0.0021	<0.0021	<0.0022	<0.0022	NA	<0.0021	<0.0023	<0.0022	<0.0023	NA	<0.0024	<0.0026	<0.0023	<0.0022	<0.0022	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA
Perfluorooctanoic Acid (PFOA)	16	0.30	<0.0021	<0.0021	<0.0022	<0.0022	NA	<0.0021	<0.0023	<0.0022	<b>0.0544</b>	NA	<0.0024	<b>0.00257J</b>	<0.0023	<0.0022	<0.0022	NA	<b>0.00202J</b>	<0.0021	<0.0021	<0.0021	NA
Perfluorononanoic Acid (PFNA)	NE	NE	<0.0021	<0.0021	<0.0022	<0.0022	NA	<0.0021	<0.0023	<0.0022	<0.0023	NA	<0.0024	<0.0026	<0.0023	<0.0022	<0.0022	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA
Perfluorobutanesulfonic Acid (PFBS)	NE	NE	<0.0021	<0.0021	<0.0022	<0.0022	NA	<0.0021	<0.0023	<0.0022	<0.0023	NA	<0.0024	<0.0026	<0.0023	<0.0022	<0.0022	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA
Perfluorohexanesulfonic Acid (PFHxS)	NE	NE	<0.0021	<0.0021	<0.0022	<0.0022	NA	<0.0021	<0.0023	<0.0022	<0.0023	NA	<0.0024	<0.0026	<0.0023	<0.0022	<0.0022	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA
Perfluorooctanesulfonic Acid (PFOS)	6	NE	<0.0021	<0.0021	<0.0022	<0.0022	NA	<0.0021	<0.0023	<0.0022	<0.0023	NA	<0.0024	<0.0026	<0.0023	<0.0022	<0.0022	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA
Additional Analyses																							
TOC	NE	NE	NA	NA	NA	NA	3.260	NA	NA	NA	NA	8.990	NA	NA	NA	NA	NA	5.920	NA	NA	NA	NA	1.790
Total Iron	NE	NE	NA	NA	NA	NA	4.260	NA	NA	NA	NA	19.300	NA	NA	NA	NA	NA	25.800	NA	NA	NA	NA	22.100
% Gravel	NE	NE	NA	NA	NA	NA	45.2	NA	NA	NA	NA	25.7	NA	NA	NA	NA	NA	0.0	NA	NA	NA	NA	29.4
% Sand	NE	NE	NA	NA	NA	NA	38.8	NA	NA	NA	NA	50.2	NA	NA	NA	NA	NA	48.9	NA	NA	NA	NA	59.0
% Silt/Clay/Colloids	NE	NE	NA	NA	NA	NA	16.0	NA	NA	NA	NA	24.1	NA	NA	NA	NA	NA	51.1	NA	NA	NA	NA	11.6

Sample ID	EPA Residential Soil Screening Value (mg/Kg)	VTDOH Screening Value for Surface Soil* (mg/Kg)	MM-11(0-6")	MM-11(6-12")	MM-11(12-18")	MM-11(18-24")	MM-11(0-2')	MM-12(0-6")	MM-12(6-12")	MM-12(12-18")	MM-12(18-24")	MM-12(0-2')	MM-13(0-6")	MM-13(6-12")	MM-13(12-18")	DUP100416A	MM-13(18-24")	MM-13(0-2')	MM-14(0-6")	MM-14(6-12")	MM-14(12-18")	MM-14(18-24")	MM-14(0-2')
			PP-24					PP-26					PP-29					PP-31					
Corresponding Waterloo Point	Sampling Date	Lab Sample ID	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/4/2016	10/4/2016	10/4/2016		10/4/2016	10/4/2016	10/4/2016	10/4/2016	10/4/2016	10/4/2016	10/4/2016
PFC Analytes			FA37662-34	FA37662-35	FA37662-36	FA37662-37	MC48188-8	FA37662-26	FA37662-27	FA37662-28	FA37662-29	MC48188-9	FA37662-52	FA37662-53	FA37662-54	FA37662-56	FA37662-55	MC48188-16	FA37662-38	FA37662-39	FA37662-40	FA37662-41	MC48188-17
Perfluoroheptanoic Acid (PFHpA)	NE	NE	<0.0022	<0.0024	<0.0025	<0.0021	NA	<0.0021	<0.0020	<0.0021	<0.0021	NA	<0.0021	<0.0023	<0.0023	<0.0023	<0.0026	NA	<0.0020	<0.0020	<0.0021	<0.0021	NA
Perfluorooctanoic Acid (PFOA)	16	0.30	<0.0022	<0.0024	<0.0025	<0.0021	NA	<0.0021	<0.0020	<b>0.00125J</b>	<0.0021	NA	<0.0021	<0.0023	<0.0023	<0.0023	<b>0.00259J</b>	NA	<0.0020	<0.0020	<0.0021	<b>0.00491</b>	NA
Perfluorononanoic Acid (PFNA)	NE	NE	<0.0022	<0.0024	<0.0025	<0.0021	NA	<0.0021	<0.0020	<0.0021	<0.0021	NA	<0.0021	<0.0023	<0.0023	<0.0023	<0.0026	NA	<0.0020	<0.0020	<0.0021	<0.0021	NA
Perfluorobutanesulfonic Acid (PFBS)	NE	NE	<0.0022	<0.0024	<0.0025	<0.0021	NA	<0.0021	<0.0020	<0.0021	<0.0021	NA	<0.0021	<0.0023	<0.0023	<0.0023	<0.0026	NA	<0.0020	<0.0020	<0.0021	<0.0021	NA
Perfluorohexanesulfonic Acid (PFHxS)	NE	NE	<0.0022	<0.0024	<0.0025	<0.0021	NA	<0.0021	<0.0020	<0.0021	<0.0021	NA	<0.0021	<0.0023	<0.0023	<0.0023	<0.0026	NA	<0.0020	<0.0020	<0.0021	<0.0021	NA
Perfluorooctanesulfonic Acid (PFOS)	6	NE	<0.0022	<0.0024	<0.0025	<0.0021	NA	<0.0021	<0.0020	<0.0021	<0.0021	NA	<0.0021	<0.0023	<0.0023	<0.0023	<0.0026	NA	<0.0020	<0.0020	<0.0021	<0.0021	NA
Additional Analyses																							
TOC	NE	NE	NA	NA	NA	NA	9.710	NA	NA	NA	NA	9.770	NA	NA	NA	NA	NA	12.300	NA	NA	NA	NA	5.800
Total Iron	NE	NE	NA	NA	NA	NA	25.400	NA	NA	NA	NA	16.600	NA	NA	NA	NA	NA	22.100	NA	NA	NA	NA	24.600
% Gravel	NE	NE	NA	NA	NA	NA	11.0	NA	NA	NA	NA	27.3	NA	NA	NA	NA	NA	54.6	NA	NA	NA	NA	27.1
% Sand	NE	NE	NA	NA	NA	NA	41.1	NA	NA	NA	NA	61.6	NA	NA	NA	NA	NA	33.2	NA	NA	NA	NA	48.6
% Silt/Clay/Colloids	NE	NE	NA	NA	NA	NA	47.9	NA	NA	NA	NA	11.1	NA	NA	NA	NA	NA	12.2	NA	NA	NA	NA	24.3

Notes:

- 1) Results are expressed in milligrams per kilogram (mg/Kg).
- 2) The screening value in surface soil of 0.30 mg/Kg for the perfluorinated compound (PFC) perfluorooctanoic acid (PFOA) is established in a March 10, 2016 Memorandum from the Vermont Department of Health (VTDOH) to the Vermont Department of Environmental Conservation (VTDEC).
- 3) In 2009, EPA Region 4 established a residential Soil Screening Value of 16 mg/Kg for PFOA and 6 mg/Kg for PFOS (Reference 2)
- 4) NE indicates a screening value for that analyte has not been established.
- 5) NA indicates that the soil sample was not analyzed for that constituent.
- 6) <0.0024 indicates the analyte was not detected in concentrations exceeding laboratory reporting limit.
- 7) **J-qualified** results indicate an estimated concentration that exceeds the method detection limit but does not exceed the laboratory reporting limit.
- 8) Highlighting and bold font indicates concentrations or estimated concentrations of PFCs were detected.

Table 4  
Surficial Soil and Sediment Sample Results  
Phase I and Phase II Remedial Investigation Report  
Former General Cable Facility  
Vermont Route 346  
Pownal, Vermont  
VTDEC, SMS Site #87-0129

Sample ID	EPA Residential Soil Screening Level (mg/Kg)	VTDOH Screening Value for Surface Soil (mg/Kg)	Surficial Soil Sample Results																				
			MM-5(0-6")	MM-5(6-12")	MM-5(12-18")	MM-5(18-24")	MM-5(0-2')	MM-6(0-6")	MM-6(6-12")	MM-6(12-18")	MM-6(18-24")	MM-6(0-2')	MM-7(0-6")	MM-7(6-12")	MM-7(12-18")	MM-7(18-24")	MM-7(0-2')	MM-8(0-6")	MM-8(6-12")	MM-8(12-18")	MM-8(18-24")	MM-8(0-2')	
			PP-13					PP-15					PP-18					PP-19					
Corresponding Waterloo Point	Sampling Date	Lab Sample ID	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016
			FA37662-1	FA37662-2	FA37662-3	FA37662-4	MC48188-1	FA37662-6	FA37662-7	FA37662-8	FA37662-9	MC48188-3	FA37662-10	FA37662-11	FA37662-12	FA37662-13	MC48188-4	FA37662-14	FA37662-15	FA37662-16	FA37662-17	MC48188-5	
PFC Analytes																							
Perfluoroheptanoic Acid (PFHpA)	NE	NE	<0.0024	<0.0028	<0.0022	<0.0023	NA	<0.0026	<0.0021	<0.0023	<0.0027	NA	<0.0023	<0.0024	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0021	NA	
Perfluorooctanoic Acid (PFOA)	16	0.30	<0.0024	<0.0028	<0.0022	<0.0023	NA	<0.0026	<0.0021	<0.0023	<0.0027	NA	<0.0023	<b>0.00201J</b>	<b>0.00125J</b>	<b>0.00216J</b>	NA	<0.0023	<0.0021	<0.0021	<0.0021	NA	
Perfluorononanoic Acid (PFNA)	NE	NE	<0.0024	<0.0028	<0.0022	<0.0023	NA	<0.0026	<0.0021	<0.0023	<0.0027	NA	<0.0023	<0.0024	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0021	NA	
Perfluorobutanesulfonic Acid (PFBS)	NE	NE	<0.0024	<0.0028	<0.0022	<0.0023	NA	<0.0026	<0.0021	<0.0023	<0.0027	NA	<0.0023	<0.0024	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0021	NA	
Perfluorohexanesulfonic Acid (PFHxS)	NE	NE	<0.0024	<0.0028	<0.0022	<0.0023	NA	<0.0026	<0.0021	<0.0023	<0.0027	NA	<0.0023	<0.0024	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0021	NA	
Perfluorooctanesulfonic Acid (PFOS)	6	NE	<0.0024	<0.0028	<0.0022	<0.0023	NA	<0.0026	<0.0021	<0.0023	<0.0027	NA	<0.0023	<0.0024	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0021	NA	
Additional Analyses																							
TOC	NE	NE	NA	NA	NA	NA	43.500	NA	NA	NA	NA	39.900	NA	NA	NA	NA	20.400	NA	NA	NA	NA	11.900	
Total Iron	NE	NE	NA	NA	NA	NA	72.200	NA	NA	NA	NA	17.600	NA	NA	NA	NA	25.000	NA	NA	NA	NA	24.400	
% Gravel	NE	NE	NA	NA	NA	NA	29.8	NA	NA	NA	NA	10.1	NA	NA	NA	NA	24.0	NA	NA	NA	NA	23.3	
% Sand	NE	NE	NA	NA	NA	NA	48.8	NA	NA	NA	NA	56.2	NA	NA	NA	NA	40.0	NA	NA	NA	NA	49.8	
% Silt/Clay/Colloids	NE	NE	NA	NA	NA	NA	21.4	NA	NA	NA	NA	33.6	NA	NA	NA	NA	36.0	NA	NA	NA	NA	26.9	

Sample ID	EPA Residential Soil Screening Value (mg/Kg)	VTDOH Screening Value for Surface Soil* (mg/Kg)	Its (con't)																				
			MM-15(0-6")	MM-15(6-12")	MM-15(12-18")	MM-15(18-24")	MM-15(0-2')	MM-16(0-6")	MM-16(6-12")	MM-16(12-18")	MM-16(18-24")	MM-16(0-2')	BP-1(0-6")	BP-1(6-12")	BP-1(12-18")	BP-1(18-24")	BP-1(0-2')	BP-2(0-6")	BP-2(6-12")	BP-2(12-18")	BP-2(18-24")	BP-2(0-2')	
			PP-39					PP-41					NA					NA					
Corresponding Waterloo Point	Sampling Date	Lab Sample ID	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/4/2016	10/4/2016	10/4/2016	10/4/2016	10/4/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016	10/6/2016
			FA37662-30	FA37662-31	FA37662-32	FA37662-33	MC48188-10	FA37662-42	FA37662-43	FA37662-44	FA37662-45	MC48188-13	FA37662-80	FA37662-81	FA37662-82	FA37662-83	MC48222-28	FA37662-84	FA37662-85	FA37662-86	FA37662-87	MC48222-29	
PFC Analytes																							
Perfluoroheptanoic Acid (PFHpA)	NE	NE	<0.0023	<0.0022	<0.0024	<0.0024	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA	<0.0022	<0.0022	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0022	NA	
Perfluorooctanoic Acid (PFOA)	16	0.30	<0.0023	<b>0.00141J</b>	<0.0024	<0.0024	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA	<0.0022	<0.0022	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0022	NA	
Perfluorononanoic Acid (PFNA)	NE	NE	<0.0023	<0.0022	<0.0024	<0.0024	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA	<0.0022	<0.0022	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0022	NA	
Perfluorobutanesulfonic Acid (PFBS)	NE	NE	<0.0023	<0.0022	<0.0024	<0.0024	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA	<0.0022	<0.0022	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0022	NA	
Perfluorohexanesulfonic Acid (PFHxS)	NE	NE	<0.0023	<0.0022	<0.0024	<0.0024	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA	<0.0022	<0.0022	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0022	NA	
Perfluorooctanesulfonic Acid (PFOS)	6	NE	<0.0023	<0.0022	<0.0024	<0.0024	NA	<0.0021	<0.0021	<0.0021	<0.0021	NA	<0.0022	<0.0022	<0.0023	<0.0022	NA	<0.0023	<0.0021	<0.0021	<0.0022	NA	
Additional Analyses																							
TOC	NE	NE	NA	NA	NA	NA	3.150	NA	NA	NA	NA	1.510	NA	NA	NA	NA	10.300	NA	NA	NA	NA	7.620	
Total Iron	NE	NE	NA	NA	NA	NA	23.100	NA	NA	NA	NA	24.700	NA	NA	NA	NA	26.400	NA	NA	NA	NA	24.500	
% Gravel	NE	NE	NA	NA	NA	NA	13.9	NA	NA	NA	NA	33.1	NA	NA	NA	NA	31.2	NA	NA	NA	NA	17.5	
% Sand	NE	NE	NA	NA	NA	NA	45.0	NA	NA	NA	NA	49.5	NA	NA	NA	NA	32.6	NA	NA	NA	NA	39.2	
% Silt/Clay/Colloids	NE	NE	NA	NA	NA	NA	41.1	NA	NA	NA	NA	17.4	NA	NA	NA	NA	36.3	NA	NA	NA	NA	43.3	

Table 4  
**Surficial Soil and Sediment Sample Results**  
Phase I and Phase II Remedial Investigation Report  
Former General Cable Facility  
Vermont Route 346  
Pownal, Vermont  
VTDEC, SMS Site #87-0129

Sample ID	EPA Residential Screening Level (mg/Kg)	Soil VTDOH Screening Value for Surface Soil (mg/Kg)	Surficial Soil and Sediment Sample Results									
			MM-9(0-6")	MM-9(6-12")	MM-9(12-18")	MM-9(18-24")	MM-9(0-2')	MM-10(0-6")	MM-10(6-12")	MM-10(12-18")	MM-10(18-24")	MM-10(0-2')
Corresponding Waterloo Point			PP-20					PP-22				
Sampling Date			10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016	10/3/2016
Lab Sample ID			FA37662-21	FA37662-18	FA37662-19	FA37662-20	MC48188-6	FA37662-22	FA37662-23	FA37662-24	FA37662-25	MC48188-7
PFC Analytes												
Perfluoroheptanoic Acid (PFHpA)	NE	NE	<0.0023	<0.0022	<0.0021	<0.0023	NA	<0.0028	<0.0024	<0.0024	<0.0021	NA
Perfluorooctanoic Acid (PFOA)	16	0.30	<0.0023	<b>0.00292</b>	<b>0.00383</b>	<b>0.00359</b>	NA	<0.0028	<0.0024	<0.0024	<0.0021	NA
Perfluorononanoic Acid (PFNA)	NE	NE	<0.0023	<0.0022	<0.0021	<0.0023	NA	<0.0028	<0.0024	<0.0024	<0.0021	NA
Perfluorobutanesulfonic Acid (PFBS)	NE	NE	<0.0023	<0.0022	<0.0021	<0.0023	NA	<0.0028	<0.0024	<0.0024	<0.0021	NA
Perfluorohexanesulfonic Acid (PFHxS)	NE	NE	<0.0023	<0.0022	<0.0021	<0.0023	NA	<0.0028	<0.0024	<0.0024	<0.0021	NA
Perfluorooctanesulfonic Acid (PFOS)	6	NE	<0.0023	<0.0022	<0.0021	<0.0023	NA	<0.0028	<0.0024	<0.0024	<0.0021	NA
Additional Analyses												
TOC	NE	NE	NA	NA	NA	NA	8,140	NA	NA	NA	NA	4,130
Total Iron	NE	NE	NA	NA	NA	NA	19,400	NA	NA	NA	NA	27,800
% Gravel	NE	NE	NA	NA	NA	NA	11.6	NA	NA	NA	NA	17.7
% Sand	NE	NE	NA	NA	NA	NA	34.3	NA	NA	NA	NA	40.0
% Silt/Clay/Colloids	NE	NE	NA	NA	NA	NA	54.1	NA	NA	NA	NA	42.2

Sample ID	EPA Residential Screening Value (mg/Kg)	Soil VTDOH Screening Value for Surface Soil* (mg/Kg)	Sediment Sample Results					
			SED-1	SED-2	SED-3	SED-4	SED-5	SED-COMP
Corresponding Waterloo Point			NA					
Sampling Date			10/18/2016	10/18/2016	10/18/2016	10/18/2016	10/18/2016	10/21/2016
Lab Sample ID			MC48397-17	MC48397-18	MC48397-19	MC48397-20	MC48397-21	MC48397-22
PFC Analytes								
Perfluoroheptanoic Acid (PFHpA)	NE	NE	<0.0024	<0.0026	<0.0025	<0.0034	<0.0023	NA
Perfluorooctanoic Acid (PFOA)	16	0.30	<0.0024	<0.0026	<0.0025	<0.0034	<0.0023	NA
Perfluorononanoic Acid (PFNA)	NE	NE	<0.0024	<0.0026	<0.0025	<0.0034	<0.0023	NA
Perfluorobutanesulfonic Acid (PFBS)	NE	NE	<0.0024	<0.0026	<0.0025	<0.0034	<0.0023	NA
Perfluorohexanesulfonic Acid (PFHxS)	NE	NE	<0.0024	<0.0026	<0.0025	<0.0034	<0.0023	NA
Perfluorooctanesulfonic Acid (PFOS)	6	NE	<0.0024	<0.0026	<0.0025	<0.0034	<0.0023	NA
Additional Analyses								
TOC	NE	NE	NA	NA	NA	NA	NA	16,000
Total Iron	NE	NE	NA	NA	NA	NA	NA	21,900
% Gravel	NE	NE	NA	NA	NA	NA	NA	37.3
% Sand	NE	NE	NA	NA	NA	NA	NA	51.3
% Silt/Clay/Colloids	NE	NE	NA	NA	NA	NA	NA	11.4

**Table 5  
Deep Soil Sample Results**

**Phase I and Phase II Remedial Investigation Report  
Former General Cable Facility  
Vermont Route 346  
Pownal, Vermont  
VTDEC, SMS Site #87-0129**

Deep Soil Sample ID	EPA Residential Soil Screening Value (mg/Kg)	VTDOH Screening Value for Surface Soil* (mg/Kg)	MM-1(4-14')	MM-1(42-47')	MM-2(4-14')	MM-2(64-69')	MM-3(5-15')	MM-3(35-40')	MM-3(59-64')	MM-4(5-15')	DUP101216A	MM-4(73-78')	MM-5(8-18')	MM-5(72-77')	DUP100416C	MM-6(5-15')	MM-6(44-49')	MM-7(7-17')	MM-7(35-40')
Corresponding Waterloo Point			PP-2		PP-3		PP-7			PP-10		PP-13			PP-15		PP-18		
Sampling Date			10/17/2016	10/17/2016	10/19/2016	10/19/2016	10/18/2016	10/18/2016	10/18/2016	10/12/2016	10/12/2016	10/3/2016	10/4/2016		10/4/2016	10/4/2016	10/10/2016	10/10/2016	
PFC Analytes	Lab Sample ID	MC48397-1	MC48397-3	MC48397-23	MC48397-25	MC48397-7	MC48397-9	MC48397-11	MC48308-9	MC48308-11	MC48308-12	FA37662-5	FA37662-48	FA37662-49	FA37662-46	FA37662-47	MC48308-1	MC48308-3	
Perfluoroheptanoic Acid (PFHpA)	NE	NE	<0.0022	<0.0022	<0.0024	<0.0020	<0.0021	<0.0023	<0.0021	<0.0020	<0.0019	<0.0020	<0.0024	<0.0022	<0.0022	<0.0027	<0.0023	<0.0024	<0.0021
Perfluorooctanoic Acid (PFOA)	16	0.30	<0.0022	<0.0022	<0.0024	<0.0020	<0.0021	<0.0023	<0.0021	<0.0020	<0.0019	<0.0020	<0.0024	<0.0022	<0.0022	<0.0027	<0.0023	<0.0024	<0.0021
Perfluorononanoic Acid (PFNA)	NE	NE	<0.0022	<0.0022	<0.0024	<0.0020	<0.0021	<0.0023	<0.0021	<0.0020	<0.0019	<0.0020	<0.0024	<0.0022	<0.0022	<0.0027	<0.0023	<0.0024	<0.0021
Perfluorobutanesulfonic Acid (PFBS)	NE	NE	<0.0022	<0.0022	<0.0024	<0.0020	<0.0021	<0.0023	<0.0021	<0.0020	<0.0019	<0.0020	<0.0024	<0.0022	<0.0022	<0.0027	<0.0023	<0.0024	<0.0021
Perfluorohexanesulfonic Acid (PFHxS)	NE	NE	<0.0022	<0.0022	<0.0024	<0.0020	<0.0021	<0.0023	<0.0021	<0.0020	<0.0019	<0.0020	<0.0024	<0.0022	<0.0022	<0.0027	<0.0023	<0.0024	<0.0021
Perfluorooctanesulfonic Acid (PFOS)	6	NE	<0.0022	<0.0022	<0.0024	<0.0020	<0.0021	<0.0023	<0.0021	<0.0020	<0.0019	<0.0020	<0.0024	<0.0022	<0.0022	<0.0027	<0.0023	<0.0024	<0.0021
<b>Additional Analyses</b>																			
Lab Sample ID			MC48397-2	MC48397-4	MC48397-24	MC48397-26	MC48397-8	MC48397-10	MC48397-12	MC48308-10	NA	MC48308-13	MC48188-2	MC48188-15	NA	MC48188-12	MC48188-11	MC48308-2	MC48308-4
TOC	NE	NE	3,150	4,590	10,500	<1,200	<1,200	<1,100	1,810	1,220	NA	<1,100	2,000	1,400	NA	18,300	<1,100	<1,100	9,390
Total Iron	NE	NE	23,300	29,000	27,400	18,500	23,800	25,500	24,500	27,300	NA	16,400	24,800	30,600	NA	27,200	22,000	26,100	21,700
% Gravel	NE	NE	32.7	27.1	1.8	51.3	36.5	27.3	27.9	21.7	NA	69.5	24.7	33.6	NA	37.4	47.4	7.0	39.4
% Sand	NE	NE	40.3	32.5	56.6	43.4	45.3	42.5	45.9	41.5	NA	26.4	39.5	60.9		23.3	46.9	58.1	43.3
% Silt/Clay/Colloids	NE	NE	27.0	40.4	41.6	5.3	18.2	30.2	26.2	36.8	NA	4.1	35.9	5.5		39.3	5.7	34.9	17.3

**Notes:**

- 1) Results are expressed in milligrams per kilogram (mg/Kg).
- 2) The screening value in surface soil of 0.30 mg/Kg for the perfluorinated compound (PFC) perfluorooctanoic acid (PFOA) is established in a March 10, 2016 Memorandum from the Vermont Department of Health (VTDOH) to the Vermont Department of Environmental Conservation (VTDEC).
- 3) In 2009, EPA Region 4 established a residential Soil Screening Value of 16 mg/Kg for PFOA and 6 mg/Kg for PFOS (Reference 2).
- 4) NE indicates a screening value for that analyte has not been established.
- 5) <0.0022 indicates the analyte was not detected in concentrations exceeding laboratory reporting limits.
- 6) NA indicates not applicable or that the soil sample was not analyzed for that parameter.
- 7) **J-qualified** results indicate an estimated concentration that exceeds the method detection limit but does not exceed the laboratory reporting limit.
- 8) Highlighting and bold font indicates concentrations or estimated concentrations of PFCs were detected.

**Soil and Sediment Sample QA/QC Sample Results**

Sample ID	EB100316	FB100316	EB100316	FB100416	EB100516	FB100516	EB100616	FB100616	EB100716	FB100716	MM-5(72-77) MS/MSD	MM-16(7-17) MS/MSD	MM-13(18-24) MS/MSD	MM-3(0-6) MS/MSD	MM-15(35-40) MS/MSD	EB101016	FB101016
Sampling Date	10/3/2016	10/3/2016	10/11/2016	10/4/2016	10/5/2016	10/5/2016	10/6/2016	10/6/2016	10/7/2016	10/7/2016	10/4/2016	10/4/2016	10/4/2016	10/6/2016	10/4/2016	10/10/2016	10/10/2016
Lab ID	MC48222-7	MC48222-8	MC48222-9	MC48222-10	MC48222-11	MC48222-12	MC48222-13	MC48222-14	MC48222-15	MC48222-16	FA37622-48	FA37622-50	FA37622-55	FA37622-71	MC48222-4	MC48308-7	MC48308-8
PFC Analytes																	
PFHpA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	See SGS Lab report FA37622 and discussion in text	See SGS Lab report FA37622 and discussion in text	See SGS Lab report FA37622 and discussion in text	See SGS Lab report FA37622 and discussion in text	See SGS Lab report MC48222 and discussion in text	ND	ND
PFOA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						ND	ND
PFNA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						ND	ND
PFBS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						ND	ND
PFHxS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						ND	ND
PFOS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						ND	ND

**Notes:**

- 1) Quality assurance and quality control (QA/QC) sampling included the collection of aqueous field blank samples (assigned "FB" designations) and equipment blank samples (assigned "EB" designations) on a daily basis and the collection of duplicate and matrix spike/matrix spike duplicate (MS/MSD) soil samples at frequency of one per every 20 soil samples collected.
- 2) This table summarizes QA/QC sampling results for both surficial and deep soil sampling.
- 3) ND indicates PFCs were not detected in concentrations exceeding laboratory reporting limits.
- 4) Duplicate soil sample results (assigned "DUP" designations) are tabulated above with their corresponding sample results to allow comparison.
- 5) QA/QC sample results as they relate to data usability are discussed in the text.

Table 5  
Deep Soil Sample Results

Phase I and Phase II Remedial Investigation Report  
Former General Cable Facility  
Vermont Route 346  
Pownal, Vermont  
VTDEC, SMS Site #87-0129

Deep Soil Sample ID	EPA Residential Soil Screening Value (mg/Kg)	VTDOH Screening Value for Surface Soil* (mg/Kg)	MM-7(45-50')	MM-8(5-15')	MM-8(35-40')	MM-8(66-71')	MM-9(7-17')	MM-9(52-57')	MM-10(10-20')	MM-10(30-35')	MM-11(10-20')	MM-12(12-22')	MM-12(30-35')	MM-12(43-48')	MM-13(5-15')	MM-13(20-25')	MM-13(45-50')	MM-14(7-17')	MM-15(5-15')	
Corresponding Waterloo Point			PP-19			PP-20		PP-22		PP-24	PP-26			PP-29			PP-31			
Sampling Date			10/10/2016	10/7/2016	10/7/2016	No Sample Recovery	10/5/2016	10/5/2016	10/5/2016	10/5/2016	10/5/2016	10/13/2016	10/13/2016	10/13/2016	10/14/2016	10/14/2016	10/14/2016	10/4/2016	10/6/2016	
PFC Analytes																				
Lab Sample ID			MC48308-5	MC48222-5	MC48222-6			FA37662-66	FA37662-70	FA37662-67	FA37662-68	FA37662-69	MC48308-16	MC48308-18	MC48308-20	MC48308-24	MC48308-26	MC48308-28	FA37662-57	MC48222-1
Perfluoroheptanoic Acid (PFHpA)	NE	NE	<0.0022	<0.0020	<0.0022			<0.0021	<0.0022	<0.0022	<0.0024	<0.0024	<0.0022	<0.0023	<0.0023	<0.0024	<0.0023	<0.0021	<0.0023	<0.0023
Perfluorooctanoic Acid (PFOA)	16	0.30	<0.0022	<0.0020	<0.0022			<0.0021	<0.0022	<0.0022	<0.0024	<0.0024	<0.0022	<0.0023	<0.0023	<0.0024	<0.0023	<0.0021	<b>0.00830</b>	<0.0023
Perfluorononanoic Acid (PFNA)	NE	NE	<0.0022	<0.0020	<0.0022			<0.0021	<0.0022	<0.0022	<0.0024	<0.0024	<0.0022	<0.0023	<0.0023	<0.0024	<0.0023	<0.0021	<0.0023	<0.0023
Perfluorobutanesulfonic Acid (PFBS)	NE	NE	<0.0022	<0.0020	<0.0022			<0.0021	<0.0022	<0.0022	<0.0024	<0.0024	<0.0022	<0.0023	<0.0023	<0.0024	<0.0023	<0.0021	<0.0023	<0.0023
Perfluorohexanesulfonic Acid (PFHxS)	NE	NE	<0.0022	<0.0020	<0.0022			<0.0021	<0.0022	<0.0022	<0.0024	<0.0024	<0.0022	<0.0023	<0.0023	<0.0024	<0.0023	<0.0021	<0.0023	<0.0023
Perfluorooctanesulfonic Acid (PFOS)	6	NE	<0.0022	<0.0020	<0.0022			<0.0021	<0.0022	<0.0022	<0.0024	<0.0024	<0.0022	<0.0023	<0.0023	<0.0024	<0.0023	<0.0021	<0.0023	<0.0023
Additional Analyses																				
Lab Sample ID			MC48308-6	MC48222-19	MC48222-20			MC48222-22	MC48222-24	MC48222-25	MC48222-26	MC48222-27	MC48308-17	MC48308-19	MC48308-21	MC48308-25	MC48308-27	MC48308-29	MC48188-18	MC48222-32
TOC	NE	NE	1,870	1,590	1,210			<1,100	2,680	1,310	1,630	2,350	<1,100	1,590	<1,200	7,730	<1,100	3,560	15,000	<1,100
Total Iron	NE	NE	22,800	22,300	24,500			24,300	20,000	20,600	26,100	16,900	29,100	29,700	29,200	28,600	25,900	16,200	26,200	34,000
% Gravel	NE	NE	45.3	36.4	66.4			36.2	16.5	18.4	11.3	9.0	4.0	1.0	19.3	13.2	16.1	55.3	3.5	17.1
% Sand	NE	NE	29.5	42.8	32.3			45.2	77.8	59.6	22.3	73.7	85.4	81.0	39.5	38.2	71.6	32.0	36.0	36.4
% Silt/Clay/Colloids	NE	NE	25.2	20.9	1.3		18.6	5.7	22.0	66.4	17.3	10.6	18.0	41.2	48.6	12.3	12.7	60.5	46.5	

Soil and Sediment S

Sample ID	EB101216	FB101216	EB101316	FB101316	EB101416	FB101416	EB102116	FB102116	EB101716	FB101716	EB101816	FB101816	EB101916	FB101916
Sampling Date	10/12/2016	10/12/2016	10/13/2016	10/13/2016	10/14/2016	10/14/2016	10/21/2016	10/21/2016	10/17/2016	10/17/2016	10/18/2016	10/18/2016	10/19/2016	10/19/2016
Lab ID	MC48308-14	MC48308-15	MC48308-22	MC48308-23	MC48308-30	MC48308-31	MC48424-15	MC48424-16	MC48397-5	MC48397-6	MC48397-13	MC48397-14	MC48397-27	MC48397-28
PFC Analytes														
PFHpA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFOA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFNA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFBS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFHxS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFOS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

**Table 5  
Deep Soil Sample Results**

**Phase I and Phase II Remedial Investigation Report  
Former General Cable Facility  
Vermont Route 346  
Pownal, Vermont  
VTDEC, SMS Site #87-0129**

Deep Soil Sample ID	EPA Residential Soil Screening Value (mg/Kg)	VTDOH Screening Value for Surface Soil* (mg/Kg)	MM-15(35-40')	MM-15(63-68')	DUP100616B	MM-16(7-17')	DUP100416B	BP-1(5-15')	BP-1(25-30')	DUP102016A	BP-1(37-42')	BP-2(10-20')	BP-2(50-55')	BP-2(92-97')	
Corresponding Waterloo Point			PP-39			PP-41		NA					NA		
Sampling Date			10/6/2016	10/6/2016		10/4/2016		10/20/2016	10/20/2016		10/20/2016	10/21/2016	10/21/2016	10/21/2016	
PFC Analytes															
Lab Sample ID			MC48222-4	MC48222-2	MC48222-3	FA37662-50	FA37662-51	MC48424-1	MC48424-5	MC48424-7	MC48424-3	MC48424-9	MC48424-11	MC48424-13	
Perfluoroheptanoic Acid (PFHpA)	NE	NE	<0.0021	<0.0021	<0.0020	<0.0026	<0.0024	<0.0021	<0.0024	<0.0024	<0.0021	<0.0023	<0.0024	<0.0021	
Perfluorooctanoic Acid (PFOA)	16	0.30	<0.0021	<0.0021	<0.0020	<0.0026	<0.0024	<0.0021	<0.0024	<0.0024	<0.0021	<0.0023	<0.0024	<0.0021	
Perfluorononanoic Acid (PFNA)	NE	NE	<0.0021	<0.0021	<0.0020	<0.0026	<0.0024	<0.0021	<0.0024	<0.0024	<0.0021	<0.0023	<0.0024	<0.0021	
Perfluorobutanesulfonic Acid (PFBS)	NE	NE	<0.0021	<0.0021	<0.0020	<0.0026	<0.0024	<0.0021	<0.0024	<0.0024	<0.0021	<0.0023	<0.0024	<0.0021	
Perfluorohexanesulfonic Acid (PFHxS)	NE	NE	<0.0021	<0.0021	<0.0020	<0.0026	<0.0024	<0.0021	<0.0024	<0.0024	<0.0021	<0.0023	<0.0024	<0.0021	
Perfluorooctanesulfonic Acid (PFOS)	6	NE	<0.0021	<0.0021	<0.0020	<0.0026	<0.0024	<0.0021	<0.0024	<0.0024	<0.0021	<0.0023	<0.0024	<0.0021	
<b>Additional Analyses</b>															
Lab Sample ID			MC48222-17	MC48222-18	NA	MC48188-14	NA	MC48424-2	MC48424-6	NA	MC48424-4	MC48424-10	MC48424-12	MC48424-14	
TOC	NE	NE	6,610	<1,100	NA	10,400	NA	3,960	1,740	NA	3,670	<1,200	1,660	2,220	
Total Iron	NE	NE	23,600	20,700	NA	29,900	NA	19,300	33,200	NA	13,500	24,200	32,200	22,000	
% Gravel	NE	NE	28.1	65.9	NA	19.8	NA	35.2	0.0	NA	57.4	0.6	0.0	18.2	
% Sand	NE	NE	64.6	30.3		24.5		40.8	4.6	NA	30.2	88.1	0.7	75.1	
% Silt/Clay/Colloids	NE	NE	7.3	3.9		55.7		24.0	95.4	NA	12.4	11.3	99.3	6.7	

**Soil and Sediment S**

Sample ID
Sampling Date
Lab ID
PFC Analytes
PFHpA
PFOA
PFNA
PFBS
PFHxS
PFOS

**Table 6**  
**Groundwater and Surface Water Sample Results**  
**Phase I and Phase II Remedial Investigation Report**  
**Former General Cable Facility**  
**1007 Vermont Route 346**  
**Pownal, Vermont**  
**VTDEC, SMS Site #87-0129**

Monitoring Well and Sample ID (Screened Interval)	EPA Drinking Water Health Advisory (ppt)	VTDOH Drinking Water Health Advisory (ppt)	MM-1S (4-14)	MM-1D (43-48)	DUP103116A	MM-2S (4-14)	MM-2D (64-69)	MM-3S (5-15)	MM-3I (35-40)	MM-3D (59-64)	MM-4S (5-15)	MM-4D (73-78)	MM-5S (8-18)	DUP110216A	MM-5D MS/MSD (72-77)	MM-6S (5-15)	MM-6D (44-49)	MM-7S (7-17)	MM-7I MS/MSD (35-40)	MM-7D (45-50)	MM-8S (5-15)	DUP110116A	MM-8I (35-40)	MM-8D (66-71)	MM-9S (7-17)	MM-9D (52-57)	MM-10S (10-20)	MM-10D (30-35)	
Corresponding Waterloo <sup>APS</sup> Profiling Point			PP-2			PP-3		PP-7			PP-10		PP-13			PP-15			PP-18			PP-19			PP-20		PP-22		
Sampling Date			10/31/2016	10/31/2016		11/1/2016	10/31/2016	11/2/2016	11/2/2016	11/2/2016	10/31/2016	10/31/2016	11/2/2016		11/2/2016	11/2/2016	11/1/2016	11/1/2016	11/1/2016	11/1/2016	11/1/2016	11/1/2016	11/1/2016	11/1/2016	11/1/2016	11/1/2016	11/1/2016	10/31/2016	10/31/2016
Lab Sample ID			957042	957056	957057	957061	957043	957082	957078	957081	957044	957045	957084	957083	957085	957089	957088	957062	957063	957064	957065	957091	957066	957067	957074	957075	957046	957047	
PFC Analyte																													
Perfluorobutanesulfonic Acid (PFBS)	NS	NS	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37
Perfluoroheptanoic Acid (PFHpA)	NS	NS	1.91J	5.61	6.75	13.4	3.44	3.25J	3.5	3.74	1.09J	2.76J	5.72	5.87	<3.3	1.52J	2.14J	<3.3	3.13J	1.94J	4.08	4.12	2.94J	<3.3	<3.3	1.52J	2.86J	<3.3	
Perfluorohexanesulfonic Acid (PFHxS)	NS	NS	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13
Perfluorooctanoic Acid (PFOA)	70	20	58.7	81.8	92.4	155	53.7	34	49.6	41.8	21.6	28.3	60.6	64.3	<7.6	24.2	26.3	3.48J	31.4	33.2	31.2	31.6	29.4	33.6	8.88	62	51.7	<7.6	
Perfluorononanoic Acid (PFNA)	NS	NS	<7.7	<7.7	<7.7	2.36J	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7
Perfluorooctanesulfonic Acid (PFOS)	70	20	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13
Sum of PFOA and PFOS	70	20	58.7	81.8	92.4	155	53.7	34	49.6	41.8	21.6	28.3	60.6	64.3	None detected	24.2	26.3	3.48	31.4	33.2	31.2	31.6	29.4	33.6	8.88	62	51.7	None detected	
Stabilized Field Parameters																													
pH	NS	NS	7.79	7.37	NA	6.81	7.32	7.22	7.46	7.63	7.23	7.95	6.92	NA	8.47	6.69	8.79	6.71	7.68	7.77	7.12	NA	7.73	7.77	6.77	8.79	7.70	8.51	
Specific Conductance (mS/cm)	NS	NS	0.553	1.070	NA	0.927	1.070	0.851	0.894	0.873	0.511	0.855	0.438	NA	0.622	0.315	0.482	0.501	0.564	0.593	0.553	NA	0.536	0.375	0.265	0.527	0.434	0.332	
Oxygen Reduction Potential (mV)	NS	NS	165	-62	NA	82	39	79	-17	-188	122	17	77	NA	-112	113	5	101	-59	-139	65	NA	-126	-141	201	-250	-68	-150	
Dissolved Oxygen (mg/L)	NS	NS	8.52	0.03	NA	0.00	3.48	2.41	0.90	0.00	8.96	0.30	0.00	NA	0.00	0.00	0.00	3.30	0.57	0.27	1.47	NA	4.64	0.09	6.40	0.00	7.25	0.00	
Turbidity (NTU)	NS	NS	0.0	0.5	NA	0.0	0.0	21.0	0.4	0.0	0.0	24.2	0.0	NA	0.0	0.0	3.8	0.0	0.1	0.0	0.0	NA	0.0	0.0	0.0	3.5	0.7	19.4	
Temperature (degrees C)	NS	NS	11.8	10.6	NA	10.2	10.8	9.4	12.7	11.4	11.6	8.0	14.7	NA	10.9	15.3	11.7	7.5	12.3	9.8	15.0	NA	11.9	6.8	15.0	11.5	11.2	10.1	

**Notes:**

- Perfluorinated compound (PFC) concentrations are in parts per trillion (ppt).
- On May 18, 2016, the United States Environmental Protection Agency (USEPA) established a Drinking Water Health Advisory (DWHA) of 70 ppt for the individual or sum concentration of the PFCs perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS).
- A June 22, 2016 Memorandum from the Vermont Department of Health (VTDOH) to the Vermont Department of Environmental Conservation (VTDEC) establishes a DWHA of 20 ppt for the individual or sum concentration of the PFCs PFOA and PFOS.
- PFOA/PFOS concentrations highlighted in red exceed the DWHA of 20 ppt established by the VTDOH.
- PFOA/PFOS concentrations highlighted in yellow exceed both the USEPA and the VTDOH DWHAs of 70 ppt and 20 ppt, respectively.
- <7.6 indicates analyte was not detected in concentrations exceeding laboratory reporting limits.
- Screened intervals are listed in feet below the ground surface.

**QA/QC Sample Results**

Sample ID	FB103116	FB110216A	FB110216A
Sample Date	10/31/2016	11/2/2016	11/1/2016
Lab ID	957060	957086	957090
PFCs			
PFBS	<37	<37	<37
PFHpA	<3.3	<3.3	<3.3
PFHxS	<13	<13	<13
PFOA	<7.6	<7.6	<7.6
PFNA	<7.7	<7.7	<7.7
PFOS	<13	<13	<13

**Notes:**

- Quality assurance and quality control (QA/QC) sampling included the collection of aqueous field blank samples (assigned "FB" designations) on a daily basis and the collection of duplicate and matrix spike/matrix spike duplicate (MS/MSD) samples at frequency of one per every 20 samples collected.
- <3.3 indicates the analyte was not detected in concentrations exceeding laboratory reporting limits.
- Duplicate groundwater sample results (assigned "DUP" designations) are tabulated above with their corresponding sample results to allow comparison.
- QA/QC sample results as they relate to data usability are discussed in the text.

Table 6  
Groundwater and Surface Water Sample Results  
Phase I and Phase II Remedial Investigation Report  
Former General Cable Facility  
1007 Vermont Route 346  
Pownal, Vermont  
VTDEC, SMS Site #87-0129

Monitoring Well and Sample ID (Screened Interval)	EPA Drinking Water Health Advisory (ppt)	VTDOH Drinking Water Health Advisory (ppt)	MM-11S (13-23)	MM-12S (12-22)	MM-12I (30-35)	MM-12D (44-49)	MM-13S (5-15)	MM-13I (20-25)	MM-13D (45-50)	MM-14S (8-18)	MM-15S (5-15)	MM-15I (35-40)	MM-15D (63-68)	MM-16S MS/MSD (7-17)	BP-1S (5-15)	BP-1I (25-30)	BP-1D (37-42)	BP-2S (10-20)	BP-2I (50-55)	BP-2D (92-97)	SW-1	SW-2	SW-3
Corresponding Waterloo <sup>APS</sup> Profiling Point	NS	NS	PP-24	PP-26			PP-29			PP-31	PP-39			PP-41	NA			NA			NA	NA	NA
Sampling Date			11/2/2016	11/1/2016	11/1/2016	11/1/2016	10/31/2016	11/1/2016	10/31/2016	11/2/2016	11/1/2016	11/2/2016	11/1/2016	10/31/2016	10/31/2016	10/31/2016	10/31/2016	10/31/2016	10/31/2016	10/31/2016	11/1/2016	11/1/2016	10/31/2016
Lab Sample ID			957087	957068	957069	957070	957059	957071	957048	957079	957072	957080	957073	957049	957050	957051	957052	957053	957054	957055	957076	957077	957058
PFC Analyte																							
Perfluorobutanesulfonic Acid (PFBS)	NS	NS	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37	<37
Perfluoroheptanoic Acid (PFHpA)	NS	NS	7.0	3.33	<3.3	<3.3	4.2	3.09J	2.1J	3.08J	<3.3	2.78J	5.11	2.65J	3.26J	3.57	2.98J	<3.3	<3.3	1.06J	<3.3	<3.3	1.55J
Perfluorohexanesulfonic Acid (PFHxS)	NS	NS	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13
Perfluorooctanoic Acid (PFOA)	70	20	89.6	56.9	12.7	2.36J	180	40.3	33.2	46	3.28J	25	62.5	125	77.8	42.3	38.6	11.9	<7.6	4.45J	<7.6	<7.6	10.4
Perfluorononanoic Acid (PFNA)	NS	NS	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7	<7.7
Perfluorooctanesulfonic Acid (PFOS)	70	20	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	<13	4.0J	<13	<13	<13	<13	<13	<13	<13	<13	<13
Sum of PFOA and PFOS	70	20	89.6	56.9	12.7	2.36	180	40.3	33.2	46	3.28	25	62.5	129	77.8	42.3	38.6	11.9	None detected	4.45	None detected	None detected	10.4
Stabilized Field Parameters																							
pH	NS	NS	6.74	7.25	7.51	8.21	7.72	7.23	8.40	7.33	7.02	7.35	8.67	7.00	7.23	7.69	7.91	6.71	7.58	7.82	NA	NA	NA
Specific Conductance (mS/cm)	NS	NS	0.992	0.610	0.870	0.438	0.421	0.820	0.691	0.770	0.308	0.713	0.603	0.966	0.779	0.794	0.633	0.588	0.432	0.347	NA	NA	NA
Oxygen Reduction Potential (mV)	NS	NS	175	185	72	-161	104	175	-57	91	186	49	66	-115	-35	19	-158	-173	-132	-174	NA	NA	NA
Dissolved Oxygen (mg/L)	NS	NS	1.83	0.82	0.00	0.00	9.51	5.13	0.00	3.44	3.44	0.00	0.00	0.56	0.07	1.97	0.00	0.00	0.00	0.00	NA	NA	NA
Turbidity (NTU)	NS	NS	0.0	0.0	0.0	13.3	108.0	0.0	3.8	3.2	0.0	0.0	3.3	8.0	2.0	0.0	0.1	3.4	119.0	0.0	NA	NA	NA
Temperature (degrees C)	NS	NS	12.1	13.4	10.5	10.2	13.8	10.6	10.9	13.6	12.1	8.5	10.4	13.5	8.5	8.5	11.1	12.7	8.5	10.3	NA	NA	NA

**REMEDIAL ACTION REPORT**

**Pownal Tannery Superfund Site  
Pownal, Vermont**

**September 2005**

## DOCUMENT INDEX

### SECTION

- I. INTRODUCTION
  - II. SUMMARY OF SITE CONDITIONS
    - A. Site Location and History
    - B. Enforcement History
    - C. Waste Characterization
    - D. Record of Decision and Action Memorandum
    - E. Redevelopment Potential
  - III. CONSTRUCTION ACTIVITIES
  - IV. CHRONOLOGY OF EVENTS
  - V. PERFORMANCE STANDARDS/CONSTRUCTION QUALITY CONTROL
  - III. FINAL INSPECTION AND CERTIFICATION
  - VII. OPERATION AND MAINTENANCE ACTIVITIES
  - VIII. SUMMARY OF PROJECT COSTS
  - IX. FIVE YEAR REVIEW
  - X. OBSERVATIONS AND LESSONS LEARNED
  - XI. CONTACT INFORMATION
- FIGURE 1: SITE FIGURE  
FIGURE 2: TANNERY LAGOON AREA  
FIGURE 3: DEAN ROAD SLUDGE LANDFILL  
FIGURE 4: FORMER BUILDING COMPLEX  
FIGURE 5: TANNERY LAGOON/LANDFILL
- APPENDIX A: FINAL INSPECTION REPORT



## **I. INTRODUCTION**

This Remedial Action Report documents that EPA has completed all remedial response activities at the Pownal Tannery Superfund Site in accordance with OSWER Directive 9320.2-09A-P, January 2000. EPA conducted a final inspection on September 27, 2005 and has determined that the remedy has been constructed in accordance with the remedial design and remedial action (RD/RA) plans and specifications and is operational and functional.

## **II. SUMMARY OF SITE CONDITIONS**

### **A. Site Location and history:**

The Pownal Tannery Superfund Site consists of a 28-acre set of parcels located between Route 346 and the Hoosic River in the Village of North Pownal, Vermont, which is in the south-western corner of the state. The location of the Site is shown on Figure 1. The Site was a former hide tanning and finishing facility owned by the Pownal Tanning company, Inc. The tannery began operation in 1934 and declared bankruptcy in 1988. The Site originally consisted of three contamination sources; the former tannery building complex (169,000 square feet), a capped sludge landfill on Dean Road (3 acres), and a 16 acre sludge lagoon system that consisted of 5 adjacent areas (Figure 2). The EPA, during a Non-Time Critical Removal Action (NTCRA) completed in 2001, permanently capped the landfill (Figure 3) and removed the building complex (Figure 4). The landfill had been partially capped by the Pownal Tanning Company in 1982, but was not completed upon the company's bankruptcy in 1988. Through a 1998 Record of Decision (ROD), contamination at the remaining sludge lagoons was addressed by construction of a second cap (Figure 5). Under a Memorandum of Agreement (MOU) and a Superfund State Contract (SSC) between EPA and the Vermont Department of Environmental Conservation (VTDEC), the State of Vermont is performing all Operation and Maintenance activities at the Site.

The area surrounding the Site is a rural and residential community with approximately 3,500 residents, with the nearest residences being approximately 200 feet from the lagoons. These residences rely upon groundwater from private wells for their water supply. The Site has not adversely impacted any private water supply.

The lagoon complex was partially covered with soil, over which disturbed wetlands vegetation was present. Three of the five lagoons on the western side border the Hoosic River, which is used for recreational purposes (VT Water Quality Standards, Class B for high quality habitat). On the eastern border of the lagoon site, there is an access road, which is adjacent to railroad tracks owned

and operated by the Guilford Transportation Rail Company. To the south of the lagoon complex is the former tannery building parcel and a hydroelectric facility and dam that were built in 1955 for use by the tannery. This area was remediated to CERCLA residential standards during the NTCRA, was re-graded and seeded, and is being recreationally utilized by the town of Pownal.

A variety of materials, many of which are hazardous, were used and stored in the former tannery building. In April 1993, 12,830 pounds of materials from throughout the former tannery building were collected, sorted for compatibility, and combined and consolidated for removal during an EPA Removal Program emergency removal action. A brief summary of these substances includes chrome residue, chrome powder, aluminum, solvents, asbestos, dioxin and acids.

From 1940 until 1963, effluent tanning process water was released directly to the Hoosic River. In 1963, two lagoons were constructed by Pownal Tanning Company at the northwest end of the property, adjacent to the north bank of the Hoosic River. The lagoons allowed the settling of solids from the wastewater sludges before their ultimate discharge to the Hoosic River. In 1971, the two lagoons were subdivided and expanded to create five lagoons. In 1978, a concrete clarifier was constructed in the vicinity of Lagoons #3 to provide additional wastewater treatment. Treatment of effluent tanning process water consisted of screening the wastewater, settling of suspended solids, chemical coagulation and settling of additional suspended solids in the clarifier, biological oxidation of dissolved materials, algae stabilization and aerated polishing.

Before 1980, wastewater entered the lagoon system at Lagoon 1 and passed sequentially through each of the lagoons into Lagoon 5, where treated tannery process water was discharged to the Hoosic River. By the 1980s, Lagoons 1, 2, 3, and 4, which had become filled with accumulated sludge, were bypassed so that wastewater from the clarifier discharged directly to Lagoon 5. The lagoons continued to receive treated effluent wastewater until the company ceased production in 1988.

The sludge landfill was established on a 3 acre parcel southwest of the Pownal Tanning Company in 1982. The sludge landfill is located adjacent to wetlands along the southern bank of the Hoosic River, upstream of the Pownal Tanning Company. Originally, the 54,000 square foot sludge landfill was approximately 400 feet long and varied from 80 to 200 feet wide. It consisted of three separate cells, constructed from 1982 to 1990. The three cells received sludge from the clarifier filter press and sludge removed from Lagoons 2 and 4. Cells 1 and 2 were capped with two feet of silty sand in 1983 and 1987. Cell #3 was partially capped circa 1990 with soil.

Hydrogeologic investigations were performed at the property in 1988 by SP, Inc. and by

## Remedial Action Report, Pownal Tannery Superfund Site, September 2005

Saunders Associates. Between 1981 and 1987, twenty-one overburden ground water monitoring wells were installed in the vicinity of the lagoons and the sludge landfill. A preliminary assessment of the property was performed by an EPA contractor on March 31, 1987. A Site Inspection Prioritization was completed in December 1993. A pre-NPL field investigation was completed in March 1997, which included the collection of surface water, lagoon water, sludge landfill leachate, lagoon sludge, and soil samples from the property. The results of this work indicated that hazardous substances were released to surface water from the on-site lagoons. Substances detected in sources on the property include solvents, preservative chemicals associated with the tanning industry, polychlorinated biphenyls (PCBs), inorganic elements, and dioxins.

The Site was listed on the NPL in January 1999. EPA signed an Action Memorandum for a non-time critical removal action (NTCRA) in March 1999. The NTCRA included decontamination of the tannery buildings, building demolition and off-site disposal of debris, excavation of contaminated soil and sludge under the former buildings and on-site disposal in the existing landfill, and a RCRA C cap at the landfill. This work was completed in 2001. All maintenance is currently being performed by DEC, pursuant to the MOU and SSC, and includes environmental monitoring which is being performed to ensure ongoing protection of human health and the environment. This effort has been included in the O&M Plan for the final remedy. To assess the migration of low levels of contaminants in the ground water, existing ground water monitoring wells are being periodically sampled. Samples from adjacent private water supplies are collected and analyzed to ensure that site contaminants are not impacting local residents.

The lagoon area was addressed during an RI/FS, which began in the Spring of 1999, concurrent with the NTCRA, and was completed in July 2002. The RI/FS and human health risk assessment concluded that there is an unacceptable risk from exposure to sludge in lagoons 1,3 and 5 (see Figure 2) and that a remedial measure was required. The Proposed Plan for the lagoon area was submitted for public comment on July 18, 2002. The ROD was completed in September of 2002. The Proposed Plan called for excavation of saturated and unsaturated contaminated soil and sludge in lagoons 1 and 5 and consolidation of these materials over lagoon 3 and in the southeast corner of lagoon 4. To reduce the potential human-health risks associated with direct contact with the contaminated material, the remedy included covering the soil and sludge with a low permeable landfill cap. The consolidated wastes were graded and storm water controls installed to minimize groundwater infiltration into the wastes. This cap was designed to resist future flooding events and to protect future users of this property from direct contact with the sludge material. Maintenance of the landfill cap is being performed by the VTDEC and is required for at least 30 years.

### B. Enforcement History

The Pownal Tanning Company, who solely owned and operated the Site,

became insolvent in 1988. They were never issued a CERCLA notice of liability letter and they have never been a recipient of an EPA enforcement measure. No other potentially responsible parties have been identified for this Site, therefore the Site became federal lead. A close out memorandum (e.g., decision not to pursue cost recovery at the site) was signed in 1997. The town of Pownal has obtained title to the former tannery building and the lagoon area through a tax foreclosure.

### C. Waste Characterization

The following sections describe the nature and extent of contaminants that were detected in the areas Investigated during the Remedial Investigation.

#### **Soils and sludge**

**Lagoon 1:** Lagoon 1 contained the thickest accumulation of sludge. The sludge was generally buried beneath a thin layer of cover material and therefore the surficial soil samples generally contained elevated concentrations of Site contaminants. Lagoon 1 exhibited the highest contaminant concentrations on the entire Site.

The sludge present in lagoon 1 was found to consist of moist organic silt including layers of gray clay and varying quantities of hair and hide fragments. Total VOC concentrations in the sludge were generally observed to range from 50-200 ppm and in one sample the total VOC concentrations exceed 1 per cent. Several SVOCs were also detected in lagoon 1, with the highest concentrations present buried below 1-2 feet of cover material. Elevated metals concentrations were detected including chromium at concentrations typically ranging from 10,000-70,000 ppm and lead from 1,000 to 2,000 ppm. PCBs were detected in the surface soil and in the sludge at concentrations ranging up to 400 ppb, and pesticides are present but at low concentrations. Dioxin Toxicity Equivalence Quotient (TEQs) exceeded 1 ppb in several samples. None of the samples tested for Toxic Characteristic Leachate Procedure (TCLP) exceeded the RCRA Hazardous Waste threshold, which is also the case for the remaining lagoons on-site.

**Lagoon 2:** Lagoon 2 contained only a very small quantity of sludge. There is no significant contrast in chemical concentrations versus depth. This lagoon was largely excavated and moved to the Dean Road sludge landfill initiated by the Pownal Tannery Company under a state order in the 1980's. In general, fewer site contaminants are present in lagoon 2 and the chemical concentrations in the Lagoon Area are generally lowest in lagoon 2. Inorganic constituents remain present at levels close to background soil conditions (including arsenic, cadmium, chromium, lead, nickel and cyanide). All dioxin TEQs were less than 1 ppb.

**Lagoon 3:** Lagoon 3 is the smallest of the lagoons. It was covered with gravel fill and was largely un-vegetated. Metals were present in the greatest concentration within the sludge layer. Cadmium was not detected in surface soils, nor in the underlying gravel layer, but is present in the sludge at concentrations up to 42 ppm. Chromium and lead are

present at concentrations up to two orders of magnitude greater (chromium up to 18,000 ppm, lead up to 565 ppm) than in surface soils or the underlying soil. All dioxin TEQs were less than 1 ppb.

**Lagoon 4:** Lagoon 4 is the largest lagoon. The maximum total VOC concentration is less than 200 ppb. SVOCs are also present at low concentrations. The highest metals concentrations in lagoon 4 are present in the surficial soils. Lead, chromium and cadmium are present at higher concentrations in the surface soils than in the subsurface soils.

**Lagoon 5:** Lagoon 5 sludge existed primarily underwater throughout the year. Two SVOCs, including pentachlorophenol (6,300 ppb at one location) and bis(2-ethylhexyl)phthalate were detected (less than 800 ppb). Several metals were detected including arsenic (up to 2.1 ppb), chromium (up to 16,100 ppb), lead (up to 624 ppb) and mercury (up to 4.1 ppb).

### **Ground Water**

Fourteen groundwater monitoring wells were installed in the Lagoon area during the RI. Five rounds of sampling were performed. Primarily VOCs (acetone, methylene chloride, MTBE, carbon tetrachloride, toluene, tetrachloroethylene, chlorobenzene, 1,2-dichlorobenzene, 1,4-dichlorobenzene), SVOCs (diethylphthalate, atrazine, bis(2-ethylhexyl)phthalate) and metals (chromium, lead, cyanide, arsenic, zinc) were detected at low concentrations. However, the data indicated that there were no consistent exceedances of federal or state Maximum Contaminant Levels (MCLs). TCLP test results from the lagoons indicate that the Site waste materials are not actively generating leachate.

### **Surface Water, Sediments and Poned Water**

Surface water samples were collected at locations in the Hoosic River up stream of the Site and adjacent to all three down gradient source areas, including the sludge landfill, former tannery building and the lagoons. Down stream samples were also collected. Aluminum and barium are present in unfiltered river surface water samples at concentrations that exceed the National Water Quality Criteria-Chronic levels. Surface water samples were collected from ponded water in lagoons 1, 2, 4 (there are three ponds in Lagoon 4), and 5. Surface water was also collected from the reach of the Hoosic River, adjacent to the Lagoon Area, at four locations. Aluminum, barium and magnesium are present in unfiltered surface water samples from the lagoon ponds at concentrations that exceed the National Water Quality Criteria-Chronic levels. None of the filtered samples from the lagoon ponds contained metals or cyanide at concentrations above their respective National Water Quality Criteria-Chronic levels. Six SVOCs are present in Hoosic River sediment samples. Five of these compounds are present at concentrations that exceed their respective Ontario Ministry of the Environment Lowest Effect Level values. No pesticides were observed above their respective detection limits in any of the

sediment samples.

PCBs were detected in four Hoosic River sediment samples from the Lagoon Area, ranging in concentrations of 86 to 270 ppb. Dioxins were detected in the two Lagoon pond sediment samples (TEQ ranging from 106 to 127 ppt) and in the Lagoon Area Hoosic River sediment samples (TEQ less than 3 ppt).

All exceedances in the Hoosic River surface water and sediments were detected at higher concentrations upstream of the Site, including the tannery sludge landfill, former tannery building area, and the lagoons. Therefore, the exceedances of national standards for both surface water and sediments can be linked to non-site related discharges or background levels.

### **Residential Wells**

Only two VOCs were observed in residential wells above their respective detection limits (Acetone, MBTE). Over several rounds of sampling, there were no consistent detections with respect to these contaminants, and they are not considered to be Site related. Residents with exceedances were offered bottle water. No SVOCs, pesticides or PCBs were detected in any residential well above state and federal drinking water criteria. Only one well contained a metal (lead) at a concentration (493 ppb) that exceeded the MCL (15 ppb). Due to this anomalous result, this well was re-sampled and lead was not found to be present above the MCL.

### **D. Record of Decision and Action Memorandum**

The ROD set forth the selected remedy for the entire Site which involved the excavation and consolidation of tannery lagoon waste, construction of a low permeability cap over the consolidated wastes on-site, long-term monitoring of river sediments and ground water, and institutional controls to prevent ground water consumption and excavation of waste in the lagoon area. The remedy also encompasses the maintenance of a landfill cap at an area of the Site remediated under an Action Memorandum for the previous NTCRA. The selected response measures are a comprehensive approach for this Site that addresses all current and potential future risks caused by Site wastes. At the former tannery lagoons the cleanup approach will prevent direct contact risks with contaminated lagoon waste and will significantly decrease further off-site migration that the lagoon sludge could cause through leaching to the ground water or erosion to the adjacent river through flooding events. As a result of previous removal actions, the soil and sludge contamination in the lagoon area was the only medium requiring remedial action. The groundwater was determined not to present a significant human health concern.

The major components of the ROD included:

1. Excavation and consolidation of waste in three of five lagoons on-site, and construction of a solid waste cover system. The excavated areas and the cap

were required to be restored consistent with current and future site usage.

2. Land-use restrictions in the form easements and covenants to prevent the disturbance of the capped soil and sludge, and to prevent the ingestion of ground water from beneath the five existing lagoons.
3. Long-term monitoring of ground water, residential wells and river sediments will be performed to evaluate the success of the remedial action. Additional biota sampling (fish, mammals, and plants) may also be performed, as necessary, should the concentrations of site related contaminants increase significantly;
4. Long-term operation and maintenance of the landfill cap constructed as part of the NTCRA (through a previous Memorandum of Agreement between the State of Vermont and EPA); and
5. Five-year reviews will be performed to assess future ongoing protectiveness of the remedy until such time as EPA determines that the CERCLA cleanup goals identified in the ROD have been achieved.

Previous removal actions at the Site addressed principal and low-level threat wastes. EPA has determined that human health and environment are protected and that no further response measures were necessary. The remediation that has been completed as required by the Action Memorandum and ROD and has addressed all the source of contamination found in soil, the ground water and river sediments at the Site. These actions have eliminated the principal threat of direct contact to the waste and will significantly reduce infiltration and precipitation of contamination to the ground water, prevent erosion of contamination into the floodplain, and eliminate surface water runoff to river sediments.

As part of the risk assessment, site-specific clean-up criteria were developed, representing the maximum contaminant concentrations that do not pose unacceptable risks to human health. Materials containing contaminant concentrations in excess of these clean-up criteria were removed and incorporated into a consolidated landfill as identified in the Action Memorandum and ROD. The site-specific risk-based clean-up criteria specified are summarized in the table below.

<b>Soil Cleanup Levels Pownal Tannery Superfund Site Pownal, Vermont</b>	
	<b>Preliminary Remediation</b>

<b>Contaminant</b>	<b>Goal(mg/kg)</b>
Benzo(a)anthracene	1.7
Benzo(a)pyrene	0.17
Pentachlorophenol	7.7
N-Nitroso-di-n-propylamine	0.27
Arsenic	1.1
Chromium	733
Mercury	23
Lead	1,000
Dioxin TEQ	0.001

**F. Redevelopment Potential**

The Town of Pownal was a recipient of a \$100,000 EPA grant in 1999 to develop one of the first ten national Site Redevelopment Plans. Pownal's primary redevelopment plans include building a wastewater treatment facility on Lagoon 2, which began in the spring of 2005. They have received substantial grants from both EPA and the USAD (Farm Bill) to build this facility. Their community also supports utilizing the Site for mixed recreational use, including a potential soccer field, seasonal ice skating rink, and a picnic area. The Pownal Tannery Superfund Reuse Assessment Report was completed in February 2001. A Reuse Assessment Steering Committee was formed and continues to make progress on implementing their plans.

**III. REMEDIAL CONSTRUCTION ACTIVITIES**

Several pre-construction activities were performed. A pre-design study was completed in the winter of 2003, which included modeling to evaluate the impacts of the capping activities on the flood plain of the Hoosic River. A more comprehensive flood plain modeling effort was required to determine the most cost-effective manner to ensure the remedial action will not result in any significant increase in flood levels during the occurrence of the base (100-year) flood.

Protection of the Hoosic River and the on-site wetlands was required to avoid potential adverse impacts from the consolidation, capping and flood-plain mitigation activities. Erosion control measures including soil berms, silt fencing and hay bales were used to protect against erosion and siltation at the Site. These controls were maintained throughout the construction phase. A vegetative cover was established for all disturbed areas of soil and sediment (including lagoons 1 and 5).

Prior to construction activities, a staging area for temporary facilities and equipment needed to be constructed within the footprint of Lagoon 2. This effort required clearing and grubbing of Lagoon 2, installation of settlement enhancement measures (Wick Drains), and placement of compacted fill material to bring the ground surface up to the surrounding grade. The EPA coordinated with the Town of Pownal to complete the

installation of the Wick Drains. This effort occurred during July and August of 2003. During the Fall of 2003 the remaining lagoons were completely cleared and grubbed to create a suitable working surface for the staging area and the areas that were excavated and capped. Trees and vegetation that were removed were chipped and used as the base of the landfill. Lagoon 2 will also be used by the Town of Pownal to construct a waste water treatment facility which began in 2005.

### **Stabilization and Excavation of Wastes from Lagoons 1 and 5**

A geotechnical investigation was completed during the remedial design to determine the most appropriate method for sludge removal and transportation. This investigation included advancing test pits within the lagoons for sample collection and laboratory testing (shear strength tests), as well as on-site observation of the behavior of the sludge during excavation. A phased plan was developed to limit the generation of gasses/vapors (including hydrogen sulfide) and odors, minimize the accumulation of water within the excavation, and to prevent contamination of clean backfill with potentially contaminated excavation water. It was determined that the sludge needed to be stabilized with the addition of Portland cement in order to compact in the landfill and meet the strength specification. Prior to the removal of all clean cover soils over the sludge, in-situ stabilization was completed in lagoons 1 and 5. These cover soils were set aside until excavation was complete and used as backfill into the lagoons.

During and after the stabilization process, continuous air monitoring in the work zone and at perimeter air monitoring stations was performed to ensure no unacceptable releases of contaminants of concern. Additionally, a water truck was used for the suppression of dust and a foam suppressant was used to suppress the odors. A silt fence with hay bales were installed along the access road bordering the river, and a sedimentation trap was installed. A temporary perimeter road was constructed around the landfill to facilitate excavation/consolidation/capping activities - approximately 2,200 linear feet of road. This road consists of a layer of geo-textile and crushed stone. A similar access road was created between lagoons 1 and 5. A new fence was erected around the entire perimeter of the lagoon area. The response action included construction of temporary storm water controls to minimize storm water run-on into the Lagoon Area. De-watering of portions of the lagoons was required to facilitate construction of the base or foundation layer. De-watering was achieved by pumping out the ponded water and the use of a temporary sump. Recovered water was pumped to a treatment system to remove contaminants of concern including PAH compounds, dioxins, and metals. The treatment system consisted of settling tanks to remove bulk solids and granular activated carbon units in series. The clean water was discharged to the Hoosic River.

The stabilized sludge was removed using standard excavators down to an underlying gravel layer in lagoons 1 and 5, which constituted the physical limits of the excavation. Adjacent berm material affected by the lagoon contamination was also excavated. The excavated sludge and berm soil was placed directly into dump trucks and

transported to the footprint of the landfill for compaction. Following excavation, confirmatory soil sampling was completed in lagoon pits 1 and 5, to determine if the soil cleanup criteria have been met at the horizontal limits of the excavation. Confirmatory soil sampling was not done for the bottom of the excavations since the limit of sludge is well defined by a gravel layer at the bottom of each lagoon. Lagoons 1 and 5 was backfilled continuously as the stabilized sludge was excavated. Both lagoons were backfilled with crushed stone, overlaid with clean fill to bring it back up to the elevations specified in the remedial design. The excavated berms were covered with filter fabric and backfilled with clean fill.

### **Construction of the Solid Waste Landfill Cap at Lagoons 3 and 4**

The approximate extent of the in-place cap is shown in Figure 2. The stabilized sludge that was transported to lagoons 3 and 4 was compacted to 90 percent of the maximum dry density determined in accordance with the standard Proctor compaction test. Lagoons 3 and 4 were not stabilized, as they did not need to be excavated and transported. No chemical testing of excavated sludge was conducted since all sludge was moved to the landfill and capped. A low-permeability cap was constructed over the excavated sludge and soil to limit exposure to the contaminated material, to mitigate infiltration of contaminants to the groundwater and to prevent erosion. The landfill cap has a five percent slope on the barrier and drainage layer and a two percent slope on its surface. The cap has the following configuration:

- \_ 6 inch layer of granular foundation/gas vent sand layer;
- \_ 40-mil linear low density polyethylene (LLDPE) geomembrane barrier layer;
- \_ Geocomposite drainage layer;
- \_ 24 inches of vegetative support soil layer; and
- \_ 6 inch layer of topsoil.

The side slope of the landfill has a maximum slope of 33.3 percent. The configuration of the side slope cap from top to bottom includes:

- \_ 6 inch layer of granular foundation/gas vent sand layer;
- \_ Textured 40-mil linear LLDPE geomembrane barrier layer;
- \_ Double-sided geocomposite layer;
- \_ 24 inch layer of Granular cover soil (east side);

**Remedial Action Report, Pownal Tannery Superfund Site, September 2005**

- \_ 6 inches of top soil (east side);
- \_ 12 inch layer of crushed stone (west side); and
- \_ 24 inch layer of rip-rap (west side - designed to resist the anticipated maximum flow velocity of the 100-year flood flow)

Restoration measures for lagoons 1 and 5 include: 1) construction of permanent storm water and sedimentation/erosion controls, 2) installation of groundwater monitoring wells for post remediation monitoring, 3) grading, loaming and seeding of all disturbed areas including the landfill cover and lagoons 1 and 5, 4) establish a 100' wide riparian buffer zone along the berm adjacent to the Hoosic River, 5) installation of fencing along a portion of the cap toe and placement of large boulders around a portion of the upper perimeter, 6) install an access gate to the landfill, and 6) complete construction of the perimeter access road.

The volumes of contaminated waste materials and clean overburden soils/materials are presented in the table below.

<b>Lagoon Area Material Volumes</b>	
<b>Location</b>	<b>Volumes</b>
Lagoon 1 & 5 Stabilized Sludge	81,381 tons
Portland Cement added to stabilize sludge	6,142 tons
Screened gravel added to lagoons as backfill	20,589 tons
Imported general fill to backfill lagoons	75,000 tons
Cover soils excavated and reused as lagoon backfill	33,000 tons
Cover/berm materials placed in the landfill	10,200 tons
Imported landfill cover soil	25,000 cubic yards
6" of topsoil on landfill	22,000 cubic yards
Geomembrane for landfill cap	26,371 Square Yards
Geocomposite drainage layer for landfill	20,243 square yards
Rip rap for landfill cap	9,350

<b>Lagoon Area Material Volumes</b>	
<b>Location</b>	<b>Volumes</b>
Gas vent sand	22,270 square yards
Crushed gravel on landfill side slopes	2,259 cubic yards

Floodplain Protection.

The cap was designed, constructed, and will be maintained to withstand a 100-year flood event without releasing any contaminants into the environment. In order to ensure adequate flood storage, an additional measure was taken to lower the elevation of the northern portion of lagoon 4 to 500 feet above mean sea level to create an outlet for flood waters. Both sides of this berm have been armored with 6 inch riprap, for an overbank water flow velocity of 8.5 feet per second. A setback of 140 feet between the toe of the land-side of the soil berm and the toe of the landfill will be maintained. This area was backfilled and re-graded. The riprap that was placed around the river side of the landfill further acts to prevent erosion during flood events.

Air Monitoring

During all phases of work, a perimeter air monitoring program was provided to monitor for the presence of contaminants in the air along the limits of the site. Upwind and downwind air space was monitored for dust, hydrogen sulfide, and VOCs on a continuous basis using 4 monitoring stations and additional portable stations within work areas. Site action levels were determined during the Remedial Design to be protective of workers and nearby residents.

Perimeter air monitors and personal air monitors were equipped with alarms to notify site workers when dust, hydrogen sulfide, and VOC emissions were above site action levels. When site alarms sounded, countermeasures such as ceasing site operations until levels subsided, applying foam and water to suppress odors, and/or upgrading to a higher level of personal protective equipment (i.e, full-face respirator with supplied oxygen), were immediately implemented. As a result, there were no incidences of impacts to workers and minimal detection of odors by residents. Data collected as part of the air monitoring program are provided in the February 2005 Remedial Action Report (located at EPA's Record Center in Boston, Massachusetts).

The Action Limit for particulate matter was equal to a downwind monitor reading 54 g/m<sup>3</sup> greater than the upwind monitor. Some exceedances of the Action Limit occurred. Cement off-loading to the vented hoods caused particulate exceedances on nine days ranging in time from 30 to 250 minutes. Water was used to suppress dust on all occasions. On three occasions, small releases of cement from the cement hood led to

the exceedances, and at these times, work was halted until corrections were made. Other activities that led to particulate exceedances include heavy vehicle traffic (including large dump trucks), excavation, grading activities and hydroseeding conducted immediately adjacent to the monitoring equipment. Such occurrences happened on 15 work days and spanned over time periods ranging from 30 to 150 minutes. Dust suppression methods were applied when needed. On six days, high humidity led to particulate exceedances that lasted up to 120 minutes.

Exceedances of the VOC monitoring Action Limit occurred when the 15 minute time weighted average (TWA) was greater than 5 ppm. Vehicles idling near air monitors caused exceedances for a short period on two days. Efforts were made to limit idling after these incidences. In early July, grading and dumping activities produced three 15 minute exceedances. VOC exceedances were attributed to high humidity on three days over the course of work, with these exceedances ranging from 15 to 120 minutes in the early morning hours.

An exceedance of the Action Limit for H<sub>2</sub>S was defined as a one hour TWA greater than 0.1 ppm. There were no exceedances for H<sub>2</sub>S during the remedial activities.

As part of the health and safety program for the workers, a majority of the sludge stabilization work was performed in OSHA Level C personal protective equipment (PPE) - full face respirators, especially the laborers in and around the lagoons during mixing and excavation operations. In addition, the cabs of the heavy equipment conducting the mixing were equipped with supplied oxygen, thus the equipment operators were generally performing work in Level B PPE.

Also as part of the health and safety program, a full-time health and safety officer was provided for all work conducted on-site. A site specific health and safety plan was provided and implemented for each phase of work. The program included routine monitoring of workers, continuous maintenance of safe working conditions, and daily and weekly safety briefings for all workers.

#### IV. CHRONOLOGY OF EVENTS

<u>Date/Year</u>	<u>Activity</u>
12/30/1981	Pownal Tannery applies for a permit to construct and operate a lined landfill.
01/21/1982	The Vermont Agency of Natural Resources (VT ANR) determined that the sludge in the lagoons should not be regulated as hazardous waste.
06/09/1982	A disposal facility certification was issued to permit construction and operation of a lined landfill.
1985	The VT ANR issued a letter to the Pownal Tannery alleging deficiencies and maintenance problems at the site.
1987	Two thirds of the landfill was closed and covered by the Pownal Tanning

**Remedial Action Report, Pownal Tannery Superfund Site, September 2005**

	Company.
04/06/1988	The Vermont Agency of Environmental Conservation issued an Administrative Order to Pownal Tannery requiring odor control, excavation of sludge from Lagoon 2, preparation of a cleanup plan for Lagoons 4 and 5, further testing of groundwater, and a complete risk assessment.
1993	A time-critical removal action was conducted by EPA to remove compressed gas cylinders, asbestos-containing materials, and various containers of hazardous materials.
1995	The hazard Ranking System Package was completed as part of the CERCLA site listing process.
09/29/1998	The site was proposed for the National Priorities List (NPL).
01/11/1999	The site was added to the NPL.
08/1999	The Town of Pownal was awarded a Superfund Redevelopment Initiative Grant from EPA to study reuse options for the site after remediation is complete.
1999-2001	EPA conducted a non-time critical removal action (NTCRA) to decontaminate and demolish the tannery buildings, remove contaminated soils along the Hoosic River, and permanently cap the Dean Road landfill.
02/2001	The Town completed the reuse study. The plan included construction of a sewage treatment plant, a skating rink, recreational open areas and nature trails through the Lagoon Area.
09/30/2002	EPA Record of Decision completed indicating plans for excavation and capping of Lagoons 1, 3 and 5.
05/2003	Remedial design completed.
09/2003	Phase I construction activities begin
11/30/2003	Phase I site construction activities completed.
09/30/2004	Phase II site lagoon area remediation completed.
09/27/2005	Final Inspection

**V. PERFORMANCE STANDARDS AND CONSTRUCTION QUALITY CONTROL**

All work performed at the Site was consistent with the NTCRA/ROD and the final design and RA Work Plans. The RA Work Plan Reports, including the Quality Assurance Project Plans (QAPP), incorporated all EPA quality assurance and quality control (QA/QC) procedures and protocol. EPA analytical methods were used for all validation and monitoring samples during RA activities. All procedures and protocol followed for soil, discharge water and air sample analysis during the RAs have been consolidated and documented in two RA Work Plan Reports, dated November 2001 and February 2005. EPA has found the construction quality assurance and performance data to be acceptable. Performance data was regularly reviewed during the construction program to confirm that the materials installed met the requirements of the plans and specifications.

All construction quality assurance material is located in the EPA Region I Records Center in Boston, MA. The QA/QC program utilized throughout construction was sufficiently rigorous and was adequately complied with to enable EPA and the State to determine that the results

## Remedial Action Report, Pownal Tannery Superfund Site, September 2005

reported are accurate to the degree needed to assure satisfactory execution of the RA, consistent with the NTCRA and ROD and accepted remedial design documents.

### VI. FINAL INSPECTION AND CERTIFICATION

All preliminary completion requirements for the Site have been met as specified in OSWER Directive 9320.2-09A-P (January 2000). Specifically, all construction activities that constitute substantial completion identified in the ROD have been successfully implemented and a final inspection by EPA and the VTDEC was conducted on September 27, 2005 and it was determined that the remedy was constructed as designed and is operational and functional. Institutional controls to prevent the use of contaminated groundwater at the Site, and any disturbance of the constructed landfill will be completed by September 2007. Operation and Maintenance activities will be permanently maintained by the VTDEC as required by the Superfund State Contract, dated July 2003.

#### Schedule for Site Completion

Task	Actual Start/Completion	Responsible Organization
Operation/Functional period for remedy	September 2005 Completed	EPA
Institutional Controls	September 30, 2007	EPA
Operation & Maintenance for Site	December 2004 - 2034	VT DEC
First Five-Year Review	September 30, 2008	EPA with VT DEC

### VII. OPERATION AND MAINTENANCE ACTIVITIES

All areas of the two landfill caps and the former building area have been seeded, are growing well and are currently being regularly mowed by the VDEC. Plantings in the riparian buffer zone are growing and under warranty for another year, to replace plants that may not survive. All access gates are being maintained and are currently intact. All areas of erosion off of the caps have been repaired and will be maintained. EPA replaced and developed a damaged monitoring well in September 2005, which is included in a long term groundwater monitoring program to be conducted by the VDEC. EPA also extended the gas vents in the lagoon area and added sampling ports.

VDEC began O&M activities at the completion of the NTCRA for the first landfill cap/leachate collection system and the former building area. They began O&M activities for the ROD response action in October 2004. The current activities are included in the updated September 2005 O&M Plan.

### VIII. SUMMARY OF PROJECT COSTS

The estimated cost to complete the NTCRA was a total net present value of \$7,700,000. The expended cost to complete this action was \$7,405,500. The ROD estimated the remedial action would be a total net present value of \$8,800,000. The capital costs were estimated at \$7.6 million, the Operation and Maintenance costs were estimated at \$1.2 million. The Remedial Action Work Plan estimate was \$9,659,163. Due to contractual savings and efficiency it is anticipated that the final project cost will be approximately \$8,400,000. The total costs will be identified when the current work assignment is closed out in December 2005. There will be nominal contractual costs associated with the Operational and Functional phase of the project completed in September 2005.

## **IX. FIVE YEAR REVIEW**

Hazardous substances will remain at the Site above levels that allow for unlimited use and unrestricted exposure after the completion of remedial action. Pursuant to CERCLA section 121(c) and as provided in OSWER Directive 9355.7-03B-P, "Structure and Components for Five-Year Reviews," dated June 2001, EPA must conduct statutory five-year reviews. The first five year review is scheduled for September 2008 (5 years after the start of remedial construction - September 2003). Subsequent five-year reviews will be conducted to ensure the remedy remains protective of public health and the environment. Finally, EPA will determine and document Site completion in accordance with OSWER Directive 9320.2-3A/3B "Procedures for Completion and Deletion of National Priorities List Sites" and OSWER Directive 9320.2-09 (August 1995).

## **X. OBSERVATIONS AND LESSONS LEARNED**

Several innovative design elements and construction elements were used to complete the remedial action at these former tannery sludge lagoons in less than 12 months. This Site completed construction of the final remedial action in September 2004. The design and construction approach used for this project was successful in achieving an aggressive schedule and in meeting budget requirements. Among the innovative design elements included:

- Top slope landfill design that allows for use as soccer field and integration of the Town's recreational re-use design concept;
- Uncommon "L-shaped" design to maintain maximum distance from the adjacent river and to minimize the impact to the floodway;
- Berm modifications to provide flood conveyance;
- Pre-screening of borrow pits to ensure historic preservation compliance (i.e., cultural resources);
- Use of natural boulder barriers rather than less attractive, typical chain-link fencing;
- Phased design to allow early project initiation prior to the on-set of winter;
- Wick drain dewatering of underlying clay layer to accelerate settlement and allow

- construction of a municipal waste water treatment plant on the site;
- In-situ sludge stabilization to minimize odor, toxic gas emissions (H<sub>2</sub>S) and multiple handling of sludge;
- Customized hood to apply concrete in controlled manner (reduce dust);
- Use of sheetpile to allow work in close proximity to railroad tracks (maintain structural integrity of rail-line);
- Use of foam to control tannery odors;
- Customized water discharge system to disperse flow and minimize channel erosion; and
- Construction of water management units during stabilized sludge excavation to minimize use of self-compacting clean fill and to minimize the volume of water requiring treatment.

Several complex project elements included:

- Worked with the state of Vermont to pass special legislation to amend their Solid Waste Facility Rules to allow EPA to implement cleanup actions that are protective of human health, despite non-compliance with the standards in the Solid Waste Rules (dioxin present);
- Handling odors in close proximity to residential neighborhoods;
- Simultaneous implementation of several complicated activities that required precise coordination, including, in situ stabilization, sludge excavation, sludge compaction in a solid waste facility; and
- Efficient processing of materials for gravel fill, cover soils and top soils using temporary equipment set up at borrow pit (equipment brought into a local pit).

## **XI. CONTACT INFORMATION**

The EPA used the following contractors for the response measures:

Lee LePage (NTCRA response)  
Stone & Webster a Shaw Group Company  
100 Technology Center Drive  
Stoughton, MA 02072

Donald Dwight (ROD response)  
Metcalf and Eddy, Inc.  
30 Harvard Mill Square  
Wakefield, MA 01880

Team Subcontractor (for ROD response):

Dale Weiss  
TRC Environmental Corporation

**Remedial Action Report, Pownal Tannery Superfund Site, September 2005**

Boott Mills South  
Foot of John Street  
Lowell, MA 01852

Lead Construction Subcontractor:

Jim Maxymillion  
Maxymilliam Technologies, Inc.  
1801 East Street  
Pittsfield, Massachusetts 01201

The Project Manager for EPA was: The Project Manager for the VTDEC was:

Leslie McVickar  
U.S. EPA  
One Congress Street  
Suite 1100, HBT  
Boston, Massachusetts 02114

Brian Woods  
VT DEC  
103 South Main Street, West Building  
Waterbury, Vermont 05671

Approved by:

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Larry Brill, R & R1 Branch Chief  
Office of Site Remediation and Restoration

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Date



## FIGURES

**APPENDIX A**

**FINAL INSPECTION REPORT**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 1

MEMORANDUM

DATE: September 28, 2005

SUBJECT: Pownal Tannery Superfund Site, Pownal, Vermont  
Final site Inspection

FROM: Leslie McVickar,  
Remedial Project Manager

TO: The File

On September 27, EPA and the Vermont Department of Environmental Conservation (VTDEC) conducted its final inspection of the Pownal Tannery Superfund Site. Both EPA and the VTDEC concur that the Remedial Response measures detailed in the March 1999 Action Memorandum for a Non-Time Critical Removal Action (NTCRA) and the September 2002 Record of Decision (ROD) have been constructed in accordance with all applicable Remedial Action Work Plans and Remedial Design Reports. All punch list items related to the Remedial Action noted in the September 2004 Preliminary Close Out Report (PCOR) have been completed and the Response Action is effectively operational and functional (September 2004 punch list attached).

\_\_\_\_\_  
Leslie McVickar, EPA Remedial Project Manager

\_\_\_\_\_  
Date

\_\_\_\_\_  
Brian Woods, VTDEC Project Manager

\_\_\_\_\_  
Date



## MEMORANDUM

TO: Pownal Tannery Site File

cc: Thomas Condon, On-Scene Coordinator (OSC), U.S. Environmental Protection Agency (EPA) Region I, Emergency Planning and Response Branch (EPRB); and Anni Loughlin, Section Chief, Maine, Vermont, and Connecticut Superfund Section, U.S. EPA Region I  
*sm*

FROM: George Mavris, Project Leader, Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team IV (START)

DATE: 16 June 2016

RE: Groundwater Sampling Activities at Pownal Tannery Site, Pownal, Bennington County, Vermont; Technical Direction Document (TDD) Number (No.) TO1-01-16-03-0004; Task No. 0100. Document Control (DC) No. A-00056

### **INTRODUCTION**

Perfluorinated compounds (PFCs) have been detected in drinking water samples collected in the communities of Hoosick Falls, New York and North Bennington and Bennington, Vermont (VT) at concentrations exceeding the State of Vermont and Federal EPA drinking water advisory levels. Due to concerns that nearby former manufacturing facilities may have disposed of PFC-containing materials into the Pownal Tannery Site, the Vermont Department of Environmental Conservation (VT DEC) had requested U.S. EPA assistance in collecting groundwater samples from selected monitoring wells and residential drinking water wells at the Pownal Tannery Site and nearby areas to determine if suspected wastes buried at the landfill may have leached from the landfill and into the groundwater.

On 24 and 25 March 2016, groundwater samples were collected from eight on-site overburden and bedrock monitoring wells. Based on the analytical results of these groundwater samples, where five PFCs were detected at concentrations above the laboratory method detection limits (MDLs), VT DEC requested additional EPA assistance. Specifically, VT DEC requested assistance with collecting additional groundwater samples to determine if groundwater had been impacted by PFCs leaching out of the landfill.

### **SITE HISTORY AND BACKGROUND**

The Pownal Tannery site is an approximately 28-acre set of parcels located between Route 346 and the Hoosic River in the Village of North Pownal, Bennington County, Vermont (VT). The geographic coordinates of the Site, as measured from the approximate site center of the Lagoon Area, are 42° 47' 59" north latitude and 73° 16' 15" west longitude (see Attachment A, Figure 1). The geographic coordinates as measured from the approximate site center of the Dean Road



Landfill, are 42° 47' 25" north latitude and 73° 15' 33" west longitude. The Lagoon Area of the site is bordered to the east by the Boston and Maine Railroad tracks and farmland, to the west by the Hoosic River, and to the north by additional farmland. The Dean Road Landfill is to the west of the Hoosic River (see Attachment A, Figure 2). The area surrounding the site is primarily a rural and residential community with approximately 3,500 residents. The nearest residences are approximately 200 feet from the site and rely upon groundwater from private wells for their water supply.

The site was a former hide tanning and finishing facility owned by the Pownal Tanning Company, Inc. It has been inactive since 1988 when the company declared bankruptcy. The site consists of three contamination sources: the tannery building complex, a lagoon system, and the tannery sludge landfill. From approximately 1937 until 1962, untreated tanning process wastewater was directly discharged into the Hoosic River. A lagoon system, comprising six lagoons, was constructed in several stages between 1962 and 1971 to receive the tannery's wastewater. In 1982, a state-permitted lined landfill was constructed on site which received sludge dredged from a portion of the lagoons. The tannery landfill is situated on a parcel of land across from the Hoosic River and southwest of the tannery building complex. In 1987, two-thirds of the landfill was covered and closed. The site was listed on the National Priorities List (NPL) in January 1999 due to metals contamination. The remaining portion of the landfill was covered in 2001. Other cleanup activities also included removing hazardous materials from the tannery building. The area is a rural and residential community with approximately 3,500 residents. The nearest residences are approximately 200 feet from the site and rely upon groundwater from private wells for their water supply.

## **PURPOSE OF SAMPLING**

Due to the concerns that wastes buried at the landfill may have leached from the landfill and into the groundwater, EPA requested that Weston Solutions, Inc. (WESTON®), Superfund Technical Assessment and Response Team IV (START), collect groundwater and drinking samples to determine if the groundwater has been impacted by PFCs.

PFCs are a class of synthetic compounds formed from carbon chains with fluorine attached. The chemical structure of PFCs gives them unique properties, such as thermal stability and the ability to repel both water and oil, that make them useful components in a wide variety of consumer and industrial products, including non-stick cookware, food packaging, waterproof clothing, fabric stain protectors, lubricants, paints, and firefighting foams such as aqueous film-forming foam (AFFF). PFCs have been in use since the 1950s. Because they help reduce friction, they are also used in a variety of other industries, including aerospace, automotive, building and construction, and electronics. PFCs break down very slowly in the environment and are often characterized as persistent. They also build up in the bodies of exposed humans and animals and stay there for long periods of time. Unlike many other persistent chemicals, PFCs are not stored in body fat. However, PFCs are similar to other persistent chemicals due to the long half-life of the persistent chemicals in the human body. This slow elimination time makes it difficult to determine how changes in lifestyle, diet, or other exposure-related factors influence the concentrations of PFCs in the blood.



## **SAMPLING ACTIVITIES (ROUND 1) –24 AND 25 MARCH 2016**

On 24 and 25 March 2016, START personnel George Mavris, Kenneth Robinson, Bill Mahany, Andrew Danikas, and Sara Evarts; and EPA On-Scene Coordinator (OSC) Tom Condon mobilized to Pownal, Bennington County, Vermont to collect groundwater samples from eight on-site monitoring wells and from three residential private wells located east of the former Lagoon Area of the Pownal Tannery site (see Attachment A, Figure 2).

### **Sampling Activities (Round 1) - 24 March 2016 (Lagoon Area)**

On 24 March 2016, START personnel mobilized to the Lagoon Area of the site, established a support zone, and calibrated air monitoring instruments, including four MultiRAE Plus units with the following sensors: carbon monoxide (CO); hydrogen sulfide (H<sub>2</sub>S); VOC; oxygen (O<sub>2</sub>); and Lower Explosive Limit (LEL). A radiation detection instrument, a Ludlum Model 19A Gamma Radiation Meter, was also prepared. Background readings on the MultiRAE Plus were as follows: O<sub>2</sub> (20.9%); CO [0 parts per million (ppm)]; H<sub>2</sub>S (0 ppm); LEL (0%); and photoionization detector (PID) (0 ppm VOC). The radiation meter had background levels between 10-12 microRoentgens per hour (µR/hour).

START member A. Danikas conducted a tailgate safety and operations meeting, and START and EPA personnel signed the Health and Safety Plan (HASP). Site activities were conducted in accordance with the site HASP, which was prepared as a separate document, entitled *Weston Solutions, Inc., Region I START Site Health and Safety Plan (HASP) for the Pownal Tannery Site, Pownal, Bennington County, Vermont*, dated March 2016.

Care was taken by the sampling team to ensure that no potential PFC-containing materials were utilized during sampling. No materials containing Teflon, Gore-Tex, or other waterproofing materials were utilized while sampling. Extra care was taken to assure that clothing, storage containers, and sampling equipment did not contain potential PFC sources.

START personnel and OSC Condon located the four monitoring wells (MW-107U, MW-107R, MW-203, and MW-L-10) to be sampled (see Attachment A, Figure 2). Monitoring wells MW-107U, MW-203, and MW-L-10 are overburden wells, and MW-107R is a bedrock well. The following table summarizes the monitoring well specifications for the monitoring wells at the Lagoon Area of the site.

<b>Monitoring Well</b>	<b>Total Depth* (feet)</b>	<b>Screened Interval (feet)</b>	<b>Inner Well Diameter (inches)</b>	<b>Protective Casing</b>	<b>Type of Sampling Pump</b>
MW-107U	22	12 - 22	2	Steel	Peristaltic
MW-203	12	1.8 - 11.8	2	Steel	Peristaltic
MW-L-10	15.8	5 - 15	2	Steel	Peristaltic
MW-107R	119	109 - 119	2	Steel	Submersible

\* Measured from top of inner polyvinyl chloride (PVC) casing.



The monitoring wells were secured with padlocks. The keys to the padlocks were provided to OSC Condon by VT DEC representative John Schmeltzer. The padlocks were unlocked and the well caps were removed to monitor the headspace of each well for VOCs and combustible gases using a MultiRAE Plus unit. The radiation meter was carried around the site from well to well to monitor for radiation. Readings were recorded on the low-flow groundwater sampling Field Data Sheets.

Sampling activities were performed in accordance with the site Sampling and Analysis Plan (SAP), which was prepared as a separate document, entitled *Sampling and Analysis Plan for the Pownal Tannery, Pownal, Bennington County, Vermont*, dated March 2016. Modifications to the SAP are noted later in this section.

Prior to collecting the groundwater samples, a Field Trip Blank (FTB-01) was prepared by removing the caps from the two laboratory-provided bottles. The full bottle labeled Field Trip Blank was carefully poured into the empty bottle marked Field Trip Blank and gently shaken in an up-and-down manner to allow the preservative to dissolve. Both bottles were then recapped, and the Field Trip Blank bottle was returned to the re-sealable bag and placed in the sample cooler in a location away from the sampling points.

The caps were removed from the PVC casing, and any dedicated Teflon and silicon tubing found in the wells was removed and placed back into the wells after sampling activities were completed. If the well casing did not have a reference point (usually a V-cut or indelible mark in the well casing), START personnel made a mark on the inner PVC casing.

Prior to placing tubing into the well, the water level and total depth of the well were measured and recorded. Care was taken not to stir sediment at the bottom of the well. The water level meter was removed from the well, and high-density polyethylene (HDPE) tubing was then measured and lowered slowly (to minimize disturbance) into the well to the midpoint of the saturated zone to be sampled.

Since the top of the water table in the overburden wells ranged from approximately 7 to 16 feet below the top of the inner polyvinyl chloride (PVC) casing, adjustable rate peristaltic pumps (suction) were used to purge the wells and to collect groundwater samples for PFC analysis. For bedrock monitoring well MW-107R, a stainless steel submersible pump was used to purge the well and to collect a groundwater sample.

Following the placement of the tubing into the well and connecting the tubing into the YSI flow cell, the water level meter was lowered into the well to the top of the water column and remained in the well while purging to record drawdown of the water column.

### Overburden Monitoring Wells

For the overburden monitoring wells (MW-107U, MW-203, and MW-L-10), the pump was set at its lowest speed setting and slowly increased until discharge occurred. The water level was checked and the pump speed adjusted until there was little or no water level drawdown. The well



was purged for a few minutes until the water was clear before running into the YSI flow cell. During well purging, water quality parameters [temperature, specific conductance, pH, oxidation-reduction potential (ORP), and dissolved oxygen (DO)] were measured using a YSI water quality meter. Turbidity was measured by collecting a groundwater sample at a point prior to entering the YSI flow cell and measured with a turbidity meter. When all the above indicator field parameters stabilized, purging was considered complete and sampling began.

Prior to collecting the groundwater sample, the peristaltic pump was turned off and an approximate 1-foot length of the HDPE tubing (between the peristaltic pump head and flow-through cell) was cut to provide a clean, uncontaminated sample collection point. The pump was then turned on and allowed to flow for approximately one minute.

The pump was adjusted to a slow, constant flow [approximately 100 - 110 milliliters per minute (mL/min)]. The sample number was written on the bottle caps with indelible ink (Sharpie). The sample bottles were carefully filled nearly to the top, being careful not to overfill the bottles during sample collection. The caps were then turned securely on the bottles, and the bottles gently shaken in an up-and-down manner to allow the preservative to dissolve. The bottles were then placed in a re-sealable bag before repeating this process with the other empty bottles.

#### Bedrock Monitoring Well

For bedrock monitoring well MW-107R, a stainless steel submersible pump was lowered slowly into the well to an approximate depth of 114 feet (mid-point of the screened interval); the well was purged until the water was clear, and then the pump tubing was connected to YSI flow cell where water quality parameters (temperature, specific conductance, pH, ORP, DO, and turbidity) were recorded at 5-minute intervals during purging. A sample was collected from this well when the water quality parameters stabilized.

#### Post-Sampling Activities

Following collection of the groundwater sample from monitoring well MW-107R, the dedicated tubing and pre-existing submersible pump were placed back into the well. The riser caps were placed on the PVC casings of the overburden and bedrock monitoring wells, and the padlocks were placed back on the metal casings to secure the wells.

One field equipment (rinsate) blank (RB-01) was collected by running laboratory-provided PFC-free water through HDPE and silicon tubing using a peristaltic pump. Two pieces of HDPE tubing (about 1 foot each) and one piece of silicon tubing were cut. The HDPE tubing was inserted into each end of the silicon tubing, and the silicon tubing was placed in the peristaltic pump housing. One end of the HDPE tubing was then inserted into the laboratory-provided PFC-free water container and the other end into the laboratory-provided Field Rinsate Blank container. The peristaltic pump was turned on at the slowest rate possible (approximately 100 to 120 mL/min) to attain flow, and two containers were filled. The sample containers were gently shaken in an up-and-down manner to allow the preservative to dissolve and then placed in a re-sealable bag and placed in a sample cooler with ice.



The groundwater samples collected from the overburden and bedrock monitoring wells were placed in a sample cooler preserved with ice and secured until chain-of-custody activities (Scribe) and shipment preparation could be completed on the following day.

Field activities were completed for the day, and all personnel departed the Lagoon Area section of the Pownal Tannery site.

### **Sampling Activities (Round 1) - 25 March 2016 (Dean Road Landfill)**

On 25 March 2016, START personnel mobilized to the Dean Road Landfill portion of the site, established a support zone, calibrated four MultiRAE Plus units, and prepared a Ludlum Model 19A Gamma Radiation Meter. Background readings on the MultiRAE Plus and radiation meter were recorded. A tailgate safety and operations meeting was conducted prior to beginning site activities.

Again, care was taken by the sampling team to ensure that no potential PFC-containing materials were utilized during sampling.

START personnel, OSC Tom Condon, and VT DEC representative Matt Becker located the four monitoring wells (MW-101U, MW-102U, MW-103U, and MW-103R) to be sampled (see Attachment A, Figure 2). Monitoring wells MW-101U, MW-102U, and MW-103U are overburden wells, and MW-103R is a bedrock well. The following table summarizes the monitoring well specifications for the monitoring wells at the Dean Road Landfill area of the site.

<b>Monitoring Well</b>	<b>Total Depth* (feet)</b>	<b>Screened Interval (feet)</b>	<b>Inner Well Diameter (inches)</b>	<b>Protective Casing</b>	<b>Type of Sampling Pump</b>
MW-101U	19	7 - 17	2	Steel	Peristaltic
MW-102U	31	21 - 31	2	Steel	Peristaltic
MW-103U	27	15 - 25	2	Steel	Peristaltic
MW-103R	117	97 - 117	2	Steel	Submersible

\* Measured from top of inner polyvinyl chloride (PVC) casing.

The padlocks were unlocked and the headspace of each well was screened for VOCs and combustible gases using a MultiRAE Plus unit. The radiation meter was carried around the site from well to well to monitor for radiation. Readings were recorded on the low-flow groundwater sampling Field Data Sheets.

Prior to collecting the groundwater samples, a Field Trip Blank (FTB-02) was prepared using the same method described for FTB-01, and placed in the sample cooler in a location away from the sampling points.

The same sampling procedures used during the collection of groundwater samples on 24 March 2016 were used to collect groundwater samples from these wells.

### **Overburden Monitoring Wells**



Peristaltic pumps were used to purge the wells and to collect groundwater samples for the overburden monitoring wells (MW-101U, MW-102U, and MW-103U). During well purging, water quality parameters (temperature, specific conductance, pH, ORP, DO, and turbidity) were recorded. Samples were collected when water quality parameters stabilized.

### Bedrock Monitoring Well

For bedrock monitoring well MW-103R, a stainless steel submersible pump was lowered slowly into the well to an approximate depth of 107 feet (mid-point of the screened interval); the well was purged until the water was clear, and then the pump tubing was connected to YSI flow cell where water quality parameters (temperature, specific conductance, pH, ORP, DO, and turbidity) were recorded at 5-minute intervals during purging.

Following collection of the groundwater sample from monitoring well MW-103R, the dedicated tubing and pre-existing submersible pump were placed back into the well. The riser caps were placed on the PVC casings of the overburden and bedrock monitoring wells and the padlocks were placed on the metal casing to secure the wells. The keys, which were provided to OSC Condon by VT DEC representative John Schmeltzer, were returned to VT DEC representative Matt Becker upon completion of the sampling activities.

A second field equipment (rinsate) blank (RB-02) was collected by running laboratory-provided PFC-free water through the stainless steel submersible pump. Once the rinsate samples were collected, they were gently shaken in an up-and-down manner to allow the preservative to dissolve and then placed in a re-sealable bag and placed in a sample cooler with ice.

All relevant information and observations pertaining to the sample locations on 24 and 25 March 2016 were recorded, and site features were photo-documented (see Attachment C, Photo-documentation log). Well purge water and decontamination fluids generated during decontamination of the YSI water quality meters and water level meters was poured back onto the ground surface around the wells following the collection of the groundwater samples.

Chain-of-custody activities (Scribe) were completed following the collection of groundwater samples from the last well, and the samples were prepared for shipment following Weston Solutions, Inc. sample shipment protocol. The bottles were placed in the shipping container (coolers), and ice and packing materials sufficient to keep samples cool and protected from damage during shipping were added. The chain-of custody documentation was placed in a re-sealable bag and placed atop the samples prior to sealing the shipping container. The sample cooler was delivered to the nearest Federal Express (FedEx) office for next-day delivery to the analytical laboratory.

Field activities were completed for the day, and all personnel departed the Dean Road Landfill area of the Pownal Tannery site.



### Sampling and Analysis Plan Modifications

Modifications to the *Sampling and Analysis Plan for the Pownal Tannery, Pownal, Bennington County, Vermont*, dated March 2016, include the following:

- The pump rate during sampling was adjusted to a flow rate of approximately 100 to 110 mL/min to prevent splashing, and not 200 to 300 mL/min as stated in the SAP.
- An approximate 6-inch piece silicon tubing with a clamp was not fitted over the HDPE tubing, as stated in the SAP, prior to collecting the groundwater sample, as the pressure exerted when the clamp was closed caused the silicon tubing to disconnect from the HDPE tubing.
- Drinking water samples were not collected from the two residences (3261 State Road and 3185 State Road) since site access was not obtained.

### **Analytical Data Summary (Round 1) - Samples collected on 24 and 25 March 2016**

On 4 April 2016, START received the analytical results from Eurofins Eaton Analytical, located in South Bend, Indiana. The groundwater samples were analyzed using EPA Method 537, *Determination Of Selected Perfluorinated Alkyl Acids In Drinking Water By Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)*. Although PFCs are a class of synthetic compounds numbering more than 24, only six specific PFCs were analyzed by the laboratory for this sampling event, as shown in the table below.

<b>Perfluorinated Compounds</b>	<b>CAS Number</b>
Perfluorobutanesulfonic acid (PFBS)	375-73-5
Perfluoroheptanoic acid (PFHpA)	375-85-9
Perfluorohexanesulfonic acid (PFHxS)	355-46-4
Perfluorononanoic acid (PFNA)	375-95-1
Perfluorooctane sulfonate (PFOS)	1763-23-1
Perfluorooctanoic acid (PFOA)	335-67-1

### Lagoon Area

Analytical results received from Eurofins Eaton Analytical indicated that five PFCs were detected at concentrations above the MDLs in groundwater samples collected from the overburden monitoring wells (MW-107U, MW-203U, and MW-L-10) located at the Lagoon Area. These included perfluorobutanesulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorooctane sulfonate (PFOS), and perfluorooctanoic acid (PFOA). PFCs were not detected above the laboratory MDLs in the groundwater sample collected from the bedrock well (MW-107R) (Attachment B, Table 1).



The maximum concentrations of the five PFCs detected in the Lagoon Area of the site were detected in monitoring well MW-L-10 and are as follows: PFBS [22 nanograms per Liter (ng/L) or parts per trillion (ppt)], PFHpA (15 ng/L), PFHxS (210 ng/L), PFOS (47 ng/L), and PFOA (200 ng/L). PFOS and PFOA were detected in all three overburden monitoring wells at concentrations ranging from 4.2 ng/L in monitoring well MW-203 to 47 ng/L in monitoring well MW-L-10; and 4.8 ng/L in monitoring well MW-203 to 200 ng/L in monitoring well MW-L-10, respectively (see Attachment B, Table 1).

### Dean Road Landfill

Analytical results received indicated that three PFCs were detected at concentrations above the MDLs in groundwater samples collected from the overburden monitoring wells (MW-101U, MW-102U, and MW-103U) located at the Dean Road Landfill. PFCs detected included PFHpA, PFOS, and PFOA. PFCs were not detected above the laboratory MDLs in the groundwater sample collected from the bedrock well (MW-103R) (Attachment B, Table 2).

The following PFCs [maximum concentration in ng/L and sample location in parentheses] were detected during this sampling event at the Dean Road Landfill section of the Pownal Tannery site: PFHpA (1.1 ng/L in MW-103U), PFOS (5.9 ng/L in MW-101U), and PFOA (12 ng/L in MW-103U). PFOA was detected in all three overburden monitoring wells at concentrations ranging from 2 ng/L in monitoring well MW-102U to 12 ng/L in MW-103U. PFOS was detected only in MW-101U at a concentration of 5.9 ng/L (see Attachment B, Table 2).

Based on the results of these groundwater samples, VT DEC requested additional EPA assistance in collecting additional groundwater and drinking samples to further define groundwater contamination in the area around the Pownal Tannery site.

### **SAMPLING ACTIVITIES (ROUND 2) – 21 APRIL 2016**

On 21 April 2016, START personnel G. Mavris, A. Danikas, B. Mahany, Eric Ackerman, P. Callahan, and C. Dupree; and EPA OSC T. Condon mobilized to the Lagoon Area section of the Pownal Tannery site, Pownal, Bennington County, Vermont to collect additional groundwater samples from three monitoring wells (MW-L-7, MW-L-8, and MW-L-9). Two of these wells (MW-L-8 and MW-L-9) are located on private residential properties and MW-L-7 is located on the North Pownal Fire Department property. All three wells are located east and southeast of the Lagoon Area of the Pownal Tannery site (see Attachment A, Figure 2).

START personnel mobilized established a support zone, calibrated three MultiRAE Plus units, and prepared a Ludlum Model 19A Gamma Radiation Meter. Background readings on the MultiRAE Plus and radiation meter were recorded. A tailgate safety and operations meeting was conducted prior to beginning site activities. Care was taken by the sampling team to ensure that no potential PFC-containing materials were utilized during sampling.

START personnel, OSC T. Condon, and VT DEC representative Matt Becker located two of the three monitoring wells (MW-L-7 and MW-L-9). The third monitoring well was located; however,



the property owners denied EPA/VT DEC access, and therefore MW-L-8 was not sampled. Both MW-L-7 and MW-L-9 are shallow overburden monitoring wells. The following table summarizes the monitoring well specifications for the monitoring wells at the Lagoon Area of the site.

Monitoring Well	Total Depth* (feet)	Screened Interval (feet)	Inner Well Diameter (inches)	Protective Casing	Type of Sampling Pump
MW-L-7	21.4	11 - 21	2	Steel	Peristaltic
MW-L-9	17.3	7 - 17	2	Steel	Peristaltic

\* Measured from top of inner polyvinyl chloride (PVC) casing.

The well caps were removed and the headspace of each well was screened for VOCs and combustible gases using a MultiRAE Plus unit. The radiation meter was carried around the site from well to well to monitor for radiation. Readings were recorded on the low-flow groundwater sampling Field Data Sheets.

Sampling activities were performed in accordance with the revised site SAP, entitled *Sampling and Analysis Plan for the Pownal Tannery Site, Pownal, Bennington County, Vermont*, dated March 2016.

Dedicated Teflon and silicon tubing found in monitoring wells MW-L-7 and MW-L-9 was removed and subsequently discarded. Peristaltic pumps were used to collect groundwater samples from the two shallow overburden monitoring wells during this sampling event, following the same procedures that were described for the first sampling event.

Following collection of the groundwater samples, the riser caps were placed back on the inner PVC casing, and the PVC caps were placed back onto the outer PVC casing to secure the wells.

Relevant information and observations pertaining to the sample locations for the monitoring wells were recorded, and purge water and decontamination fluids generated during decontamination of the YSI water quality meters and water level meters were poured back onto the ground surface near monitoring well MW-L-10, located west of the railroad tracks and on the Pownal Tannery site, following the collection of the groundwater samples.

One field equipment (rinsate) blank was collected following the same procedures that were described for the first sampling event.

### **Chain-of-Custody**

The chain-of-custody activities (Scribe) were completed following the completion of sampling activities. The bottles were placed in the shipping container (coolers), and ice and packing materials sufficient to keep samples cool and protected from damage during shipping were added. The chain-of custody documentation was placed in a re-sealable bag and placed atop the samples



prior to sealing the shipping container. The sample coolers were delivered to the nearest FedEx office for next-day delivery to the analytical laboratory.

Field activities were completed on 21 April 2016.

### **Analytical Data Summary (Round 2) - Samples collected on 21 April 2016**

On 6 May 2016, START received the analytical results for the two groundwater samples collected on 21 April 2016. Based on these results, three PFCs were detected above the laboratory MDLs. The maximum concentrations of the three PFCs detected in the Lagoon Area of the site were detected in monitoring well MW-L-7 and are as follows: PFHpA (1.5 ng/L), PFOS (20 ng/L), and PFOA (14 ng/L). PFOA was also detected in monitoring well MW-L-9 at a concentration of 5.5 ng/L (see Attachment B, Table 3).

### **SUMMARY**

#### **Lagoon Area**

Based on two rounds of groundwater sampling conducted on six monitoring wells (five overburden and one bedrock), five PFCs have been detected at concentrations above MDLs in the overburden aquifer at the Lagoon Area of the Pownal Tannery Site. The maximum concentrations of all five of these PFCs were detected in monitoring well MW-L-10 and are as follows: PFBS (22 ng/L), PFHpA (15 ng/L), PFHxS (210 ng/L), PFOS (47 ng/L), and PFOA (200 ng/L). Monitoring well MW-L-10 is located west of the railroad tracks and appears to be the most upgradient well on this side of the railroad tracks. Monitoring wells MW-107U, MW-203, and MW-107R are also located west of the railroad tracks, while monitoring wells MW-L-7 and MW-L-9 are located east of the railroad tracks. MW-L-10 may be situated on a groundwater divide where the presumed groundwater flow direction, west of the railroad tracks, is to the southwest. PFCs were not detected at concentrations above the MDLs in the groundwater sample collected from the bedrock monitoring well (MW-107R) (see Attachment B, Table 1).

#### **Dean Road Landfill**

Based on one round of groundwater sampling conducted on four monitoring wells (three overburden and one bedrock), three PFCs have been detected at concentrations above MDLs in the overburden aquifer at the Dean Road Landfill section of the Pownal Tannery Site.

The following PFCs, with maximum concentration in parentheses, have been detected in groundwater samples collected from the overburden aquifer at the Dean Road Landfill section of the Pownal Tannery Site: PFHpA (1.1 ng/L in MW-103U), PFOS (5.9 ng/L in MW-101U), and PFOA (12 ng/L in MW-103U). PFOA was detected in all three overburden monitoring wells. PFCs were not detected at concentrations above the MDLs in groundwater sample collected from the bedrock monitoring well (MW-103R) (see Attachment B, Table 2).

The occurrence of PFCs in overburden aquifer may suggest that PFC contamination is present throughout the landfill area, and may indicate wastes buried at the landfill may have leached from



the landfill and into the groundwater. Based on the limited available data collected during this investigation, no distinct pattern of PFC distribution in the overburden aquifer is apparent at the Pownal Tannery site, and it appears that PFCs have not impacted the bedrock aquifer.

## Attachments

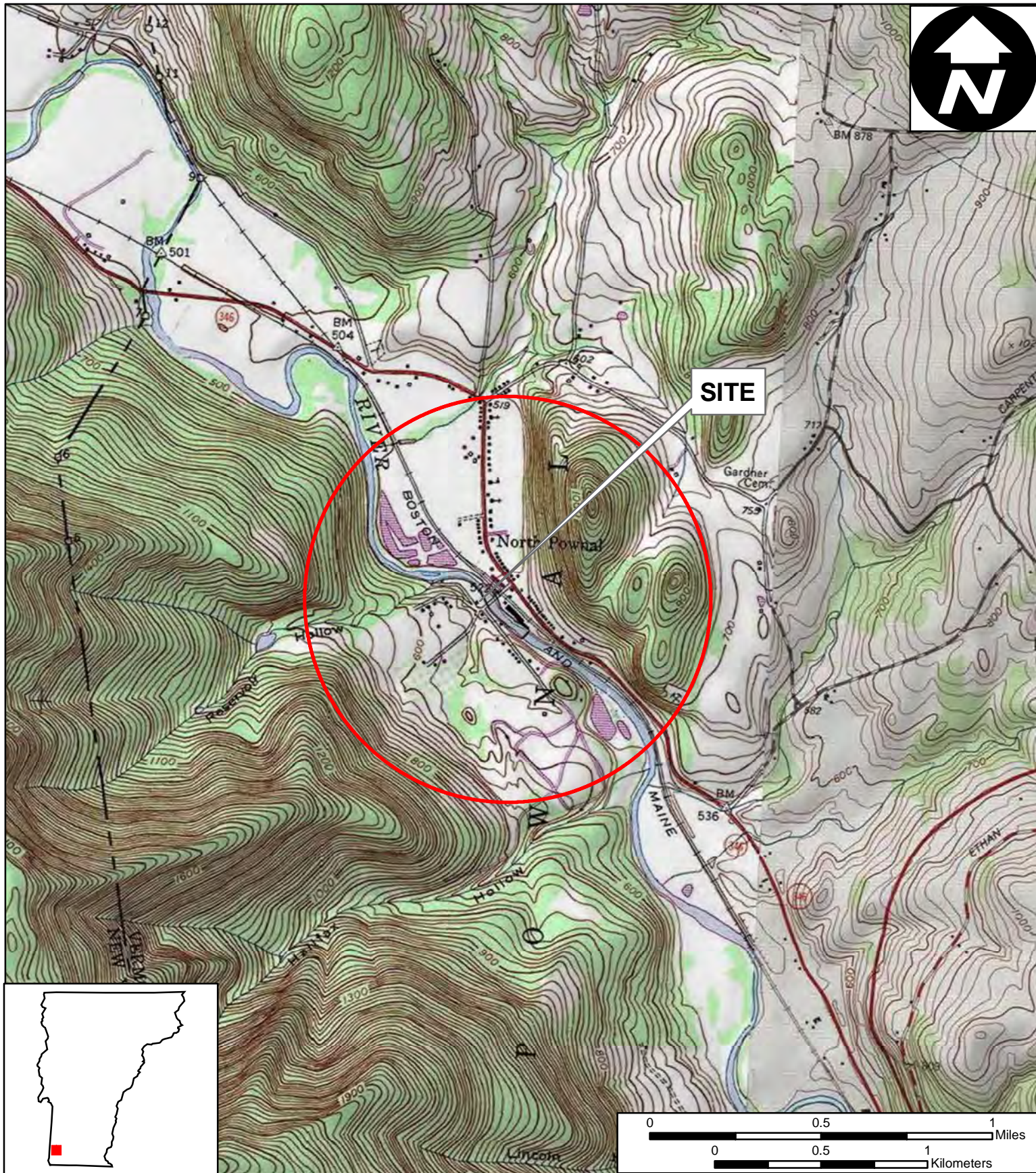
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## Attachment A

### Figures

- Figure 1 Site Location Map
- Figure 2 Site Diagram and Sample Location Map

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**Figure 1**

**Site Location Map**

**Pownal Tannery  
Route 346  
Pownal, Vermont**

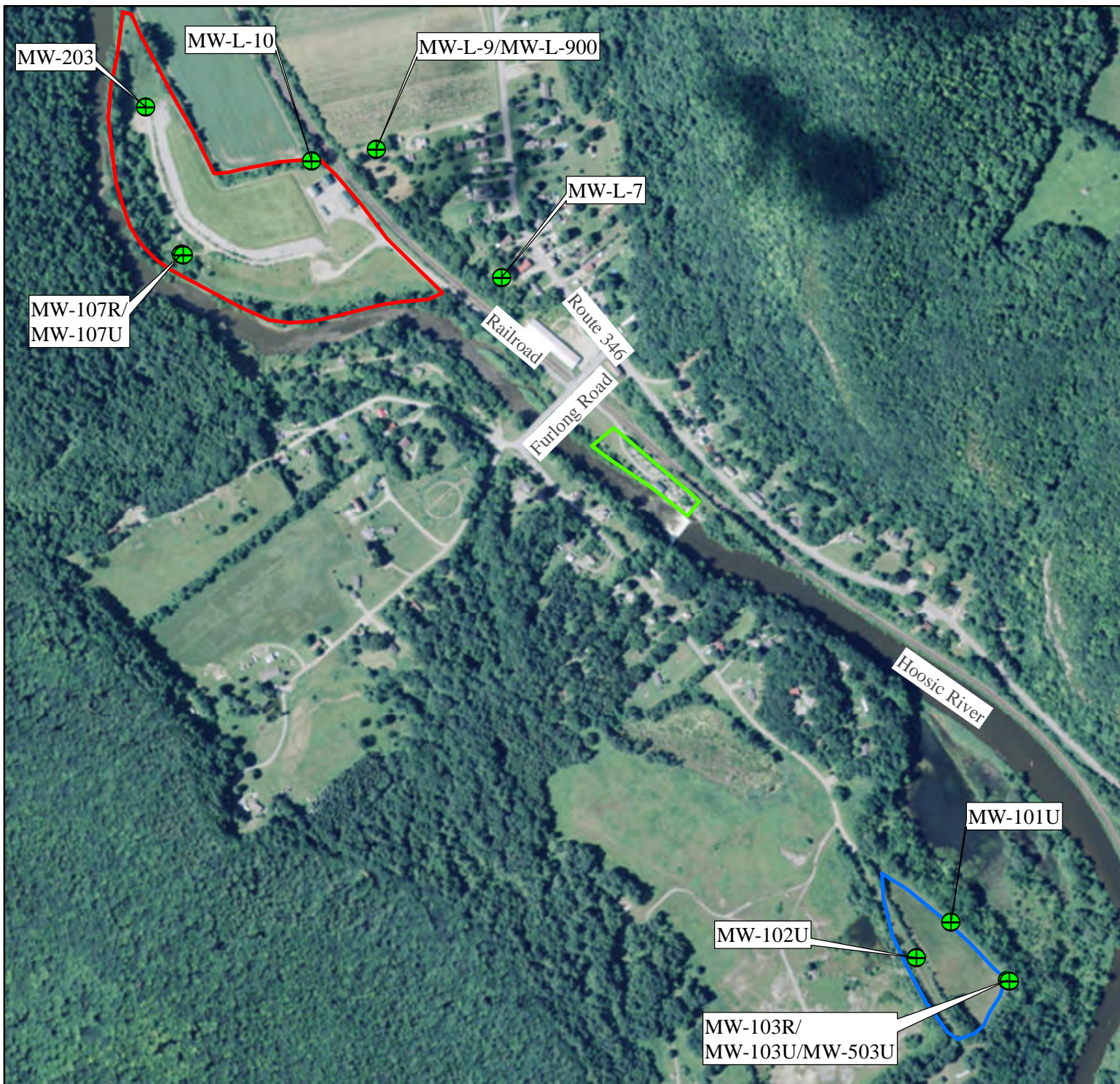
**EPA Region I  
Superfund Technical Assessment and  
Response Team (START) IV  
Contract No. EP-S3-15-01**

TDD Number: TO1-01-16-03-0004  
 Created by: A. Danikas  
 Created on: 18 March 2016  
 Modified by: B. Mace  
 Modified on: 19 May 2016

**Data Sources:**

Topos: MicroPath/USGS/USA Topo Maps  
 Quadrangle Names: Pownal and North Pownal, VT  
 All other data: START











**Figure 2**  
**Site Diagram and**  
**Sample Location Map**  
**Pownal Tannery**  
**Route 346**  
**Pownal, Vermont**

**EPA Region I**  
**Superfund Technical Assessment and**  
**Response Team (START) IV**  
**Contract No. EP-S3-15-01**  
**TDD Number: TO1-01-16-03-0004**  
**Created by: A. Danikas**  
**Created on: 18 March 2016**  
**Modified by: B. Mace**  
**Modified on: 19 May 2016**

**LEGEND**

-  Groundwater Sample Location
-  Former Sludge Landfill
-  Former Tannery
-  Former Sludge Lagoons

  
 0      500      1,000  
 Feet

**Data Sources:**  
 Imagery: ESRI, i-cubed, USDA FSA, USGS  
 AEX, GeoEye, Getmapping, Aerogrid, IGP  
 Topos: MicroPath  
 All other data: START



## Attachment B

### Tables and Spreadsheets

Table 1	Summary of Perfluorinated Compounds Analysis, Groundwater Samples, Pownal Tannery Site, Lagoon Area, Pownal, Bennington, Vermont, 24 March 2016
Table 2	Summary of Perfluorinated Compounds Analysis, Groundwater Samples, Pownal Tannery Site, Dean Road Landfill Area, Pownal, Bennington, Vermont, 25 March 2016
Table 3	Summary of Perfluorinated Compounds Analysis, Groundwater Samples, Pownal Tannery Site, Lagoon Area, Pownal, Bennington, Vermont, 21 April 2016

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TABLE 1

**SUMMARY OF  
PERFLUORINATED COMPOUNDS ANALYSIS  
GROUNDWATER SAMPLES  
POWNAI TANNERY SITE  
(LAGOON AREA)  
POWNAI, VERMONT  
24 MARCH 2016**

SAMPLE NUMBER		D33754	D33752	D33753	D33749	D33745	D33743	D33744
LOCATION		GW-MW-107U	GW-MW-107R	GW-MW-203	GW-MW-L-10	RB-01	TB-01	FTB-01
LABORATORY NUMBER		3420513	3420509	3420512	3420506	3420502	3420500	3420501
COMPOUND	MDL							
Perfluorobutanesulfonic acid (PFBS)	9	9 U	9 U	9 U	<b>22</b>	9 U	9 U	9 U
Perfluoroheptanoic acid (PFHpA)	1	<b>1.2</b>	1 U	1 U	<b>15</b>	1 U	1 U	1 U
Perfluorohexanesulfonic acid (PFHxS)	3	<b>4.1</b>	3 U	3 U	<b>210</b>	3 U	3 U	3 U
Perfluorononanoic acid (PFNA)	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Perfluorooctane sulfonate (PFOS)	4	<b>6.3</b>	4 U	<b>4.2</b>	<b>47</b>	4 U	4 U	4 U
Perfluorooctanoic acid (PFOA)	2	<b>14</b>	2 U	<b>4.8</b>	<b>200</b>	2 U	2 U	2 U
DILUTION FACTOR		0.98	0.99	0.99	1.00	0.98	0.97	0.97
DATE SAMPLED		3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/24/2016	3/21/2016	3/24/2016
DATE EXTRACTED		3/31/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016
DATE ANALYZED		4/1/2016	4/1/2016	4/1/2016	4/1/2016	4/1/2016	4/1/2016	4/1/2016

**NOTES:**

- 1) Samples collected by Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START) on 24 March 2016.
- 2) Samples analyzed by Eurofins Eaton Analytical, South Bend, Indiana, using EPA Method 537, Determination Of Selected Perfluorinated Alkyl Acids In Drinking Water By Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS).
- 3) Results are reported in nanograms per Liter (ng/L). Equivalent to parts per trillion (ppt).
- 4) U = Values not detected above the Method Detection Limit (MDL).
- 5) Values bolded and shaded in yellow were detected above the MDL.
- 6) RB-01 is the field rinsate blank.
- 7) TB-01 is the laboratory trip blank.
- 8) FTB-01 is the field trip blank.

TABLE 2

**SUMMARY OF  
PERFLUORINATED COMPOUNDS ANALYSIS  
GROUNDWATER SAMPLES  
POWNAI TANNERY SITE  
(DEAN ROAD LANDFILL AREA)  
POWNAI, VERMONT  
25 MARCH 2016**

SAMPLE NUMBER		D33741	D33747	D33748	D33742	D33751	D33750	D33743	D33755
LOCATION		GW-MW-101U	GW-MW-102U	GW-MW-103U	GW-MW-503U	GW-MW-103R	RB-02	TB-01	FTB-02
LABORATORY NUMBER		3420498	3420504	3420505	3420499	3420508	3420507	3420500	3420514
COMPOUND	MDL								
Perfluorobutanesulfonic acid (PFBS)	9	9 U	9 U	9 U	9 U	9 U	9 U	9 U	9.2 U
Perfluoroheptanoic acid (PFHpA)	1	1 U	1 U	1.1	1.1	1 U	1 U	1 U	1 U
Perfluorohexanesulfonic acid (PFHxS)	3	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3.1 U
Perfluorononanoic acid (PFNA)	2	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Perfluorooctane sulfonate (PFOS)	4	5.9	4 U	4 U	4 U	4 U	4 U	4 U	4.1 U
Perfluorooctanoic acid (PFOA)	2	4.8	2	11	12	2 U	2 U	2 U	2 U
DILUTION FACTOR		0.99	0.99	0.99	0.98	1.00	0.97	0.97	1.02
DATE SAMPLED		3/25/2016	3/25/2016	3/25/2016	3/25/2016	3/25/2016	3/25/2016	3/21/2016	3/25/2016
DATE EXTRACTED		3/31/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016	3/31/2016
DATE ANALYZED		4/1/2016	4/1/2016	4/1/2016	4/1/2016	4/1/2016	4/1/2016	4/1/2016	4/1/2016

**NOTES:**

- 1) Samples collected by Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START) on 25 March 2016.
- 2) Samples analyzed by Eurofins Eaton Analytical, South Bend, Indiana, using EPA Method 537, Determination Of Selected Perfluorinated Alkyl Acids In Drinking Water By Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS).
- 3) Results are reported in nanograms per Liter (ng/L). Equivalent to parts per trillion (ppt).
- 4) U = Values not detected above the Method Detection Limit (MDL).
- 5) Sample GW-MW-503U is a field duplicate of GW-MW-103U.
- 6) Values bolded and shaded in yellow were detected above the MDL.
- 7) RB-02 is the field rinsate blank.
- 8) TB-01 is the laboratory trip blank.
- 9) FTB-02 is the field trip blank.

**TABLE 3**  
**SUMMARY OF**  
**PERFLUORINATED COMPOUNDS ANALYSIS**  
**GROUNDWATER SAMPLES**  
**POWNAL TANNERY SITE**  
**(LAGOON AREA)**  
**POWNAL, VERMONT**  
**21 APRIL 2016**

SAMPLE NUMBER		D33808	D33809	D33810	D33814	D33811	D33812
LOCATION		GW-MW-L-7	GW-MW-L-9	GW-MW-L-900	RB-03-TUB	TB-02	FTB-03
LABORATORY NUMBER		3435477	3435480	3435481	3435485	3435482	3435483
COMPOUND	MDL						
Perfluorobutanesulfonic acid (PFBS)	9	9 U	9 U	9 U	9 U	9 U	9 U
Perfluoroheptanoic acid (PFHpA)	1	<b>1.5</b>	1 U	1 U	1 U	1 U	1 U
Perfluorohexanesulfonic acid (PFHxS)	3	3 U	3 U	3 U	3 U	3 U	3 U
Perfluorononanoic acid (PFNA)	2	2 U	2 U	2 U	2 U	2 U	2 U
Perfluorooctane sulfonate (PFOS)	4	<b>20</b>	4 U	4 U	4 U	4 U	4 U
Perfluorooctanoic acid (PFOA)	2	<b>14</b>	<b>5.3</b>	<b>5.5</b>	2 U	2 U	2 U
DILUTION FACTOR		1.00	0.99	0.97	0.96	0.91	0.92
DATE SAMPLED		4/21/2016	4/21/2016	4/21/2016	4/21/2016	4/15/2016	4/21/2016
DATE EXTRACTED		5/3/2016	5/2/2016	5/2/2016	5/2/2016	5/2/2016	5/2/2016
DATE ANALYZED		5/5/2016	5/3/2016	5/3/2016	5/3/2016	5/3/2016	5/5/2016

**NOTES:**

- 1) Samples collected by Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START) on 21 April 2016.
- 2) Samples analyzed by Eurofins Eaton Analytical, South Bend, Indiana, using EPA Method 537, Determination Of Selected Perfluorinated Alkyl Acids In Drinking Water By Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS).
- 3) Results are reported in nanograms per Liter (ng/L). Equivalent to parts per trillion (ppt).
- 4) U = Values not detected above the Method Detection Limit (MDL).
- 5) Sample GW-MW-L-900 is a field duplicate of GW-MW-L-9.
- 6) Values bolded and shaded in yellow were detected above the MDL.
- 7) RB-03-TUB is a rinsate blank.
- 8) TB-02 is the laboratory trip blank.
- 9) FTB-03 is the field trip blank.

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Attachment C

Photo-documentation Log

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**PHOTOGRAPHY LOG SHEET**  
**Pownal Tannery Site • Pownal, Vermont**



**SCENE:** View of the monitoring wells MW-107R (foreground) and MW-107U (background) located at the Lagoon Area of the Pownal Tannery site. Photograph taken facing northwest.

**DATE:** 24 March 2016

**TIME:** 1810 hours

**PHOTOGRAPHY BY:** George Mavris

**CAMERA:** iPhone 6



**SCENE:** View of monitoring well MW-L-10 located at the Lagoon Area of the Pownal Tannery site. Photograph taken facing south.

**DATE:** 24 March 2016

**TIME:** 1850 hours

**PHOTOGRAPHY BY:** George Mavris

**CAMERA:** iPhone 6

**PHOTOGRAPHY LOG SHEET**  
**Pownal Tannery Site • Pownal, Vermont**



**SCENE:** View of the monitoring wells MW-103U (left) and MW-103R (right), covered by a tent during purging and sampling, located at the Dean Road Landfill Area of the Pownal Tannery site. Photograph taken facing east.

**DATE:** 25 March 2016

**TIME:** 1018 hours

**PHOTOGRAPHY BY:** George Mavris

**CAMERA:** iPhone 6



**SCENE:** View of monitoring well MW-101U located at the Dean Road Landfill Area of the Pownal Tannery site. Note well does not contain cap for metal casing. Photograph taken facing northeast.

**DATE:** 25 March 2016

**TIME:** 1331 hours

**PHOTOGRAPHY BY:** Bill Mahany

**CAMERA:** iPhone 6

**PHOTOGRAPHY LOG SHEET**  
**Pownal Tannery Site • Pownal, Vermont**



**SCENE:** View of the monitoring well MW-102U. MW-102U is the most upgradient well sampled at the Dean Road Landfill Area of the Pownal Tannery site. Photograph taken facing northeast.

**DATE:** 25 March 2016

**TIME:** 1334 hours

**PHOTOGRAPHY BY:** George Mavris

**CAMERA:** iPhone 6



**SCENE:** View of the monitoring well MW-L-7 located at the Lagoon Area of the Pownal Tannery site. Photograph taken facing northeast.

**DATE:** 21 April 2016

**TIME:** 1021 hours

**PHOTOGRAPHY BY:** Chris Dupree

**CAMERA:** iPhone 6

**PHOTOGRAPHY LOG SHEET**  
**Pownal Tannery Site • Pownal, Vermont**



**SCENE:** View of the monitoring well MW-L-9 located at the Lagoon Area of the Pownal Tannery site.  
Photograph taken facing north.

**DATE:** 21 April 2016

**PHOTOGRAPHY BY:** Andrew Danikas

**TIME:** 1102 hours

**CAMERA:** iPhone 6

Attachment D

Chain-of-Custody Records

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**START Region 1**

Weston Solutions Inc.  
 101 Billerica Drive  
 N. Billerica, MA 01862

**Case #: 0875F**

Site #: R01-160325TC  
 Lab Phone:  
 574-233-4777

**No: 1-032516-145850-0005**

DateShipped: 3/25/2016  
 Eurofins Eaton Analytical, Inc.  
 AirbillNo: 775963687921

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Container	Preservative	Lab QC	Sample_Remarks	Container_No
	D33741	GW-MW-101U	PFC - EPA 537	Water	3/25/2016	13:05	250 mL HDPE Bottle	Trizma	N		3
	D33742	GW-MW-503U	PFC - EPA 537	Water	3/25/2016	10:00	250 mL HDPE Bottle	Trizma	N		3
	D33743	TB-01	PFOA/PFOS	Water	3/24/2016		250 mL HDPE Bottle	Trizma	Y		1
	D33744	FTB-01	PFOA/PFOS	Water	3/24/2016	10:00	250 mL HDPE Bottle	Trizma	Y		1
	D33745	RB-01	PFOA/PFOS	Water	3/24/2016	18:30	250 mL HDPE Bottle	Trizma	Y		2
	D33746	SRS2188	PFOA/PFOS	Water	3/21/2016	13:30	1 mL ampule		Y		1
	D33747	GW-MW-102U	PFC - EPA 537	Water	3/25/2016	13:50	250 mL HDPE Bottle	Trizma	N		3
	D33748	GW-MW-103U	PFC - EPA 537	Water	3/25/2016	10:00	250 mL HDPE Bottle	Trizma	N		3
	D33749	GW-MW-L-10	PFC - EPA 537	Water	3/24/2016	18:40	250 mL HDPE Bottle	Trizma	N		3
	D33750	RB-02	PFOA/PFOS	Water	3/25/2016	15:00	250 mL HDPE Bottle	Trizma	Y		2
	D33751	GW-MW-103R	PFC - EPA 537	Water	3/25/2016	10:15	250 mL HDPE Bottle	Trizma	N		3

Special Instructions: Please contact John Burton @ John.Burton@westonsolutions.com, 1-978-552-2130 with 7 day verbal results. Reporting limit: PFBS = 0.02 ug/L, PFHpA = 0.02 ug/L, PFHxS = 0.02 ug/L PFOA = 0.02 ug/L, PFNA = 0.02 ug/L, PFOS = 0.02 ug/L	<b>SAMPLES TRANSFERRED FROM</b>
	<b>CHAIN OF CUSTODY #</b>

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

**START Region 1**

Weston Solutions Inc.  
 101 Billerica Drive  
 N. Billerica, MA 01862

**Case #: 0875F**

Site #: R01-160325TC  
 Lab Phone:  
 574-233-4777

**No: 1-032516-145850-0005**

DateShipped: 3/25/2016  
 Eurofins Eaton Analytical, Inc.  
 AirbillNo: 775963687921

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Container	Preservative	Lab QC	Sample_Remarks	Container_No
	D33752	GW-MW-107R	PFC - EPA 537	Water	3/24/2016	17:55	250 mL HDPE Bottle	Trizma	Y	MS/MSD	9
	D33753	GW-MW-203	PFC - EPA 537	Water	3/24/2016	17:10	250 mL HDPE Bottle	Trizma	N		3
	D33754	GW-MW-107U	PFC - EPA 537	Water	3/24/2016	16:35	250 mL HDPE Bottle	Trizma	N		3
	D33755	FTB-02	PFOA/PFOS	Water	3/25/2016	09:00	250 mL HDPE Bottle	Trizma	Y		1

Special Instructions: Please contact John Burton @ John.Burton@westonsolutions.com, 1-978-552-2130 with 7 day verbal results. Reporting limit: PFBS = 0.02 ug/L, PFHpA = 0.02 ug/L, PFHxS = 0.02 ug/L PFOA = 0.02 ug/L, PFNA = 0.02 ug/L, PFOS = 0.02 ug/L	<b>SAMPLES TRANSFERRED FROM</b>
	<b>CHAIN OF CUSTODY #</b>

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

**START Region 1**

Weston Solutions Inc.  
101 Billerica Drive  
N. Billerica, MA 01862

**Case #: 0881F**

Site #: R01-160325TC  
Lab Phone:  
574-233-4777

**No: 1-042116-112808-0006**

DateShipped: 4/21/2016  
Eurofins Eaton Analytical, Inc.  
AirbillNo: 776160552404

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Container	Preservative	Lab QC	Sample_Remarks	Container_No
	D33808	GW-MW-L-7	PFC - EPA 537	Water	4/21/2016	09:45	250 mL HDPE Bottle	Trizma	Y	MS/MSD	9
	D33809	GW-MW-L-9	PFC - EPA 537	Water	4/21/2016	10:45	250 mL HDPE Bottle	Trizma	N		3
	D33810	GW-MW-L-900	PFC - EPA 537	Water	4/21/2016	10:45	250 mL HDPE Bottle	Trizma	N		3
	D33811	TB-02	PFOA/PFOS	Water	4/15/2016		250 mL HDPE Bottle	Trizma	N		1
	D33812	FTB-03	PFOA/PFOS	Water	4/21/2016	10:10	250 mL HDPE Bottle	Trizma	N		1
	D33813	SRS2182	PFOA/PFOS	Water	4/19/2016	07:00	1 mL ampule		N		1
	D33814	RB-03-TUB	PFOA/PFOS	Water	4/21/2016	11:15	250 mL HDPE Bottle	Trizma	N		2

Special Instructions: Please contact John Burton @ John.Burton@westonsolutions.com, 1-978-552-2130 with 14 day verbal results.

Reporting limit:

PFBS = 0.02 ug/L, PFHpA = 0.02 ug/L, PFHxS = 0.02 ug/L

PFOA = 0.02 ug/L, PFNA = 0.02 ug/L, PFOS = 0.02 ug/L

**SAMPLES TRANSFERRED FROM**

**CHAIN OF CUSTODY #**

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

**FINAL PRELIMINARY ASSESSMENT REPORT**  
**POWNAI SITE DISCOVERY – FORMER PLANT NO. 3**  
**POWNAI, BENNINGTON COUNTY, VERMONT**

PRELIMINARY ASSESSMENT  
Region I 8(a) Superfund Technical Assessment and Response Team

Prepared for:

U.S. Environmental Protection Agency  
Region I  
Office of Site Remediation and Restoration  
Boston, MA 02109-3912

EPA CONTRACT NO. EP-S1-11-03

Submitted by:

H&S/Nobis Environmental JV, LLC.  
160 East Main Street, Suite 2F  
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January 2017

H&S/Nobis Environmental, JV LLC  
Reviewed and Approved:



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Adam N. Roy, CHMM/HSNE-START  
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January 31, 2017

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Date



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Project Manager

January 31, 2017

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Date

## Table of Contents

1.0	INTRODUCTION .....	1
2.0	SITE DESCRIPTION .....	1
3.0	OWNERSHIP/OPERATIONAL/REGULATORY HISTORY & WASTE CHARACTERISTICS .....	4
4.0	GROUNDWATER MIGRATION PATHWAY .....	9
5.0	SURFACE WATER MIGRATION PATHWAY .....	13
6.0	SOIL EXPOSURE PATHWAY .....	13
7.0	AIR MIGRATION PATHWAY .....	15
8.0	SUMMARY & CONCLUSIONS .....	17
	FORMER PLANT NO. 3 PROPERTY REFERENCES .....	19

## LIST OF ATTACHMENTS

<u>Attachment ID No.</u>	<u>Title</u>
A	Potential Hazardous Waste Site Preliminary Assessment Form
B	Data Summary Tables
C	Boring Logs
D	Site Photographs

## LIST OF TABLES

<u>Table No.</u>	<u>Title</u>	<u>Page</u>
1	Summary of Ownership Records .....	4
2	Public Groundwater Supply Sources within 4-Radial Miles of Former Plant No. 3 .....	11
3	Estimated Drinking Water Populations Served by Groundwater Sources Within 4-Radial Miles of Former Plant No. 3 .....	12
4	August 2016 Groundwater Sample Analytical Results for the Former Plant No. 3 Property .....	12
5	August 2016 Surface Water Sample Analytical Results for Former Plant No. 3 Property .....	13
6	August 2016 Soil Sample Analytical Results for the for the Former Plant No. 3 Property .....	14
7	Estimated Population within 4-Radial Miles of the Former Plant No. 3 Property .....	15
8	Sensitive Environments Located Within 4-Radial Miles of the Former Plant No. 3 Property .....	16

## LIST OF FIGURES

<b><u>Figure No.</u></b>	<b><u>Title</u></b>	<b><u>Page</u></b>
1	Locus Map.....	2
2	Site Plan.....	3
3	Former Plant No. 3 1942.....	5
4	Former Plant No. 3 1951.....	6
5	Former Plant No. 3 1960.....	7
6	Former Plant No. 3 1972.....	8
7	Sample Locations.....	10

## 1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) requested that H&S/Nobis Environmental, JV LLC. (HSNE) perform a Site Discovery project to collect environmental samples at a property known as Plant No. 3 that is believed to have been associated with the Former Warren Wire facility also located in Pownal, Vermont. The Former Plant No. 3 is located along Center Street, south of the intersection with North Pownal Road in Pownal Center, Vermont (the Site). The results from the Site Discovery were used to develop this Preliminary Assessment (PA). This work was performed under Contract No. EP-S1-11-03. Tasks were conducted in accordance with the Site Discovery and PA scope of work provided by EPA. A Potential Hazardous Waste Site Preliminary Assessment Form is included as Attachment A.

Background information used in the generation of this report was obtained through desktop file searches, and conversations with persons knowledgeable of the Plant No. 3 property.

As part of the Site Discovery project, HSNE performed an environmental investigation at the Site that included the following activities:

- Advancement of soil borings and soil sample collection;
- Installation of temporary groundwater monitoring wells and groundwater sample collection; and
- Collection of surface water samples from on-site wetland areas.

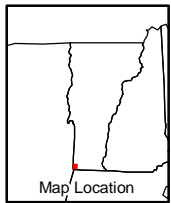
The environmental investigation was performed in accordance with the approved HSNE Field Task Work Plan (FTWP) dated October 27, 2016.

This report follows the guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA Region I regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other Federal, State, or local regulations. PAs are intended to provide a preliminary screening of sites to facilitate EPA Region I's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

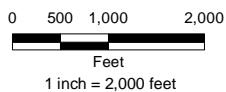
## 2.0 SITE DESCRIPTION

The Former Plant No. 3 property is an approximately 2.84-acre parcel located at the intersection of Center Street and North Pownal Road in Pownal, Vermont (Figure 1). The geographic coordinates for the approximate center of the property are 42° 47' 48" North latitude and 73° 13' 20" West longitude [1]. The Site is located in a mixed use residential and commercial area. The Site is bordered to the north by a mobile-home park, to the east by Route 7 with residential properties beyond, to the south by North Pownal Road with residential property and a fire department building beyond, and, to the west by Center Street with residential property beyond (Figure 2).

The property currently consists of an overgrown parcel containing a concrete building slab, open and unpaved areas, and vegetated areas. The topography of the investigation area slopes slightly down to the east/southeast towards a stand of on-site wetlands [11]. Based on observations made during HSNE investigations, the wetland areas do not appear to discharge to other surface water areas. Site photographs are included in Attachment D.



USGS 7.5' Topographic Map  
Pownal  
Revised 1992

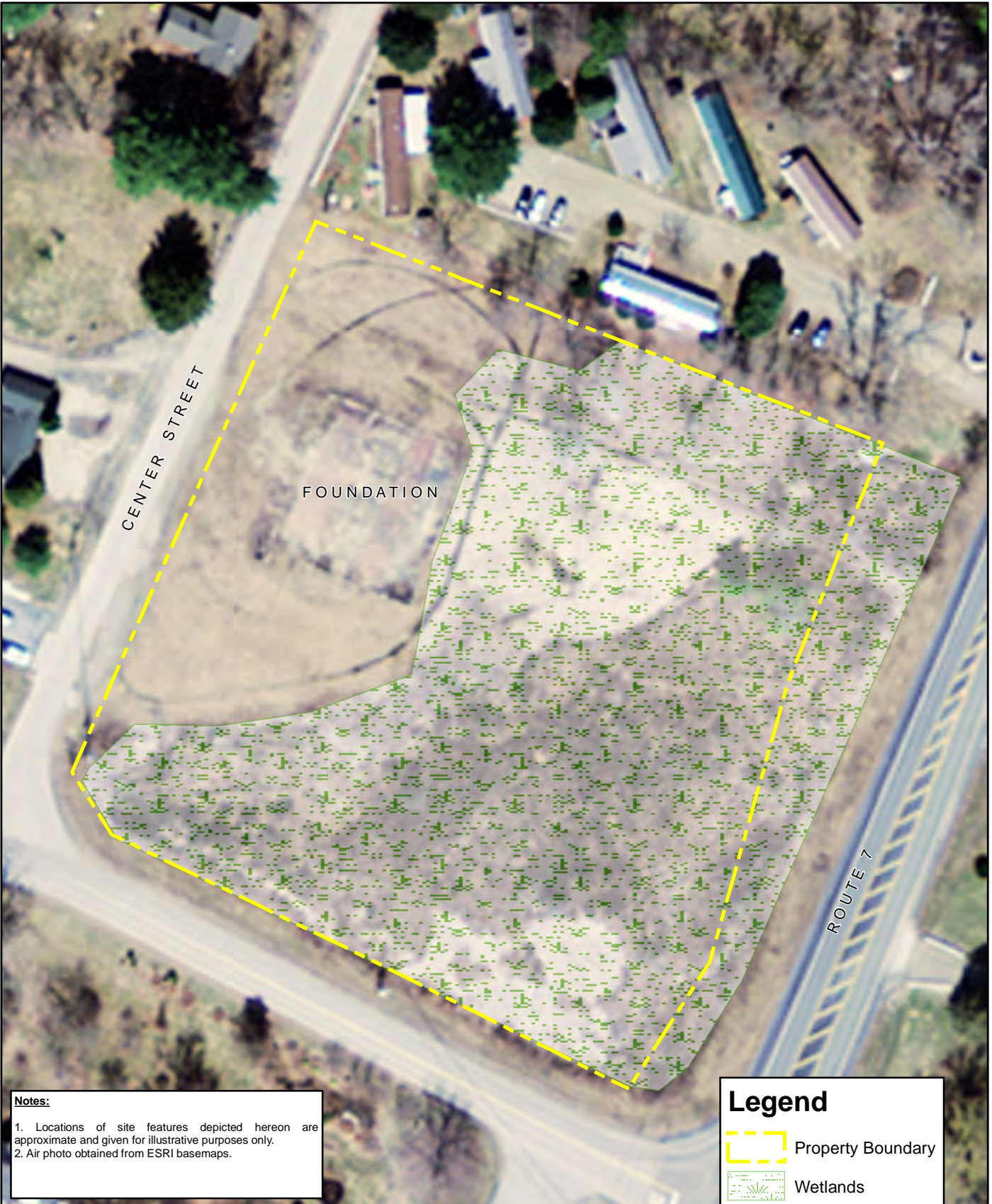


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**FIGURE 1**  
SITE LOCUS

**FORMER PLANT 3**  
**POWNAL, VERMONT**



PREPARED BY: ANR	REVIEWED BY: DFM
PROJECT NO. 87001.29	DATE: JUNE 2016



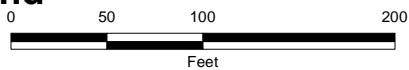
**Notes:**

1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.
2. Air photo obtained from ESRI basemaps.

**Legend**

-  Property Boundary
-  Wetlands

**Legend**



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**FIGURE 2**

**SITE PLAN - PLANT #3  
 POWNAL SITE DISCOVERY  
 POWNAL, VERMONT**

PREPARED BY: DFM	
PROJECT NO. 87001.29	DATE: JUNE 2016

### 3.0 OWNERSHIP/OPERATIONAL/REGULATORY HISTORY & WASTE CHARACTERISTICS

HSNE reviewed available deed records (1932 through 2015). A summary of ownership records available from the County of Bennington, Vermont Registry of Deeds is provided in Table 1 below.

**Table 1**

**Summary of Ownership Records**

Grantor	Grantee	Book/Page	Sale Date
Florence M. Wilson	Roy C. and Alice K. Lampman	132/45	03/17/1932
Roy C. and Alice K. Lampman	Clarence M. and Pauline H. Crosier	57/339	06/13/1950
Clarence M. and Pauline H. Crosier	Waldo C. Holden and Franklin P. Jones	58/344	12/13/1951
Waldo C. Holden and Franklin P. Jones	Pauline H. Crosier	58/345	01/08/1952
Pauline H. Crosier	Modern Anodizing Corporation	63/485	12/26/1963
Modern Anodizing Corporation	Edward and Sarah McKeeger	65/236	11/22/1966
Catamount National Bank	Charles W. and Mary Jane Rounds	73/201-208	09/02/1977
Mary J. Rounds	Glen Matunas	165/126	10/02/2015

[2]

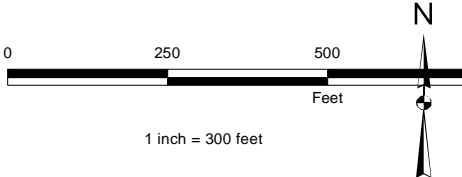
HSNE reviewed aerial photography of the Site dating from 1942, 1951, 1960, 1972, 1978, 1986, 1993, 2006, 2008, 2009, 2011, and 2012 [3]. Historical industrial fire insurance maps were not available for the Site or surrounding area. Based on review of aerial photography (Figures 3-6), initial development of the Former Plant No. 3 property occurred prior to 1942 (the earliest photo obtained). The nature of the development at that time cannot be discerned due to the low-resolution of the photo; however, it appears that the property contains a structure of some kind. The 1951 aerial photograph depicts an on-site structure more clearly, and property development continued through 1960 with several building additions and other out-structures present. Between 1960 and 1972 aerial photographs (Figures 5 and 6, respectively), the on-site building was demolished, leaving a concrete pad (which still remains). The property remains little-changed from the 1972 aerial photograph.

Anecdotal evidence indicates that the Former Warren Wire company (also located in Pownal) may have used the Former Plant No. 3 property for an unknown purpose; however, the aerial photographs are not conclusive. The Former Warren Wire facility located in Pownal was not constructed until 1948, at which time the property was owned by Mr. and Mrs. Lampman. Based on a review of the property deeds, the Former Warren Wire company does not appear to be a current or former property owner [2].



**Notes:**  
 1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.  
 2. 1942 air photo obtained from Environmental Data Resources from a 9/1/1942 USGS flight.

**Legend**



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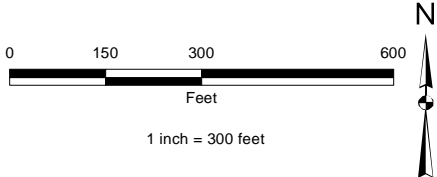
<b>FIGURE 3</b>	
<b>FORMER PLANT No. 3 - 1942 POWNAL SITE DISCOVERY POWNAL, VERMONT</b>	
PREPARED BY: DFM	
PROJECT NO. 87001.29	DATE: MARCH 2016



**Notes:**

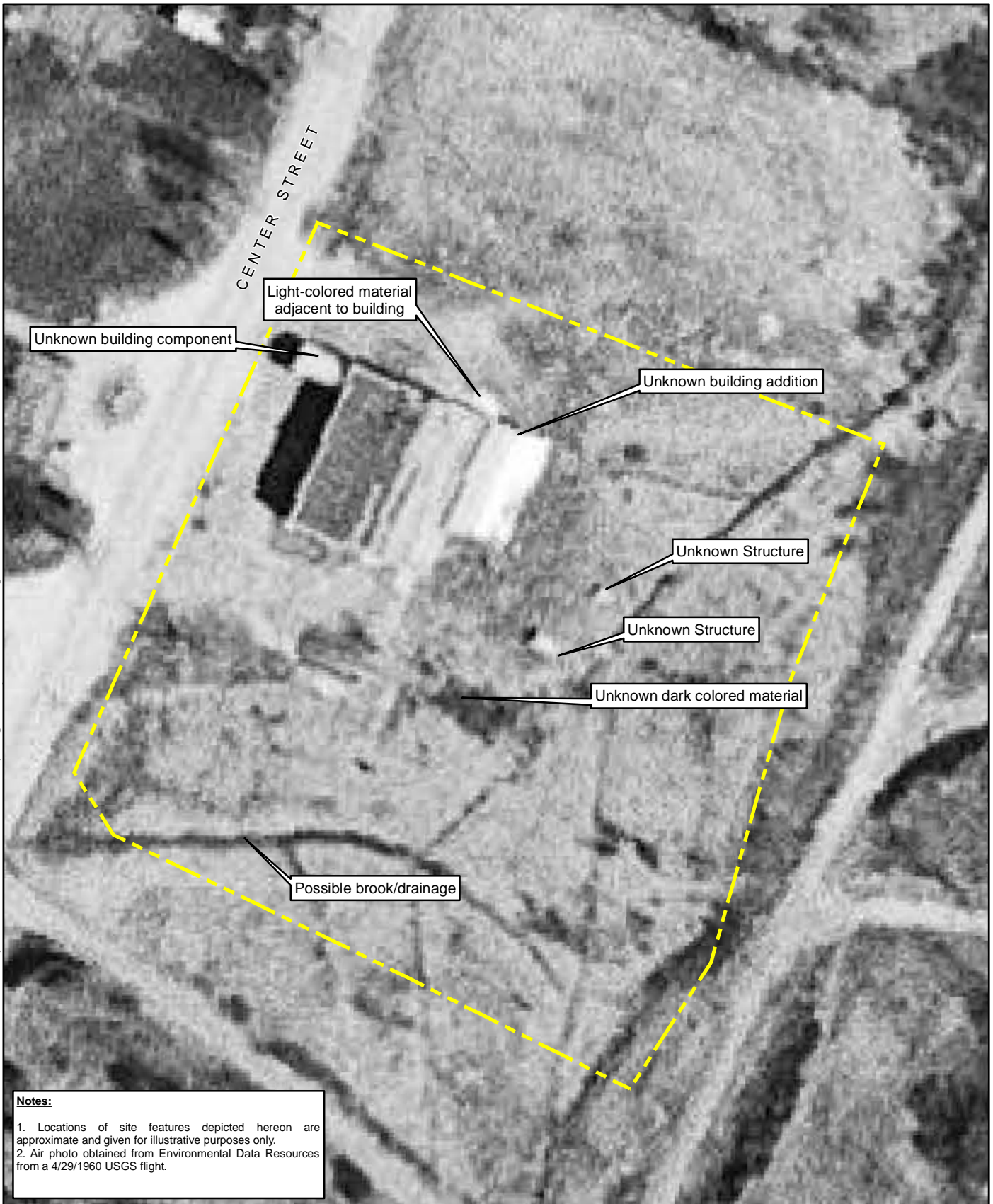
1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.
2. Air photo obtained from Environmental Data Resources

**Legend**



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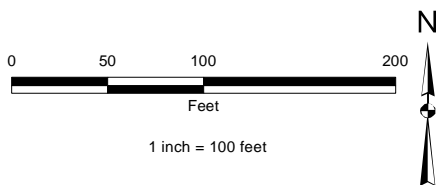
<b>FIGURE 4</b>	
<b>FORMER PLANT No. 3 - 1951 POWNAL SITE DISCOVERY POWNAL, VERMONT</b>	
PREPARED BY: DFM	
PROJECT NO. 87001.29	DATE: MARCH 2016



**Notes:**

1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.
2. Air photo obtained from Environmental Data Resources from a 4/29/1960 USGS flight.

**Legend**



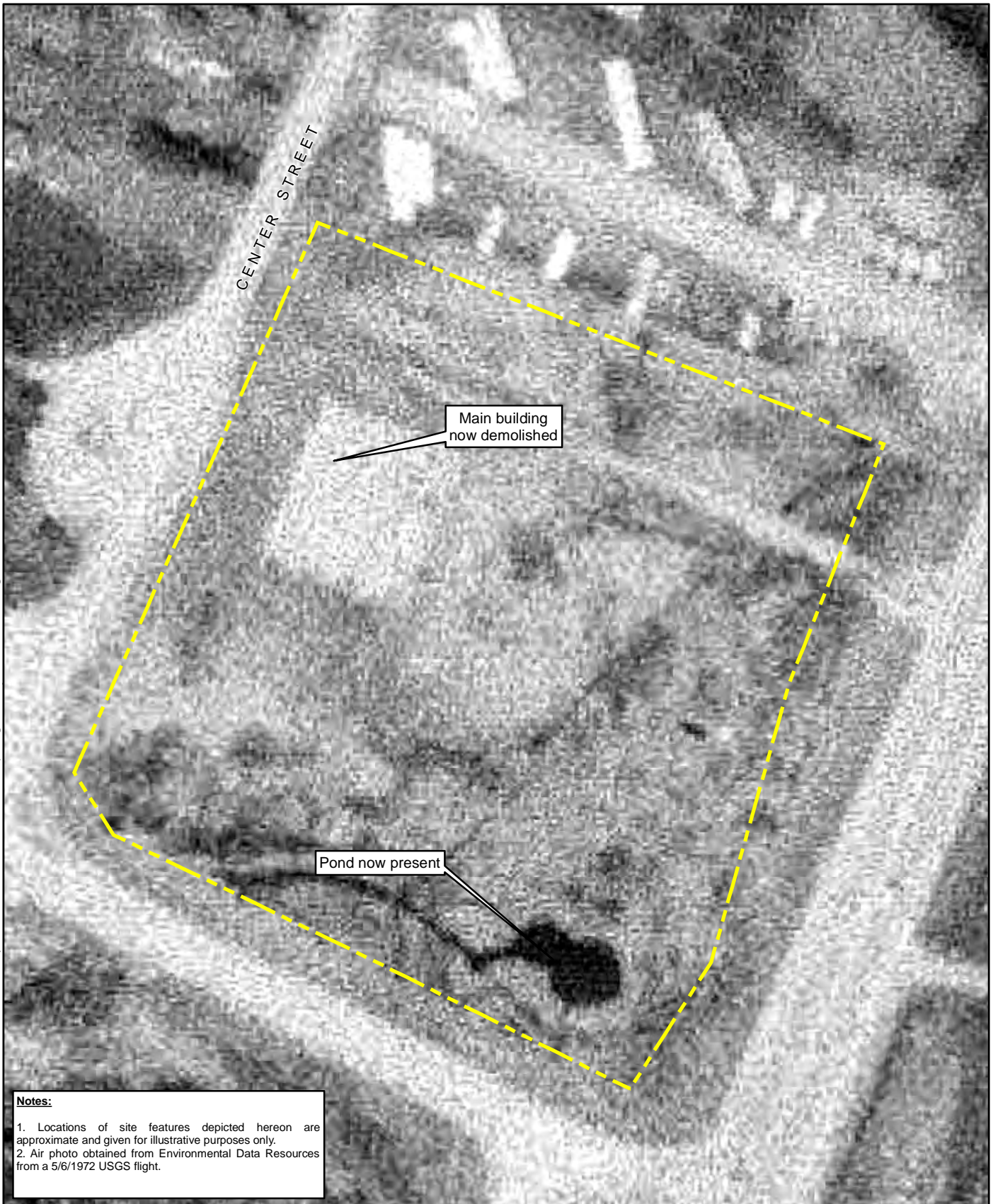
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**FIGURE 5**

**FORMER PLANT No. 3 - 1960  
 POWNAL SITE DISCOVERY  
 POWNAL, VERMONT**

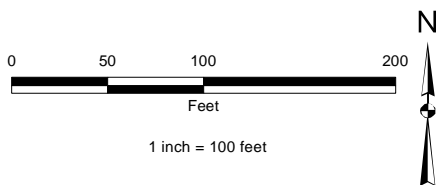
PREPARED BY: DFM	
PROJECT NO. 87001.29	DATE: MARCH 2016



**Notes:**

- 1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.
- 2. Air photo obtained from Environmental Data Resources from a 5/6/1972 USGS flight.

**Legend**



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<b>FIGURE 6</b>	
<b>FORMER PLANT No. 3 - 1972 POWNAL SITE DISCOVERY POWNAL, VERMONT</b>	
PREPARED BY: DFM	
PROJECT NO. 87001.29	DATE: MARCH 2016

EPA performed this PA investigation in response to detections of per- and polyfluoroalkyl substances (PFASs), specifically perfluoroheptanoic acid (PFHpA) and perfluorooctanoic acid (PFOA), in a public water supply well located in Pownal, Vermont. Additionally, subsequent investigations performed on the Former Warren Wire facility have also reported detections of PFASs including PFOA, and perfluorooctane sulfonate (PFOS). PFASs are diverse compounds that are resistant to heat, water, and oils. They have been used in numerous industrial and consumer applications for decades in carpeting, apparels, upholstery, firefighting foams, metal plating, wire coatings and insulations.

Prior to HSNE sampling activities, no environmental investigations had been performed at the Site.

#### **4.0 GROUNDWATER MIGRATION PATHWAY**

Soil borings performed by HSNE indicate that the Site is underlain by approximately 10 to 15 feet of fine sand and silt that is underlain by dense glacial till. Soil boring logs are included in Attachment C. Bedrock was not encountered during HSNE investigations; however, according to the Bedrock Geologic Map of Vermont (2011), bedrock underlying the property consists of predominantly greenish-gray to pale-lustrous-green chlorite-muscovite-quartz phyllite; and green and purple, bedded and mottled phyllite. Local formations may contain boudins and thin beds of limestone, pods of pinkish-gray to cream-white dolostone, and minor quartzite [4]. Soil borings and temporary monitoring well locations are shown on Figure 7.

Based on observations made by HSNE during subsurface investigations, depth to groundwater across the property was observed at depths ranging from 2 to 5 feet below ground surface (bgs). Groundwater elevation data and groundwater flow direction were not specifically determined during HSNE investigations. However, based on the regional topography of the area, shallow overburden groundwater flow direction is likely to be to the east/northeast towards Jewett Brook [5].

Portions of the following Vermont and New York municipalities are located within 4-radial miles of the Site: Bennington and Williamstown, Vermont, Hoosic and Petersburg, New York [5].






**Notes:**

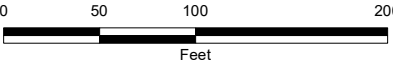
1. Locations of site features depicted hereon are approximate and given for illustrative purposes only.
2. Air photo obtained from ESRI basemaps.

**Legend**


Type

-  Soil Boring
-  Soil Boring/Temp. Well
-  Surface Water Sample

**Legend**



1 inch = 100 feet




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**FIGURE 7**

**HSNE SAMPLE LOCATIONS  
 FORMER PLANT No. 3  
 POWNAL SITE DISCOVERY  
 POWNAL, VERMONT**

PREPARED BY: DFM	
PROJECT NO. 87001.29	DATE: DECEMBER 2016

Table 2 summarizes the public groundwater supply sources within 4-radial miles of the Site.

**Table 2**  
**Public Groundwater Supply Sources**  
**Within 4-Radial Miles of the Former Plant No. 3 Property**

Distance (miles)/ Direction from Site	Source Name/Type <sup>a</sup>	Estimated Population Served	Source Type <sup>b</sup>
0.25-0.5/North-Northeast	Pownal Elementary School/NTNC	368	Unknown
0.25-0.5/ North-Northeast	Oak Hill Children's Center/Pownal Preschool/NTNC	40	Unknown
0.5-1/South-Southwest	Lapman Water System/C	133	Unknown
1-2/North	Royal Pine Villa/C	200	Unknown
1-2/East-Southeast	Pine Hollow Campground/NC	200	Unknown
1-2/West-Northwest	Pownal Fire District 2/C	400	Overburden
2-3/South	Americas Best Value Inn/NC	101	Unknown
2-3/South	Alta Gardens Estates/C	147	Unknown
2-3/South	American Legion Post 90/NC	201	Unknown
3-4/South	Evergreen MHP/C	50	Unknown

Notes:

<sup>a</sup> Type: non-transient/non-community (NTNC), community (C), and non-community (NC).

<sup>b</sup> Overburden, Bedrock, or Unknown.

[6,7]

U.S. Census data for 1990 and 2000 and private water usage data for 1990 (based on data collected at the time of the 1990 U.S. Census) was provided by the EPA New England GIS Center. Populations were calculated for the following radial distance rings: 0 to 0.25 miles, 0.25 to 0.5 miles, 0.5 to 1.0 miles, 1.0 to 2.0 miles, 2.0 to 3.0 miles and 3.0 to 4.0 miles. Since private water usage data was not provided as part of the 2010 Census, as directed by the EPA Region 1 Site Assessment Manager, private water populations for the 2010 U.S. Census were calculated by determining the percentage of the population on private water in 1990 and then applying these percentages to the 2010 population data [6,7].

According to the information available through the Vermont Agency of Natural Resources, Natural Resources Atlas [8], properties abutting the Site have private drinking water wells. State records suggest that a drinking water well exists on-site; however, the well was not observed by HSNE personnel during the on-site reconnaissance. Additionally, the property owner stated that he was not aware of a drinking water well on the property. Drinking water to most of the surrounding properties is provided by private drinking water wells.

Table 3 summarizes the estimated drinking water population served by groundwater sources within a 4-mile radius of the Site.

**Table 3**

**Estimated Drinking Water Populations Served by Groundwater Sources  
Within 4-Radial Miles of the Former Plant No. 3 Property**

Radial Distance from Former Plant No. 3 (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources Within the Ring
≥ 0.00 to 0.25	58	0	58
> 0.25 to 0.50	86	408	494
> 0.50 to 1.00	246	133	379
> 1.00 to 2.00	813	600	1,413
> 2.00 to 3.00	820	147	967
> 3.00 to 4.00	407	50	457
<b>TOTAL</b>	<b>2,430</b>	<b>1,338</b>	<b>3,768</b>

[6,7]

HSNE collected groundwater samples from the five temporary monitoring wells (Figure 7), and submitted the samples for PFAS analyses [9]. Although no background samples were collected in association with these groundwater samples, the monitoring well SB/MW-01 is the most upgradient of the monitoring wells sampled. Table 4 provides a summary of the analytical results for groundwater samples collected by HSNE in August 2016.

**Table 4**

**August 2016 Groundwater Sample Analytical Results for Former Plant No. 3 Property**

Monitoring Well	Perfluorooctanoic acid (PFOA) (ng/L)
SB/MW-01 <sup>1</sup>	4.5J/4.6J
SB/MW-02	14J
SB/MW-03	320J
SB/MW-04	130J
SB/MW-05	56J

Notes:

1. A field duplicate was collected at this location.

ng/L – nanograms per liter

J – Estimated concentration

[10]

PFOA was detected in each of the groundwater samples collected from the Former Plant No. 3 property. In May 2016, EPA established a drinking water health advisory of 70 ng/L for combined concentrations of PFOA and PFOS. The PFOA concentrations detected at SB/MW-03, SB/MW-04 and SB/MW-05 exceed the EPA health advisory level. No other PFASs were detected above reporting limits in the groundwater samples. Data summary tables presenting the complete list of analytes are included in Attachment B.

These results indicate that PFOA was detected in the Groundwater Pathway. Several private drinking water supplies are located in the area proximal to the Former Plant No. 3 property. The Vermont Department of Environmental Conservation (DEC) has performed sampling of private drinking water wells in the town of Pownal. However, the locations of the wells sampled are not in the immediate vicinity of the Former Plant No. 3 property.

## 5.0 SURFACE WATER MIGRATION PATHWAY

Surface topography at the Site slopes slightly downward to the east/southeast towards the on-site wetlands. A culvert located in the southwest corner of the Site directs storm water run-off from North Pownal Road to the on-site wetlands. Based on HSNE observations during field sampling activities, the wetlands do not discharge to other surface water bodies [11]. Therefore, a Probable Point of Entry (PPE) to a downstream surface water pathway has not been established. Due to a lack of a connection to downstream surface water bodies, HSNE assumes that the surface water pathway target distance limit is limited to the on-site wetland area.

HSNE collected surface water samples from the on-site wetland areas located in the eastern and southern portion of the Site. HSNE submitted these samples for PFAS analyses [9]. No background samples were collected in association with these surface water samples. Table 5 provides a summary of the analytical results for surface water samples collected by HSNE in August 2016.

**Table 5**

### **August 2016 Surface Water Sample Analytical Results for Former Plant No. 3**

Surface Water Sample	PFOA (ng/L)
SW-01 <sup>1</sup>	27J/28J
SW-02	6.0J
SW-03	3.5J

Notes:

1. A field duplicate was collected at this location.

ng/L – nanograms per liter

J – Estimated concentration

PFOA - Perfluorooctanoic acid

[10]

PFOA was detected in each of the surface water samples collected from the Former Plant No. 3 property. The PFOA concentrations detected in surface water samples do not exceed EPA drinking water health advisory concentration. No surface water screening concentrations have been developed for comparison. These results indicate that PFOA was detected in the Surface Water Pathway. No other PFASs were detected above reporting limits in the surface water samples. Data summary tables presenting the complete list of analytes are included in Attachment B.

## 6.0 SOIL EXPOSURE PATHWAY

No structures are present on the Former Plant No. 3 property, and therefore, no residences are currently present [11]. Additionally, no full-time workers are present on the property. An estimated 594 people live within 1-radial mile of the Former Plant No. 3 property [6]. Based on site

observations made during HSNE investigations, vehicular and pedestrian access to the property is unrestricted.

In August 2016, HSNE advanced eight soil borings, and collected 16 soil samples (including field quality control samples) from the Former Plant No. 3 property. Of these soil samples, eight were collected within the top 2 feet of soil, and are considered available to the Soil Exposure Pathway. Additionally, no background sample was collected in association with these soil samples. The soil samples were submitted for fixed laboratory PFC analysis [9].

The detected substances from the August 2016 HSNE soil sampling are summarized in Table 6. Data summary tables presenting the complete list of analytes are included in Attachment B.

**Table 6**

**August 2016 Soil Sample Analytical Results for the Former Plant No. 3 Property**

Soil Boring	Sample Interval Depth (ft below grade)	PFOA (µg/kg)	PFDA (µg/kg)	PFHxA (µg/kg)
EPA R4 Soil Screening Concentrations	--	16,000	NA	NA
SB/MW-01	0-2 <sup>1</sup>	<0.9/<1	<0.9/<1	<0.9/1
	3-5	<1.2	<1.2	<1.2
	6-9	<1.2	<1.2	<1.2
SB/MW-02	0-2	<1.1	<1.1	<1.1
	5-7	<1.2	<1.2	<1.2
SB/MW-03	0-2	3.4	3.2	<1
	5-7	<1.3	<1.3	<1.3
SB/MW-04	0-2	22	<1.6	<1.6
	3-5	<1.1	<1.1	<1.1
SB/MW-05	0-2	<1.1	<1.1	<1.3
	3-5	<1.1	<1.1	<1.1
SB-01	0-2	<1	<1	<1
	3-5	<1	<1	1.6
SB-02	0-2	<1.3	<1.3	<1.3
	3-5	<1.2	<1.2	<1.2
SB-03	0-2	2.9	1.8	<1.1
	5-7	<1.2	<1.2	<1.2

Notes:

EPA R4 Soil Screening Concentrations – Derived from the EPA Region 4 Soil Screening Levels for PFOA and PFOS for the Residential use scenario.

1 – A field duplicate was collected at this location

< - indicates that the substance was not detected at or above the stated reporting limit

µg/kg – micrograms per kilogram

PFOA - Perfluorooctanoic Acid

PFDA - Perfluorodecanoic Acid

PFHxA - Perfluorohexanoic Acid

NA – No screening values are available.

[10]

Based on surface soil sample results, concentrations of PFOA and Perfluorodecanoic Acid (PFDA) were detected surface soil samples, and are therefore considered detections in the Soil Exposure Pathway. The PFOA detections do not exceed residential screening concentrations calculated by

EPA Region 4. Perfluorohexanoic Acid (PFHxA) was detected in a soil samples collected from between 3 and 5 feet below grade, and is not therefore considered a detection within the Soil Exposure Pathway. No soil screening concentration is available for PFHxA. Each of the PFOA and PFDA detections were reported within the top 2 feet below grade. No PFOA detected were reported in subsurface soil samples collected as part of this investigation [10].

## 7.0 AIR MIGRATION PATHWAY

No on-site workers or residents are present on the Former Plant No. 3 property. The nearest school is the Pownal Elementary School and is located approximately 0.3 mile to the northeast of the Former Plant No. 3 property.

Table 7 summarizes the estimated population within 4-radial miles of the Former Plant No. 3 property.

**Table 7**

### **Estimated Population within 4-Radial Miles of Former Plant No. 3 Property**

Radial Distance from the Former Plant No. 3 (miles)	Estimated Population
On Site	0
> 0.00 to 0.25	96
> 0.25 to 0.50	133
> 0.50 to 1.00	356
> 1.00 to 2.00	1,172
> 2.00 to 3.00	1,374
> 3.00 to 4.00	678
<b>TOTAL</b>	<b>3,809</b>

[6]

Table 8 summarizes the sensitive environments located within 4-radial miles of the Former Plant No. 3 property.

**Table 8**

**Sensitive Environments Located Within 4-Radial Miles of Former Plant No. 3 Property**

Radial Distance from the Former Plant No. 3	Sensitive Environment
On a source	Wetlands
> 0.00 to 0.25	Wetlands
> 0.25 to 0.50	Wetlands
	Habitat Known to be Used by State-Designated Rare Species
> 0.50 to 1.00	Habitat Known to be Inhabited by State-Designated Uncommon Species (plant and animal)
	Wetlands
> 1.00 to 2.00	Habitat Known to be Inhabited by State-Designated Threatened or Endangered Species
	Habitat Known to be Used by State-Designated Rare Species
	Habitat Known to be Inhabited by State-Designated Uncommon Species (plant and animal)
	Vernal pools
	Wetlands
> 2.00 to 3.00	Habitat Known to be Inhabited by State-Designated Threatened or Endangered Species
	Habitat Known to be Used by State-Designated Rare Species
	Habitat Known to be Inhabited by State-Designated Uncommon Species (plant and animal)
	Vernal pools
	Wetlands
> 3.00 to 4.00	Habitat Known to be Inhabited by State-Designated Threatened or Endangered Species
	Habitat Known to be Used by State-Designated Rare Species
	Habitat Known to be Inhabited by State-Designated Uncommon Species (plant and animal)
	Vernal pools
	Wetlands

[8]

To date, there have been no air investigations performed at the Former Plant No. 3 property.

## 8.0 SUMMARY & CONCLUSIONS

The U.S. EPA requested that HSNE perform a Site Discovery project collect environmental samples at a property known as Plant No. 3 that is believed to be associated with the Former Warren Wire facility also located in Pownal, Vermont. The Former Plant No. 3 is located along Center Street, south of the intersection with North Pownal Road in Pownal Center, Vermont. The Former Plant No. 3 property is an approximately 2.84-acre parcel and is located in a mixed use residential and commercial area. The property is bordered to the east and west by residential properties, to the south by residential properties and a fire department building, and the north by residential properties beyond which lie commercial properties.

The property currently consists of a concrete building slab, unpaved areas, and vegetated areas. The topography of the investigation area slopes slightly down to the east/southeast towards on-site wetland areas. Based on observations made during HSNE investigations, the wetland areas do not discharge to other surface water areas.

Anecdotal evidence indicates that the Former Warren Wire company (also located in Pownal Vermont) may have used the Former Plant No. 3 property for an unknown purpose; however, the aerial photographs are not conclusive. The Former Warren Wire facility located in Pownal was not constructed until 1948, at which time the property was owned by Mr. and Mrs. Lampman. Based on a review of the property deeds, the Former Warren Wire company does not appear to be a current or former property owner.

This work was performed in response to detections of PFASs, specifically PFHpA and PFOA, in a public water supply well located in Pownal, Vermont. Additionally, subsequent investigations performed on the Former Warren Wire facility have also reported detections of PFASs including PFOA, and PFOS.

As part of the Site Discovery project, HSNE performed an environmental investigation at the Former Plant that included the following activities:

- Advancement of soil borings and soil sample collection;
- Installation of temporary groundwater monitoring wells and groundwater sample collection; and
- Collection of surface water samples from on-site wetland areas.

PFOA was detected in each of the groundwater samples collected from the Former Plant No. 3 property. The PFOA concentrations detected at SB/MW-03, SB/MW-04 and SB/MW-05 exceed the EPA drinking water health advisory concentration of 70 ng/L. These results indicate that PFOA was detected in the Groundwater Pathway.

PFOA was detected in each of the surface water samples collected from the Former Plant No. 3 property. The PFOA concentrations detected do not exceed the EPA drinking water health advisory concentration. However, these results indicate that PFOA was detected in the Surface Water Pathway.

Based on surface soil sample results, concentrations of PFOA and PFDA were detected in the Soil Exposure Pathway. PFHxA was detected in a subsurface soil sample. The PFOA detections were not in excess of the EPA Region 4 soil screening concentration for residential land use.

No on-site workers or residents are present on the Former Plant No. 3 property. The nearest school is the Pownal Elementary School and is located approximately 0.3 mile to the northeast of the Former Plant No. 3 property. To date, there have been no air investigations performed at the Former Plant No. 3 property.

### FORMER PLANT NO. 3 PROPERTY REFERENCES

- [1] Latitude and Longitude for Blake Lane property. Available at <https://www.google.com/maps>. Accessed on November 30, 2016.
- [2] Bennington County, Vermont Registry of Deeds. Book 135, Page 35; Book 57, Page 339; Book 58, Page 344; Book 58 Page 345; Book 63k, Page 485; Book 65, Page 236; Book 73, Pages 201-208; and Book 165; 126.
- [3] The EDR Aerial Photo Decade Package. Pownal Site Discovery, Inquiry Number 455727.4. March 29, 2016.
- [4] Ratcliffe, N.M., Stanley, R.S., Gale, M.H., Thompson, P.J., and Walsh, G.J.. 2011. Bedrock geologic map of Vermont: U.S. Geological Survey Scientific Investigations Map 3184, 3 sheets, scale 1:100,000. Available from [http://www.anr.state.vt.us/dec/geo/images/BedrockMapVermontSIM3184/SIM3184\\_3%20front\\_77%20x%2054%20artboard.pdf](http://www.anr.state.vt.us/dec/geo/images/BedrockMapVermontSIM3184/SIM3184_3%20front_77%20x%2054%20artboard.pdf). Internet accessed on November 3, 2016.
- [5] United State Geological Survey, 7.5' Topographical Map, Pownal, Revised 1992.
- [6] EPA. Population by Radius on Wells (1990 Census). Dated October 3, 2016.
- [7] Memorandum within H&S/Nobis Environmental JV, LLC. Re: Drinking Water Supply Technical Memorandum. Dated October 26, 2016.
- [8] Vermont Agency of Natural Resources. 2016. Vermont Natural Resources Atlas. Available from <http://anrmaps.vermont.gov/websites/anra/>. Internet accessed October 26, 2016.
- [9] H&S/Nobis Environmental JV, LLC 2016. Site Assessment Program Field Task Work Plan for Soil and Groundwater Sampling, Blake Lane Property, Hampton, New Hampshire. July 26.
- [10] Nobis Engineering, Inc. 2016. TDD No. SA-01-16-03-0002; Case No. S017. Tier 1 Plus Modified Organic Data Review. October 25.
- [11] Woodland Services 2016. Site Plan, Lands of Glen Matunas. January.

**ATTACHMENT A**

**FORMER PLANT NO. 3 PROPERTY**

**POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT FORM**



# Potential Hazardous Waste Site Preliminary Assessment Form

## Identification

State: VT CERCLIS Number:  
 CERCLIS Discovery Date: NA

### 1. General Site Information

Name: Former Plant No. 3		Street Address: Center Street			
City: Pownal		State: Vermont	Zip Code: 05261	County: Bennington	Cong. Dist.:
Latitude: 42° 47' 48" N	Longitude: 73° 13' 20" W	Approximate Area of Site: 2.84 Acres Square Feet		Status of Site: <input type="checkbox"/> Active <input type="checkbox"/> Not Specified <input checked="" type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	

### 2. Owner/Operator Information

Owner: Glen Matunas			Operator: None		
Street Address: 183 Blueberry Hill			Street Address:		
City: Shaftsbury			City:		
State: Vermont	Zip Code: 05262	Telephone: ( )	State:	Zip Code:	Telephone: ( ) -
Type of Ownership: <input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> Federal Agency <input type="checkbox"/> Municipal Name: <input type="checkbox"/> Not Specified <input type="checkbox"/> State <input type="checkbox"/> Other: <input type="checkbox"/> Native American			How Initially Identified: <input type="checkbox"/> Citizen Complaint <input type="checkbox"/> Federal Program <input type="checkbox"/> PA Petition <input type="checkbox"/> Incidental <input checked="" type="checkbox"/> State/Local Program <input type="checkbox"/> Not Specified <input type="checkbox"/> RCRA/CERCLA Notification <input type="checkbox"/> Other:		

### 3. Site Evaluator Information

Name of Evaluator: Adam Roy	Agency/Organization: H&S/Nobis Environmental JV, LLC	Date Prepared: December 12, 2016
Street Address: 160 East Main Street, Suite 2F		City: Westborough
Name of EPA or State Agency Contact: Martha Bosworth, EPA Region I Site Assessment Manager		State: MA
City: Boston		Zip Code: 01581
Street Address: 5 Post Office Square, Suite 100		Telephone: (617)918-1407

### 4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: <input type="checkbox"/> Yes <input type="checkbox"/> No Date:	CERCLIS Recommendation: <input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRAP <input type="checkbox"/> RCRA <input type="checkbox"/> Other: Date:	Signature: Name (typed): Position:
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**Potential Hazardous Waste Site Preliminary Assessment Form – Page 2 of 4**

CERCLIS Number:

**5. General Site Characteristics**

<p>Predominant Land Uses Within 1 Mile of Site (check all that apply):</p> <p> <input type="checkbox"/> Industrial    <input checked="" type="checkbox"/> Agricultural    <input type="checkbox"/> DOI  <input checked="" type="checkbox"/> Commercial    <input type="checkbox"/> Mining    <input type="checkbox"/> Other Federal Facility:  <input checked="" type="checkbox"/> Residential    <input type="checkbox"/> DOD  <input checked="" type="checkbox"/> Forest/Fields    <input type="checkbox"/> DOE    <input type="checkbox"/> Other:         </p>	<p>Site Setting:</p> <p> <input type="checkbox"/> Urban  <input type="checkbox"/> Suburban  <input checked="" type="checkbox"/> Rural         </p>	<p>Years of Operation:</p> <p>Beginning Year: Ending Year:</p> <p><input checked="" type="checkbox"/> Unknown</p>																																			
<p>Type of Site Operation (check all that apply):</p> <p> <input type="checkbox"/> Manufacturing (must check subcategory)           <table style="display: inline-table; vertical-align: top; margin-left: 20px;"> <tr> <td><input type="checkbox"/> Lumber and Wood Products</td> <td><input type="checkbox"/> Retail</td> </tr> <tr> <td><input type="checkbox"/> Inorganic Chemicals</td> <td><input type="checkbox"/> Recycling</td> </tr> <tr> <td><input type="checkbox"/> Plastic and/or Rubber Products</td> <td><input type="checkbox"/> Junk/Salvage Yard</td> </tr> <tr> <td><input type="checkbox"/> Paints, Varnishes</td> <td><input type="checkbox"/> Municipal Landfill</td> </tr> <tr> <td><input type="checkbox"/> Industrial Organic Chemicals</td> <td><input type="checkbox"/> Other Landfill</td> </tr> <tr> <td><input type="checkbox"/> Agricultural Chemicals (e.g., pesticides, fertilizers)</td> <td><input type="checkbox"/> DOD</td> </tr> <tr> <td><input type="checkbox"/> Miscellaneous Chemical Products (e.g., adhesives, explosives, ink)</td> <td><input type="checkbox"/> DOE</td> </tr> <tr> <td><input type="checkbox"/> Primary Metals</td> <td><input type="checkbox"/> DOI</td> </tr> <tr> <td><input type="checkbox"/> Metal Coating, Plating, Engraving</td> <td><input type="checkbox"/> Other Federal Facility:</td> </tr> <tr> <td><input type="checkbox"/> Metal Forging, Stamping</td> <td><input type="checkbox"/> RCRA</td> </tr> <tr> <td><input type="checkbox"/> Fabricated Structural Metal Products</td> <td><input type="checkbox"/> Treatment, Storage, or Disposal</td> </tr> <tr> <td><input type="checkbox"/> Electronics Equipment</td> <td><input type="checkbox"/> Large Quantity Generator</td> </tr> <tr> <td><input type="checkbox"/> Other Manufacturing</td> <td><input type="checkbox"/> Small Quantity Generator</td> </tr> </table> <p> <input type="checkbox"/> Mining           <table style="display: inline-table; vertical-align: top; margin-left: 20px;"> <tr> <td><input type="checkbox"/> Metals</td> <td><input type="checkbox"/> "Converter"</td> </tr> <tr> <td><input type="checkbox"/> Coal</td> <td><input type="checkbox"/> "Protective Filer"</td> </tr> <tr> <td><input type="checkbox"/> Oil and Gas</td> <td><input type="checkbox"/> "Non- or Late Filer"</td> </tr> <tr> <td><input type="checkbox"/> Non-Metallic Minerals</td> <td><input type="checkbox"/> Not Specified</td> </tr> <tr> <td></td> <td><input checked="" type="checkbox"/> Other: Unknown</td> </tr> </table> </p> </p>	<input type="checkbox"/> Lumber and Wood Products	<input type="checkbox"/> Retail	<input type="checkbox"/> Inorganic Chemicals	<input type="checkbox"/> Recycling	<input type="checkbox"/> Plastic and/or Rubber Products	<input type="checkbox"/> Junk/Salvage Yard	<input type="checkbox"/> Paints, Varnishes	<input type="checkbox"/> Municipal Landfill	<input type="checkbox"/> Industrial Organic Chemicals	<input type="checkbox"/> Other Landfill	<input type="checkbox"/> Agricultural Chemicals (e.g., pesticides, fertilizers)	<input type="checkbox"/> DOD	<input type="checkbox"/> Miscellaneous Chemical Products (e.g., adhesives, explosives, ink)	<input type="checkbox"/> DOE	<input type="checkbox"/> Primary Metals	<input type="checkbox"/> DOI	<input type="checkbox"/> Metal Coating, Plating, Engraving	<input type="checkbox"/> Other Federal Facility:	<input type="checkbox"/> Metal Forging, Stamping	<input type="checkbox"/> RCRA	<input type="checkbox"/> Fabricated Structural Metal Products	<input type="checkbox"/> Treatment, Storage, or Disposal	<input type="checkbox"/> Electronics Equipment	<input type="checkbox"/> Large Quantity Generator	<input type="checkbox"/> Other Manufacturing	<input type="checkbox"/> Small Quantity Generator	<input type="checkbox"/> Metals	<input type="checkbox"/> "Converter"	<input type="checkbox"/> Coal	<input type="checkbox"/> "Protective Filer"	<input type="checkbox"/> Oil and Gas	<input type="checkbox"/> "Non- or Late Filer"	<input type="checkbox"/> Non-Metallic Minerals	<input type="checkbox"/> Not Specified		<input checked="" type="checkbox"/> Other: Unknown	<p>Waste Generated:</p> <p> <input type="checkbox"/> Onsite  <input type="checkbox"/> Offsite  <input type="checkbox"/> Onsite and Offsite         </p> <p>Waste Disposition Authorized By:</p> <p> <input type="checkbox"/> Present Owner  <input type="checkbox"/> Former Owner  <input type="checkbox"/> Present &amp; Former Owner  <input type="checkbox"/> Unauthorized  <input checked="" type="checkbox"/> Unknown         </p> <p>Waste Accessible to the Public:</p> <p><input type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p>Distance to Nearest Dwelling, School, or Workplace:</p> <p style="text-align: center;">100 feet</p>
<input type="checkbox"/> Lumber and Wood Products	<input type="checkbox"/> Retail																																				
<input type="checkbox"/> Inorganic Chemicals	<input type="checkbox"/> Recycling																																				
<input type="checkbox"/> Plastic and/or Rubber Products	<input type="checkbox"/> Junk/Salvage Yard																																				
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<input type="checkbox"/> Oil and Gas	<input type="checkbox"/> "Non- or Late Filer"																																				
<input type="checkbox"/> Non-Metallic Minerals	<input type="checkbox"/> Not Specified																																				
	<input checked="" type="checkbox"/> Other: Unknown																																				

**6. Waste Characteristics Information**

<p>Source Type: (check all that apply)</p> <p> <input type="checkbox"/> Landfill  <input type="checkbox"/> Surface Impoundment  <input type="checkbox"/> Drums  <input type="checkbox"/> Tanks and Non-Drum Containers  <input type="checkbox"/> Chemical Waste Pile  <input type="checkbox"/> Scrap Metal Junk Pile  <input type="checkbox"/> Tailings Pile  <input type="checkbox"/> Trash Pile (open dump)  <input type="checkbox"/> Land Treatment  <input type="checkbox"/> Contaminated Groundwater Plume (unidentified source)  <input type="checkbox"/> Contaminated Surface water/Sediment (unidentified source)  <input checked="" type="checkbox"/> Contaminated Soil  <input type="checkbox"/> Other:  <input type="checkbox"/> No Sources         </p>	<p>Source Waste Quantity: (include units)</p> <p style="text-align: center;">10</p>	<p>Tier*:</p> <p style="text-align: center;">A</p>	<p>General Types of Waste (check all that apply)</p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Metals</td> <td><input type="checkbox"/> Pesticides/Herbicides</td> </tr> <tr> <td><input checked="" type="checkbox"/> Organics</td> <td><input type="checkbox"/> Acids/Bases</td> </tr> <tr> <td><input type="checkbox"/> Inorganics</td> <td><input type="checkbox"/> Oily Waste</td> </tr> <tr> <td><input type="checkbox"/> Solvents</td> <td><input type="checkbox"/> Municipal Waste</td> </tr> <tr> <td><input type="checkbox"/> Paints/Pigments</td> <td><input type="checkbox"/> Mining Waste</td> </tr> <tr> <td><input type="checkbox"/> Laboratory/Hospital Waste</td> <td><input type="checkbox"/> Explosives</td> </tr> <tr> <td><input type="checkbox"/> Radioactive Waste</td> <td><input type="checkbox"/> Other:</td> </tr> <tr> <td><input type="checkbox"/> Construction/Demolition Waste</td> <td></td> </tr> </table> <p>Physical State of Waste as Deposited (check all that apply):</p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Solid</td> <td><input type="checkbox"/> Sludge</td> <td><input type="checkbox"/> Powder</td> </tr> <tr> <td><input checked="" type="checkbox"/> Liquid</td> <td><input type="checkbox"/> Gas</td> <td><input type="checkbox"/> Unknown</td> </tr> </table>	<input type="checkbox"/> Metals	<input type="checkbox"/> Pesticides/Herbicides	<input checked="" type="checkbox"/> Organics	<input type="checkbox"/> Acids/Bases	<input type="checkbox"/> Inorganics	<input type="checkbox"/> Oily Waste	<input type="checkbox"/> Solvents	<input type="checkbox"/> Municipal Waste	<input type="checkbox"/> Paints/Pigments	<input type="checkbox"/> Mining Waste	<input type="checkbox"/> Laboratory/Hospital Waste	<input type="checkbox"/> Explosives	<input type="checkbox"/> Radioactive Waste	<input type="checkbox"/> Other:	<input type="checkbox"/> Construction/Demolition Waste		<input type="checkbox"/> Solid	<input type="checkbox"/> Sludge	<input type="checkbox"/> Powder	<input checked="" type="checkbox"/> Liquid	<input type="checkbox"/> Gas	<input type="checkbox"/> Unknown
<input type="checkbox"/> Metals	<input type="checkbox"/> Pesticides/Herbicides																								
<input checked="" type="checkbox"/> Organics	<input type="checkbox"/> Acids/Bases																								
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<input type="checkbox"/> Solid	<input type="checkbox"/> Sludge	<input type="checkbox"/> Powder																							
<input checked="" type="checkbox"/> Liquid	<input type="checkbox"/> Gas	<input type="checkbox"/> Unknown																							
<p>* C = Constituent, W = Wastestream, V = Volume, A = Area</p>																									





CERCLIS Number:

**8. Surface Water Pathway (continued)**

<p>Wetlands located along the surface water migration path:  <input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p>Have primary target wetlands been identified?  <input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p>List secondary target wetlands:          Water Body:                      Flow (cfs):      Frontages Miles:          None identified</p>	<p>Other sensitive environments located along the surface water migration path:  <input type="checkbox"/> Yes      <input checked="" type="checkbox"/> No</p> <p>Have primary target sensitive environments been identified?  <input type="checkbox"/> Yes      <input checked="" type="checkbox"/> No</p> <p>List secondary target sensitive environments:          Water Body:                      Flow (cfs):      Sensitive Environment Type:</p>
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**9. Soil Exposure Pathway**

<p>Are people occupying residences or attending school or daycare on or within 200 feet of areas of known or suspected contamination:  <input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p>If "Yes," enter total resident population:          48± people</p>	<p>Number of workers onsite:  <input checked="" type="checkbox"/> None  <input type="checkbox"/> 1 – 100  <input type="checkbox"/> 101 – 1,000  <input type="checkbox"/> &gt; 1,000</p>	<p>Have terrestrial sensitive environments been identified on or within 200 feet of areas of known or suspected contamination?  <input type="checkbox"/> Yes      <input checked="" type="checkbox"/> No</p> <p>If "Yes," list each terrestrial sensitive environment:</p>
---	---	--

**10. Air Pathway**

<p>Is there a suspected release to air?  <input type="checkbox"/> Yes      <input checked="" type="checkbox"/> No</p> <p>Enter total population on or within:</p> <p>Onsite:                      0          0-¼ mile:                      92          &gt; ¼-½ mile:                      131          &gt; ½-1 mile:                      371          &gt; 1-2 miles:                      1,233          &gt; 2-3 miles:                      1,275          &gt; 3-4 miles:                      769          Total within 4 miles: 3,871</p>	<p>Wetlands located within 4 miles of the site:  <input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p>Other sensitive environments located within 4 miles of the site:  <input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p>List all sensitive environments within ½ mile of the site:</p> <table border="0"> <tr> <td>Distance:</td> <td>Sensitive Environment Type/Wetland Area (acres):</td> </tr> <tr> <td>Onsite</td> <td>Wetlands</td> </tr> <tr> <td>0-¼ mile</td> <td>Wetlands</td> </tr> <tr> <td>&gt; ¼-½ mile</td> <td>State Endangered/Threatened Species Habitat</td> </tr> </table>	Distance:	Sensitive Environment Type/Wetland Area (acres):	Onsite	Wetlands	0-¼ mile	Wetlands	> ¼-½ mile	State Endangered/Threatened Species Habitat
Distance:	Sensitive Environment Type/Wetland Area (acres):								
Onsite	Wetlands								
0-¼ mile	Wetlands								
> ¼-½ mile	State Endangered/Threatened Species Habitat								

**ATTACHMENT B**  
**DATA SUMMARY TABLES**  
**FORMER PLANT NO. 3 PROPERTY**

SITE: POWNAL  
CASE: S017 SDG: K1609955 and K1609969  
LABORATORY: ALS GLOBAL, KELSO, WA

ATTACHMENT B  
DATA SUMMARY TABLES - FORMER PLANT NO. 3  
AQUEOUS AND SOIL ANALYSIS VIA EPA MODIFIED METHOD 537

SAMPLE IDENTIFICATION FIELD SAMPLE IDENTIFICATION SAMPLE LOCATION QC TYPE	K1609955-001			K1609955-002			K1609955-003			K1609955-004			K1609955-005		
	ERB-01-2016-GW			FD-01-2016-GW			FD-01-2016-SW			FRB-01-2016-GW			SB/MW-01-2016-GW		
	Equipment Blank			SB/MW-01			SW-01			Transfer Blank			SB/MW-01		
	Equipment Blank			Field Replicate			Field Replicate			Transfer Blank			Field Sample		
COMPOUND	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit
Perfluorobutanoic acid (PFBA)	ND UJ	9.3	9.3	ND UJ	10	10	ND UJ	10	10	ND UJ	10	10	ND UJ	10	10
Perfluoropentanoic acid (PFPeA)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorohexanoic acid (PFHxA)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluoroheptanoic acid (PFHpA)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorooctanoic acid (PFOA)	ND UJ	1.9	1.9	4.5 J	2	2	27 J	2	2	ND UJ	2	2	4.6 J	2	2
Perfluorononanoic acid (PFNA)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorodecanoic acid (PFDA)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluoroundecanoic acid (PFUnA)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorododecanoic acid (PFDoA)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorotridecanoic acid (PFTriA)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorotetradecanoic acid (PFTeA)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorobutane sulfonate (PFBS)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorohexane sulfonate (PFHxS)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluoroheptane sulfonate (PFHpS)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorooctane sulfonate (PFOS)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorodecane sulfonate (PFDS)	ND UJ	4.6	4.6	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
DILUTION FACTOR	1.00			1.00			1.00			1.00			1.00		
DATE SAMPLED	8/24/2016			8/23/2016			8/24/2016			8/24/2016			8/23/2016		
DATE PREPARED	10/4/2016			10/4/2016			10/4/2016			10/4/2016			10/4/2016		
DATE ANALYZED	10/7/2016			10/7/2016			10/7/2016			10/7/2016			10/7/2016		

NOTES:

Results are reported in nanograms per Liter (ng/L).  
ND = Values not reported above the stated Quantitation Limit, and not detected above the Method Detection Limit.

SITE: POWNAL  
CASE: S017 SDG: K1609955 and K1609969  
LABORATORY: ALS GLOBAL, KELSO, WA

ATTACHMENT B  
DATA SUMMARY TABLES - FORMER PLANT NO. 3  
AQUEOUS AND SOIL ANALYSIS VIA EPA MODIFIED METHOD 537

SAMPLE IDENTIFICATION FIELD SAMPLE IDENTIFICATION SAMPLE LOCATION QC TYPE	K1609955-006			K1609955-007			K1609955-008			K1609955-009			K1609955-011		
	SB/MW-02-2016-GW			SB/MW-03-2016-GW			SB/MW-04-2016-GW			SB/MW-05-2016-GW			SW-01-2016		
	SB-MW-02			SB/MW-03			SB/MW-04			SB/MW-05			SW-01		
	Field Sample			Field Sample			Field Sample			Field Sample & MS/MSD			Field Sample		
COMPOUND	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit
Perfluorobutanoic acid (PFBA)	ND UJ	10	10	ND UJ	10	10	ND UJ	10	10	ND UJ	10	10	ND UJ	10	10
Perfluoropentanoic acid (PFPeA)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorohexanoic acid (PFHxA)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluoroheptanoic acid (PFHpA)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorooctanoic acid (PFOA)	14 J	2	2	320 J	2	2	130 J	2	2	56 J	2	2	22 J	2	2
Perfluorononanoic acid (PFNA)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorodecanoic acid (PFDA)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluoroundecanoic acid (PFUnA)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorododecanoic acid (PFDoA)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorotridecanoic acid (PFTriA)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorotetradecanoic acid (PFTeA)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorobutane sulfonate (PFBS)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorohexane sulfonate (PFHxS)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluoroheptane sulfonate (PFHpS)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorooctane sulfonate (PFOS)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
Perfluorodecane sulfonate (PFDS)	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5	ND UJ	5	5
DILUTION FACTOR	1.00			1.00			1.00			1.00			1.00		
DATE SAMPLED	8/24/2016			8/23/2016			8/24/2016			8/24/2016			8/24/2016		
DATE PREPARED	10/4/2016			10/4/2016			10/4/2016			10/4/2016			10/4/2016		
DATE ANALYZED	10/7/2016			10/7/2016			10/7/2016			10/7/2016			10/7/2016		

NOTES:

Results are reported in nanograms per Liter (ng/L).  
ND = Values not reported above the stated Quantitation Limit, and not detected above the Method Detection Limit.

SITE: POWNAL  
CASE: S017 SDG: K1609955 and K1609969  
LABORATORY: ALS GLOBAL, KELSO, WA

ATTACHMENT B  
DATA SUMMARY TABLES - FORMER PLANT NO. 3  
AQUEOUS AND SOIL ANALYSIS VIA EPA MODIFIED METHOD 537

SAMPLE IDENTIFICATION FIELD SAMPLE IDENTIFICATION SAMPLE LOCATION QC TYPE	K1609955-012			K1609955-013			K1609969-001			K1609969-002			K1609969-003		
	SW-02-2016			SW-03-2016			ERB-01-2016-SOIL			FD-01-2016-SOIL			FRB-01-2016-SOIL		
	SW-02			SW-03			Equipment Blank			SB/MW-01			Transfer Blank		
COMPUND	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit
Perfluorobutanoic acid (PFBA)	ND UJ	10	10	ND UJ	10	10	ND UJ	13	13	ND	10	10	ND UJ	11	11
Perfluoropentanoic acid (PFPeA)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluorohexanoic acid (PFHxA)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluoroheptanoic acid (PFHpA)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluorooctanoic acid (PFOA)	4.3 J	2	2	2.8 J	2	2	ND UJ	2.5	2.5	ND	1	1	ND UJ	2.2	2.2
Perfluorononanoic acid (PFNA)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluorodecanoic acid (PFDA)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluoroundecanoic acid (PFUnA)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluorododecanoic acid (PFDoA)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluorotridecanoic acid (PFTriA)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluorotetradecanoic acid (PFTeA)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluorobutane sulfonate (PFBS)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluorohexane sulfonate (PFHxS)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluoroheptane sulfonate (PFHpS)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluorooctane sulfonate (PFOS)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
Perfluorodecane sulfonate (PFDS)	ND UJ	5	5	ND UJ	5	5	ND UJ	6.3	6.3	ND	1	1	ND UJ	5.4	5.4
DILUTION FACTOR	1.00			1.00			1.00			1.00			1.00		
DATE SAMPLED	8/24/2016			8/24/2016			8/24/2016			8/23/2016			8/23/2016		
DATE PREPARED	10/4/2016			10/4/2016			10/4/2016			8/29/2016			10/4/2016		
DATE ANALYZED	10/7/2016			10/7/2016			10/7/2016			8/31/2016			10/7/2016		

NOTES:

Results are reported in nanograms per Liter (ng/L) for aqueous samples and micrograms per kilogram (ug/kg) for soil samples.  
ND = Values not reported above the stated Quantitation Limit, and not detected above the Method Detection Limit.

SITE: POWNAL  
CASE: S017 SDG: K1609955 and K1609969  
LABORATORY: ALS GLOBAL, KELSO, WA

ATTACHMENT B  
DATA SUMMARY TABLES - FORMER PLANT NO. 3  
AQUEOUS AND SOIL ANALYSIS VIA EPA MODIFIED METHOD 537

SAMPLE IDENTIFICATION FIELD SAMPLE IDENTIFICATION SAMPLE LOCATION QC TYPE	K1609969-004			K1609969-005			K1609969-006			K1609969-007			K1609969-008		
	SB/MW-01-2016-0002			SB/MW-01-2016-0305			SB/MW-01-2016-0609			SB/MW-02-2016-0002			SB/MW-02-2016-0507		
	Field Sample			Field Sample			Field Sample			Field Sample			Field Sample		
COMPOUND	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit
Perfluorobutanoic acid (PFBA)	ND	9	9	ND	12	12	ND	12	12	ND	11	11	ND	12	12
Perfluoropentanoic acid (PFPeA)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorohexanoic acid (PFHxA)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluoroheptanoic acid (PFHpA)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorooctanoic acid (PFOA)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorononanoic acid (PFNA)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorodecanoic acid (PFDA)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluoroundecanoic acid (PFUnA)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorododecanoic acid (PFDoA)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorotridecanoic acid (PFTriA)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorotetradecanoic acid (PFTeA)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorobutane sulfonate (PFBS)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorohexane sulfonate (PFHxS)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluoroheptane sulfonate (PFHpS)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorooctane sulfonate (PFOS)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorodecane sulfonate (PFDS)	ND	0.9	0.9	ND	1.2	1.2	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
DILUTION FACTOR	1.00			1.00			1.00			1.00			1.00		
DATE SAMPLED	8/23/2016			8/23/2016			8/23/2016			8/24/2016			8/24/2016		
DATE PREPARED	8/29/2016			8/29/2016			8/29/2016			8/29/2016			8/29/2016		
DATE ANALYZED	8/31/2016			8/31/2016			8/31/2016			8/31/2016			8/31/2016		

NOTES:

Results are reported in micrograms per kilogram (ug/kg).  
ND = Values not reported above the stated Quantitation Limit, and not detected above the Method Detection Limit.

SITE: POWNAL  
CASE: S017 SDG: K1609955 and K1609969  
LABORATORY: ALS GLOBAL, KELSO, WA

ATTACHMENT B  
DATA SUMMARY TABLES - FORMER PLANT NO. 3  
AQUEOUS AND SOIL ANALYSIS VIA EPA MODIFIED METHOD 537

SAMPLE IDENTIFICATION FIELD SAMPLE IDENTIFICATION SAMPLE LOCATION QC TYPE	K1609969-009			K1609969-010			K1609969-011			K1609969-012			K1609969-013		
	SB/MW-03-2016-0002			SB/MW-03-2016-0507			SB/MW-04-2016-0002			SB/MW-04-2016-0305			SB/MW-05-2016-0002		
	SB/MW-03			SB/MW-03			SB/MW-04			SB/MW-04			SB/MW-05		
	Field Sample			Field Sample			Field Sample			Field Sample			Field Sample		
COMPOUND	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit
Perfluorobutanoic acid (PFBA)	ND	10	10	ND	13	13	ND	16	16	ND	11	11	ND	13	13
Perfluoropentanoic acid (PFPeA)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorohexanoic acid (PFHxA)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluoroheptanoic acid (PFHpA)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorooctanoic acid (PFOA)	3.4	1	1	ND	1.3	1.3	22	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorononanoic acid (PFNA)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorodecanoic acid (PFDA)	3.2	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluoroundecanoic acid (PFUnA)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorododecanoic acid (PFDoA)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorotridecanoic acid (PFTriA)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorotetradecanoic acid (PFTeA)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorobutane sulfonate (PFBS)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorohexane sulfonate (PFHxS)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluoroheptane sulfonate (PFHpS)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorooctane sulfonate (PFOS)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
Perfluorodecane sulfonate (PFDS)	ND	1	1	ND	1.3	1.3	ND	1.6	1.6	ND	1.1	1.1	ND	1.3	1.3
DILUTION FACTOR	1.00			1.00			1.00			1.00			1.00		
DATE SAMPLED	8/23/2016			8/23/2016			8/23/2016			8/23/2016			8/23/2016		
DATE PREPARED	8/29/2016			8/29/2016			8/29/2016			8/29/2016			8/29/2016		
DATE ANALYZED	8/31/2016			9/1/2016			9/1/2016			9/1/2016			9/1/2016		

NOTES:

Results are reported in micrograms per kilogram (ug/kg).  
ND = Values not reported above the stated Quantitation Limit, and not detected above the Method Detection Limit.

SITE: POWNAL  
CASE: S017 SDG: K1609955 and K1609969  
LABORATORY: ALS GLOBAL, KELSO, WA

ATTACHMENT B  
DATA SUMMARY TABLES - FORMER PLANT NO. 3  
AQUEOUS AND SOIL ANALYSIS VIA EPA MODIFIED METHOD 537

SAMPLE IDENTIFICATION FIELD SAMPLE IDENTIFICATION SAMPLE LOCATION QC TYPE	K1609969-014			K1609969-015			K1609969-016			K1609969-017		
	SB/MW-05-2016-0305			SB-01-2016-0002			SB-01-2016-0305			SB-02-2016-0002		
	SB/MW-05			SB-01			SB-01			SB-02		
	Field Sample			Field Sample			Field Sample			Field Sample		
COMPOUND	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit
Perfluorobutanoic acid (PFBA)	ND	11	11	ND	10	10	ND	10	10	ND	13	13
Perfluoropentanoic acid (PFPeA)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorohexanoic acid (PFHxA)	ND	1.1	1.1	ND	1	1	1.6	1	1	ND	1.3	1.3
Perfluoroheptanoic acid (PFHpA)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorooctanoic acid (PFOA)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorononanoic acid (PFNA)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorodecanoic acid (PFDA)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluoroundecanoic acid (PFUnA)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorododecanoic acid (PFDoA)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorotridecanoic acid (PFTriA)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorotetradecanoic acid (PFTeA)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorobutane sulfonate (PFBS)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorohexane sulfonate (PFHxS)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluoroheptane sulfonate (PFHpS)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorooctane sulfonate (PFOS)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
Perfluorodecane sulfonate (PFDS)	ND	1.1	1.1	ND	1	1	ND	1	1	ND	1.3	1.3
DILUTION FACTOR	1.00			1.00			1.00			1.00		
DATE SAMPLED	8/23/2016			8/24/2016			8/24/2016			8/23/2016		
DATE PREPARED	8/29/2016			8/29/2016			8/29/2016			8/29/2016		
DATE ANALYZED	9/1/2016			9/1/2016			9/1/2016			9/1/2016		

NOTES:

Results are reported in micrograms per kilogram (ug/kg).  
ND = Values not reported above the stated Quantitation Limit, and not detected above the Method Detection Limit.

SITE: POWNAL  
CASE: S017 SDG: K1609955 and K1609969  
LABORATORY: ALS GLOBAL, KELSO, WA

ATTACHMENT B  
DATA SUMMARY TABLES - FORMER PLANT NO. 3  
AQUEOUS AND SOIL ANALYSIS VIA EPA MODIFIED METHOD 537

SAMPLE IDENTIFICATION FIELD SAMPLE IDENTIFICATION SAMPLE LOCATION QC TYPE	K1609969-018			K1609969-019			K1609969-020		
	SB-02-2016-0305			SB-03-2016-0002			SB-03-2016-0507		
	SB-02			SB-03			SB-03		
	Field Sample			Field Sample			Field Sample		
COMPOUND	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit	Result	Quantitation Limit	Method Detection Limit
Perfluorobutanoic acid (PFBA)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluoropentanoic acid (PFPeA)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorohexanoic acid (PFHxA)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluoroheptanoic acid (PFHpA)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorooctanoic acid (PFOA)	ND	1.2	1.2	2.9	1.1	1.1	ND	1.2	1.2
Perfluorononanoic acid (PFNA)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorodecanoic acid (PFDA)	ND	1.2	1.2	1.8	1.1	1.1	ND	1.2	1.2
Perfluoroundecanoic acid (PFUnA)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorododecanoic acid (PFDoA)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorotridecanoic acid (PFTriA)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorotetradecanoic acid (PFTeA)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorobutane sulfonate (PFBS)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorohexane sulfonate (PFHxS)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluoroheptane sulfonate (PFHpS)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorooctane sulfonate (PFOS)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
Perfluorodecane sulfonate (PFDS)	ND	1.2	1.2	ND	1.1	1.1	ND	1.2	1.2
DILUTION FACTOR	1.00			1.00			1.00		
DATE SAMPLED	8/23/2016			8/23/2016			8/23/2016		
DATE PREPARED	8/29/2016			8/29/2016			8/29/2016		
DATE ANALYZED	9/1/2016			9/1/2016			9/1/2016		

NOTES:

Results are reported in micrograms per kilogram (ug/kg).  
ND = Values not reported above the stated Quantitation Limit, and not detected above the Method Detection Limit.

**ATTACHMENT C**  
**SOIL BORING LOGS**  
**FORMER PLANT NO. 3 PROPERTY**

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:02 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



Engineering a Sustainable Future

## BORING LOG

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Boring No.: SB/MW-01  
 Boring Location: West of former bldg (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 23, 2016  
 Date Finish: August 23, 2016

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 971  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations				
			Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)
Geoprobe	Geoprobe	Macro-Core Liners					
Size ID (in.)	2	1-3/8					
Advancement	Direct Push	Push					

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)			
1	S-1	33	0-5		0.4			S-1A (21"): Dark brown to brown, fine to coarse SAND, little Gravel, trace Silt. dry. Silt fence fragment observed at approximately 1 ft bgs.			
2								S-1B (12"): Reddish brown, fine SAND, some Silt, trace Gravel, trace Clay, trace medium Sand. wet.			
3											
4											
5											
6	S-2	30	5-10		0.1			S-2: Dark brown to olive brown, fine SAND and Silt. wet. Strong petroleum odor detected (old diesel/gas).			
7											
8											
9					190						
10											
11	S-3	51	10-15					S-3A (48"): Olive gray/brown, fine SAND and Silt, little Clay, trace coarse Sand at bottom of sample. wet. No petroleum odor detected.			
12					14.6						
13											
14											
15								S-3B (3"): Dense, gray, fine SAND and Gravel. wet. (GLACIAL TILL).			
16					5.1			Boring terminated at 15 feet.			

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:  
 1) Samples collected from 0-2 ft, 3-5 ft, and 6-9 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:02 - \\INE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT\_SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORIN



# BORING LOG

Boring No.: **SB/MW-02**  
 Boring Location: South of former bldg (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 24, 2016  
 Date Finish: August 24, 2016

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 970  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
			Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Geoprobe	Geoprobe	Macro-Core Liners						
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)			
1	S-1	12	0-5		0.1						
2											
3											
4											
5											
6	S-2	29	5-10		0.1						
7											
8											
9											
10	S-3	28	10-15								
11											
12											
13											
14											
15											
16											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

**NOTES:**  
 1) Samples collected from 0-2 ft and 5-7 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:02 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT\_SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



Engineering a Sustainable Future

## BORING LOG

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Boring No.: SB/MW-03  
 Boring Location: North of former bldg (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 23, 2016  
 Date Finish: August 23, 2016

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 969  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
			Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Geoprobe	Geoprobe	Macro-Core Liners						
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)			
1	S-1	44	0-5		0.1			S-1A (14"): Dark brown, fine to medium SAND, little Gravel, little Silt, trace Organics (grass). moist.			
2											
3											
4											
5											
6	S-2	42	5-10		0.1			S-2: Olive brown, fine SAND and Silt, trace Clay. wet.			
7											
8											
9											
10											
11											
12					0.2			Boring terminated at 10 feet.			
13											
14											
15											
16											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:  
 1) Samples collected from 0-2 ft and 5-7 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:02 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT\_SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



## BORING LOG

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Boring No.: SB/MW-04  
 Boring Location: East of former bldg (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 23, 2016  
 Date Finish: August 23, 2016

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 968  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
			Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Geoprobe	Geoprobe	Macro-Core Liners						
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)			
1	S-1	35	0-5		0			S-1A (12"): Dark brown, SILT, little fine Sand, little Organic Fibers. moist. Material similar to peat.  S-1B (23"): Brown, fine SAND, some Silt, trace Clay. wet.			
2											
3											
4											
5											
6	S-2	48	5-10		0.2			S-2: Olive gray/brown, fine SAND and Silt. wet.			
7											
8											
9											
10											
11											
12											
13											
14											
15											
16					0.3			Boring terminated at 15 feet.			

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:  
 1) Samples collected from 0-2 ft and 3-5 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:02 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT\_SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



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## BORING LOG

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Boring No.: SB/MW-05  
 Boring Location: ~85 ft east of former bldg  
 (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 23, 2016  
 Date Finish: August 23, 2016

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 967  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
	Geoprobe	Macro-Core Liners	Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES		
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)					
1	S-1	38	0-5		0.2			S-1A (15"): Dark brown, fine to coarse SAND and Silt, trace Clay, trace Organics (roots). moist.					
2													S-1B (23"): Brown to olive brown, fine SAND, some Silt, trace Organics (roots). wet.
3													
4													
5													
6	S-2	46	5-10		0.2			S-2: Olive brown, SILT and fine Sand, trace Gravel. wet.					
7													
8													
9					0.3			S-3A (12"): Olive brown, SILT and fine Sand, trace Gravel. wet.					
10													
11	S-3	26	10-15										S-3B (14"): Gray, fine to coarse SAND, some Gravel, little Silt. wet. (GLACIAL TILL).
12													
13													
14													
15					0.3			Boring terminated at 15 feet.					
16													

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:  
 1) Samples collected from 0-2 ft and 3-5 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:05 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT\_SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



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## BORING LOG

Project: Former Plant No. 3

Location: Center Street - Pownal, VT

Nobis Project No.: 87001.29 - 0600

Boring No.: SB-01

Boring Location: ~75 ft south of former bldg  
(see Site Plan)

Checked by: J. Brunelle

Date Start: August 24, 2016

Date Finish: August 24, 2016

Contractor: Technical Drilling Services

Driller: A. Allen

Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT

Hammer Type: N/A

Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 969

Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
			Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Geoprobe	Geoprobe	Macro-Core Liners						
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)		
1	S-1	38	0-5					S-1A (20"): Dark brown, SILT, some fine to medium Sand, trace Gravel, trace Organics (roots). moist.		
2								S-1B (18"): Light brown, fine SAND, some Silt. wet.		
3										
4					0					
5										
6	S-2	28	5-10		0			S-2A (12"): Light brown, fine SAND, some Silt. wet.		
7								S-2B (16"): Very dense, olive gray, fine to coarse SAND, some Gravel, little Silt. moist. (GLACIAL TILL).		
8					0					
9										
10										
11										
12										
13										
14										
15										
16								Boring terminated at 10 feet.		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:  
1) Samples collected from 0-2 ft and 3-5 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:05 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



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## BORING LOG

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Boring No.: SB-02  
 Boring Location: ~85 ft south of former bldg  
 (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 23, 2016  
 Date Finish: August 23, 2016

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 968  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
			Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Geoprobe	Geoprobe	Macro-Core Liners						
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)		
1	S-1	36	0-5		0.2			S-1A (4"): Black, SILT, little Organics (roots). moist. S-1B (32"): Reddish brown, fine SAND and Silt, trace Clay. wet.		
2										
3										
4										
5										
6	S-2	24	5-10		0.2			S-2: Olive brown to gray, fine to coarse SAND, some Silt, little Gravel. wet. Moist pockets of dense material.		
7										
8										
9										
10	S-3	28	10-15		0.2			S-3: Very dense, alternating layers of gray/olive gray fine to coarse SAND and Gravel, little Silt. wet. Moist pockets.		
11										
12										
13										
14										
15										
16								Boring terminated at 15 feet.		

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

**NOTES:**  
 1) Samples collected from 0-2 ft and 3-5 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:05 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT\_SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



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## BORING LOG

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Boring No.: SB-03  
 Boring Location: ~85 ft east of SB/MW-03  
 (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 23, 2016  
 Date Finish: August 23, 2016

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 968  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
	Geoprobe	Macro-Core Liners	Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/ 6 in.			Graphic	Stratum Elev. / Depth (ft.)		
1	S-1	42	0-5		0.1			S-1A (14"): Dark brown to brown, fine SAND and Silt. little Organics at the surface. moist.		
2								S-1B (28"): Brown, SILT and fine Sand. wet.		
3										
4										
5										
6	S-2	44	5-10		0.2			S-2: Brown, SILT and fine Sand. wet.		
7										
8										
9										
10										
11					0.1			Boring terminated at 10 feet.		
12										
13										
14										
15										
16										

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:  
 1) Samples collected from 0-2 ft and 5-7 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:05 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



## BORING LOG

Boring No.: SB/MW-01  
 Boring Location: West of former bldg (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 23, 2016  
 Date Finish: August 23, 2016

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 971  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations				
			Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)
Geoprobe	Geoprobe	Macro-Core Liners					
Size ID (in.)	2	1-3/8					
Advancement	Direct Push	Push					

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)			
1	S-1	33	0-5		0.4			S-1A (21"): Dark brown to brown, fine to coarse SAND, little Gravel, trace Silt. dry. Silt fence fragment observed at approximately 1 ft bgs.			
2											
3											
4											
5											
6	S-2	30	5-10		0.1			S-2: Dark brown to olive brown, fine SAND and Silt. wet. Strong petroleum odor detected (old diesel/gas).			
7											
8											
9					190			S-3A (48"): Olive gray/brown, fine SAND and Silt, little Clay, trace coarse Sand at bottom of sample. wet. No petroleum odor detected.			
10											
11	S-3	51	10-15								
12											
13					14.6			S-3B (3"): Dense, gray, fine SAND and Gravel. wet. (GLACIAL TILL).			
14											
15											
16					5.1			Boring terminated at 15 feet.			

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:  
 1) Samples collected from 0-2 ft, 3-5 ft, and 6-9 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:05 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT\_SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORIN



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## BORING LOG

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Boring No.: SB/MW-02  
 Boring Location: South of former bldg (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 24, 2016  
 Date Finish: August 24, 2016

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 970  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
			Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Geoprobe	Geoprobe	Macro-Core Liners						
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)			
1	S-1	12	0-5		0.1						
2											
3											
4											
5											
6	S-2	29	5-10		0.1						
7											
8											
9											
10	S-3	28	10-15								
11											
12											
13											
14											
15											
16											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

**NOTES:**  
 1) Samples collected from 0-2 ft and 5-7 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:05 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT\_SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



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## BORING LOG

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Boring No.: SB/MW-03  
 Boring Location: North of former bldg (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 23, 2016  
 Date Finish: August 23, 2016

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 969  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
			Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Geoprobe	Geoprobe	Macro-Core Liners						
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)			
1	S-1	44	0-5		0.1			S-1A (14"): Dark brown, fine to medium SAND, little Gravel, little Silt, trace Organics (grass). moist.			
2											
3											
4											
5											
6	S-2	42	5-10		0.1			S-2: Olive brown, fine SAND and Silt, trace Clay. wet.			
7											
8											
9											
10											
11											
12					0.2			Boring terminated at 10 feet.			
13											
14											
15											
16											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:  
 1) Samples collected from 0-2 ft and 5-7 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:05 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT\_SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



Engineering a Sustainable Future

## BORING LOG

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Boring No.: SB/MW-04  
 Boring Location: East of former bldg (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 23, 2016  
 Date Finish: August 23, 2016

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 968  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
			Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Geoprobe	Geoprobe	Macro-Core Liners						
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)			
1	S-1	35	0-5		0			S-1A (12"): Dark brown, SILT, little fine Sand, little Organic Fibers. moist. Material similar to peat.			
2					0			S-1B (23"): Brown, fine SAND, some Silt, trace Clay. wet.			
3											
4					0						
5											
6	S-2	48	5-10					S-2: Olive gray/brown, fine SAND and Silt. wet.			
7					0.2						
8											
9					0.3						
10											
11											
12											
13											
14											
15											
16								Boring terminated at 15 feet.			

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:  
 1) Samples collected from 0-2 ft and 3-5 ft bgs for PFC laboratory analysis.

ENVIRONMENTAL LOG - NOBIS GINT DATA TEMPLATE OCT 7 2011.GDT - 8/29/16 13:05 - \\NE-MA-FILER01\FILES\GENERAL\ACTIVE\87000 EPA REGION I START\87001.29 POWNAL.VT\_SITE\_DISCOVERY\_POWNAL\_VT\TECHNICAL\_DATA\BORING\_LOGS\87001.29 BORING



## BORING LOG

Project: Former Plant No. 3  
 Location: Center Street - Pownal, VT  
 Nobis Project No.: 87001.29 - 0600

Boring No.: SB/MW-05  
 Boring Location: ~85 ft east of former bldg  
 (see Site Plan)  
 Checked by: J. Brunelle  
 Date Start: August 23, 2016  
 Date Finish: August 23, 2016

Contractor: Technical Drilling Services  
 Driller: A. Allen  
 Nobis Rep.: E. Johnson

Rig Type / Model: Geoprobe 6610DT  
 Hammer Type: N/A  
 Hammer Hoist: N/A

Ground Surface Elev.: (+/-) 967  
 Datum: \_\_\_\_\_

Type	Drilling Method	Sampler	Groundwater Observations					
	Geoprobe	Macro-Core Liners	Date	Time	Depth Below Ground (ft.)	Depth of Casing (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
Size ID (in.)	2	1-3/8						
Advancement	Direct Push	Push						

Depth (ft.)	SAMPLE INFORMATION				PID (ppm)	Ground Water	LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	WELL DETAIL	NOTES
	Type & No.	Rec (in.)	Depth (ft.)	Blows/6 in.			Graphic	Stratum Elev. / Depth (ft.)			
1	S-1	38	0-5		0.2			S-1A (15"): Dark brown, fine to coarse SAND and Silt, trace Clay, trace Organics (roots). moist.			
2											S-1B (23"): Brown to olive brown, fine SAND, some Silt, trace Organics (roots). wet.
3											
4					0.2			S-2: Olive brown, SILT and fine Sand, trace Gravel. wet.			
5	S-2	46	5-10								
6											
7					0.3			S-3A (12"): Olive brown, SILT and fine Sand, trace Gravel. wet.			
8											S-3B (14"): Gray, fine to coarse SAND, some Gravel, little Silt. wet. (GLACIAL TILL).
9											
10	S-3	26	10-15		0.3			Boring terminated at 15 feet.			
11											
12											
13											
14											
15											
16											

Soil	Percentage	Non-Soil
trace	5 - 10	very few
little	10 - 20	few
some	20 - 35	several
and	35 - 50	numerous

NOTES:  
 1) Samples collected from 0-2 ft and 3-5 ft bgs for PFC laboratory analysis.

**ATTACHMENT D**  
**SITE PHOTOGRAPHS**  
**FORMER PLANT NO. 3 PROPERTY**

Appendix D  
Site Photographs  
Former Plant No. 3  
Pownal, Vermont



**Date:** 6/22/2016

**Location:** Former Plant No. 3

**Description:** A view of the concrete slab facing southwest towards North Pownal Road.



**Date:** 6/22/2016

**Location:** Former Plant No. 3

**Description:** A view of the concrete slab and residential properties facing northeast.

Appendix D  
Site Photographs  
Former Plant No. 3  
Pownal, Vermont



**Date:** 6/22/2016

**Location:** Former Plant No. 3

**Description:** A view of the concrete slab and wetland areas facing east towards U.S. Route 7.



**TRIP REPORT  
FOR  
DRINKING WATER SAMPLING  
CENTER STREET AREA  
POWNAI, VERMONT**

CERCLIS NO. Not Applicable

TECHNICAL ASSISTANCE

Prepared for:

U.S. Environmental Protection Agency  
Region I  
Office of Site Remediation and Restoration  
Boston, MA 02109-3912

EPA CONTRACT NO. EP-S1-11-03  
TDD No. SA-01-16-11-0001  
TASK NO. 87001.40

Submitted on March 20, 2017 by:  
H&S/Nobis Environmental JV, LLC Region 1 8(a) START

**EPA REGION I SUPERFUND PROGRAM  
TRIP REPORT**

**Inspection Information**

**Site Name:** Center Street Area  
**Address:** Center Street  
**Town:** Pownal  
**State:** Vermont  
**CERCLIS No.:** No CERCLIS No. Available

**Date of On-Site Reconnaissance:** No site reconnaissance performed  
**Time of On-Site Reconnaissance:** --  
**Weather Conditions:** --

**Date of Sampling Trip – Day 1:** January 11, 2017  
**Time of Sampling Trip – Day 1:** 10:00 – 14:00  
**Weather Conditions – Day 1:** Sunny, approximately 45° F

**Date of Sampling Trip – Day 2:** January 12, 2017  
**Time of Sampling Trip – Day 2:** 08:00 – 13:30  
**Weather Conditions – Day 2:** Rain, approximately 45° F

**Site Status at Time of Inspection:**                     **ACTIVE (homes/businesses)**  
     **INACTIVE**  
     **ABANDONED**

**Personnel Participating in the Inspection**

<u>Agency/Organization</u>	<u>Names</u>	<u>Program</u>
<input checked="" type="checkbox"/> <b>EPA Region I:</b>	Martha Bosworth	EPA Region 1 Site Assessment Manager
<input checked="" type="checkbox"/> <b>EPA Region I Contractor:</b>	David Gorhan	8(a) START
	Josh Stewart	8(a) START
<input checked="" type="checkbox"/> <b>State:</b>	Kimberly Caldwell	Vermont DEC

**Other:**  
**Address:**

**Pathways Sampled:** Groundwater

**Sampling Summary/Deviations from Approved Sampling Plan**

On January 11, 2017, H&S/Nobis Environmental JV, LLC (HSNE) Superfund Technical Assessment and Response Team (START) personnel mobilized to Pownal, Vermont to collect water samples from private wells located in the vicinity of Center Street in Pownal.

The Vermont Department of Environmental Conservation (VT DEC) personnel coordinated with the property owners to schedule appropriate sample times. EPA personnel obtained signed property-specific access agreements authorizing EPA personnel and contractors to access the private property and to collect samples.

Figure 1 provides summaries of the sample locations. Attachments A and B include the location summary sheets, and field sample collection logs, respectively.

Deviations from the approved sampling plan primarily included elimination or addition of sample locations. Several properties were targeted for sample collection; however, either due to lack of authorized property access or lack of a supply well on the property, the following locations were eliminated from the program: 436 Center Street (no private supply), 348 Center Street (no authorized property access), 2709 North Pownal Road (property is closed for the winter), 2665 North Pownal Road (no authorized property access). Additionally, one property, 230 Center Street was added to the program. When collecting the samples, aside from the inability to access the pressure tanks at several locations, HSNE START did not deviate from the approved sampling plan.

### **Groundwater Pathway**

#### **Groundwater Sample Collection from Existing Private Supply Wells**

On January 11, 2017, HSNE START personnel collected drinking water samples from seven locations: 230 Center Street, 276 Center Street, two locations at 300 Center Street, 429 Center Street, 2749 North Pownal Road, and 2763 North Pownal Road.

On January 12, 2017, HSNE START personnel collected water samples from seven locations: 293 Center Street, 316 Center Street, two locations at 382 Center Street, 2685 North Pownal Road, 2705 North Pownal Road, and at 23 West Meadow Court.

HSNE START personnel hand-delivered the samples under chain-of-custody to EPA's New England Regional Laboratory (NERL) for analysis of perfluorinated alkyl acids (PFAAs) via a modification of EPA Standard Method 537-1 (NERL Standard Operating Procedure EIASOP-EPA537-0).

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### **Site Activities Performed**

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START personnel collected a field blank sample at each address. The sample was collected by transferring blank water that was provided by the laboratory into an empty sample container. These field blank samples accompanied their partner field sample for the duration of the trip. Note that the coordinates for the well locations are approximate.

#### **Groundwater Sample Collection from Existing Private Supply Wells - January 11, 2017**

##### **300 Center Street**

HSNE START personnel arrived at the address at 10:13 hours. The property consists of automotive garage and a home. Two water supply wells are located on the property.

The approximate geographic coordinates for the each well are presented below.

Collection Location	Latitude	Longitude
300 Center Street – Garage Well	42.798518°	73.222400°
300 Center Street – House Well	42.798426°	73.223048°

### *Garage Well*

HSNE START personnel purged the well from a ball valve at the base of the pressure tank for approximately 8 minutes which resulted in approximately 80 gallons of purgewater. START did not observe a water treatment system associated with this supply well.

HSNE START personnel noted the following substances present in the general vicinity of the sample collection location: blue garden hose, ArmorAll glass cleaner, various ArmorAll automotive protection products; various Turtle Wax automotive protection products, Comet bathroom cleaner, paints, other automotive protection waxes and polishes.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
10.75	7.67	447.0	-32.13	2.73	7.35

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 10:29 hours.

### *House Well*

HSNE START personnel purged the well from an outdoor spigot for approximately 6 minutes. The property owner confirms that there is no water treatment system installed on this supply. HSNE START personnel collected the sample from the outdoor spigot.

No chemicals or other substances were noted near the sample location.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
10.70	7.89	402.18	72.6	7.94	0.19

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 11:12 hours.

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### 230 Center Street

HSNE START personnel arrived at the address at 10:37 hours. The property consists of a single-family residence. HSNE START personnel purged the well from an outdoor spigot because the valve at the base of the pressure tank was seized. The purge lasted for approximately 10 minutes. No water treatment system was observed by HSNE START personnel. HSNE START personnel collected the sample from the outdoor spigot.

The approximate geographic coordinates for the property are presented below.

Collection Location	Latitude	Longitude
230 Center Street	42.798872°	73.222304°

No chemicals or other substances were noted near the sample location.

Prior to sample collection, HSNE personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
10.72	7.45	503.69	111.1	6.22	0.94

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 10:49 hours.

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### 276 Center Street

HSNE START personnel arrived at the address at 10:53 hours. The property consists of a single-family residence. HSNE START personnel purged the well from an outdoor spigot because the pressure tank could not be located. The purge lasted for approximately 9 minutes. No water treatment system was observed by HSNE START personnel. HSNE START personnel collected the sample from the outdoor spigot.

The approximate geographic coordinates for the property are presented below.

Collection Location	Latitude	Longitude
276 Center Street	42.798464°	73.222660°

No chemicals or other substances were noted near the sample location.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
10.13	7.76	422.52	66.8	2.45	1.64

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 11:03 hours.

#### 2749 North Pownal Road

HSNE START personnel arrived at the address at 11:23 hours. The property consists of a single-family residence. HSNE START personnel purged the well from the kitchen sink because there was no access to the basement. The purge lasted for approximately 9 minutes. No water treatment system was observed by HSNE START personnel. HSNE START personnel collected the sample from the kitchen sink (with the aerator removed).

The approximate geographic coordinates for the property are presented below.

Collection Location	Latitude	Longitude
2749 North Pownal Road	42.796504°	73.223358°

No chemicals were noted near the sample location; however, a dish soap dispenser and pots and pans were drying next to the kitchen sink.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
9.07	7.66	327.97	-55.3	2.12	0.39

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 11:34 hours.

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#### 2763 North Pownal Road

HSNE START personnel arrived at the address at 13:16 hours. The property consists of a single-family residence. HSNE START personnel purged the well from the spigot at the base of the pressure tank. The purge lasted for approximately 8 minutes. A cartridge-type water filter was installed in-line. HSNE START personnel collected the sample from the spigot at the base of the pressure tank, prior to the in-line filter.

The approximate geographic coordinates for the property are presented below.

Collection Location	Latitude	Longitude
2763 North Pownal Road	42.796379°	73.223617°

In addition to a fuel-oil aboveground storage tank (AST), HSNE START personnel noted containers of antifreeze, chainsaw bar/chain oil, paint/stains, hoses, and other unidentifiable containers.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
11.04	7.54	845.28	-22.0	2.32	0.90

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 13:27 hours.

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#### 429 Center Street

HSNE START personnel arrived at the address at 13:54 hours. The property consists of a single-family residence. HSNE START purged the well from a valve connected to the top of the wellhead via what appeared to be a galvanized metal pipe. The purge lasted for approximately 11 minutes. A water softener system was installed on the water system. HSNE START personnel collected the sample from the valve at the wellhead, prior to the in-line filter.

The approximate geographic coordinates for the property are presented below.

Collection Location	Latitude	Longitude
429 Center Street	42.795982°	73.222887°

No chemicals or other substances were noted near the sample location.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
9.25	7.85	308.57	32.3	7.34	0.47

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 14:04 hours.

### **Groundwater Sample Collection from Existing Private Supply Wells - January 12, 2017**

#### 23 West Meadow Court

HSNE START personnel arrived at the address at 08:05 hours. The property consists of a single-family residence. HSNE START personnel purged the well from a spigot at the base of the pressure tank. The purge lasted for approximately 13 minutes. A water softener system and particulate cartridge filter system was installed on the water system. HSNE START personnel collected the sample from the spigot at the base of the pressure tank, prior to the in-line filter.

The approximate geographic coordinates for the property are presented below. Note the coordinates obtained in the field and reported on the field sample sheets are not correct. The coordinates presented below are estimated based on georeferenced air photos.

Collection Location	Latitude	Longitude
23 West Meadow Court	42.796687°	73.226210°

No chemicals or other substances were noted near the sample location.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
10.63	7.28	1032.6	64.3	6.74	0.39

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 08:28 hours.

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### 293 Center Street

HSNE START personnel arrived at the address at 08:35 hours. The property consists of a single-family residence. HSNE START personnel purged the well from an outdoor spigot. The purge lasted for approximately 10 minutes. A water softener system and particulate cartridge filter system was installed on the water system. HSNE START personnel collected the sample from the outdoor spigot, prior to the in-line filter.

The approximate geographic coordinates for the property are presented below.

Collection Location	Latitude	Longitude
293 Center Street	42.797882°	73.222281°

No chemicals or other substances were noted near the sample location.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
10.20	7.87	426.7	75.0	2.97	0.13

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 08:50 hours.

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### 2705 North Pownal Road

HSNE START personnel arrived at the address at 09:00 hours. The property consists of a single-family residence. HSNE START personnel purged the well at the kitchen sink, as the pressure tank was not accessible. The purge lasted for approximately 7 minutes. HSNE START personnel did not observe a water treatment system at this residence. HSNE START personnel collected the sample from the kitchen sink, with the aerator removed.

The approximate geographic coordinates for the property are presented below.

Collection Location	Latitude	Longitude
2705 North Pownal Road	42.796778°	73.225020°

No chemicals or other substances were noted near the sample location.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
10.10	7.45	573.03	50.7	3.89	1.11

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 09:20 hours.

### 316 Center Street

HSNE START personnel arrived at the address at 09:59 hours. The property consists of a single-family residence. HSNE START personnel purged the well at the kitchen sink, as the pressure tank was not accessible. The purge lasted for approximately 11 minutes. HSNE START personnel did not observe a water treatment system at this residence. HSNE START personnel collected the sample from the kitchen sink, with the aerator removed.

The approximate geographic coordinates for the property are presented below. The coordinates were not collected in the field for this location. HSNE START personnel estimated these coordinates based on georeferenced air photos.

Collection Location	Latitude	Longitude
316 Center Street	42.797638°	73.223001°

No chemicals or other substances were noted near the sample location.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
10.29	7.78	395.65	75.2	3.79	0.28

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 10:10 hours.

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### 2685 North Pownal Road

HSNE START personnel arrived at the address at 12:56 hours. The property consists of a single-family residence, and what appears to be either a workshop, or another single-family residence. The owner reports only one well on the property. HSNE START personnel purged the well from a spigot at the base of the pressure tank (located in an outside shed). The purge lasted for approximately 8 minutes. HSNE START personnel did not observe a water treatment system at this residence. HSNE START personnel collected the sample from the spigot at the base of the pressure tank.

The approximate geographic coordinates for the property are presented below.

Collection Location	Latitude	Longitude
2685 North Pownal Road	42.796829°	73.225990°

Several substances were located in the outdoor shed, including a gasoline container, an unlabeled pump several sprayers containing unidentified substances, fertilizer, joint compound, and other unlabeled plastic containers.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
11.13	7.19	769.84	94.0	8.31	0.96

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 13:10 hours.

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### 382 Center Street

HSNE START personnel arrived at the address at 13:16 hours. The property consists of a single-family residence. HSNE START personnel purged the well at a spigot at the base of the pressure tank. The purge

lasted for approximately 10 minutes. A cartridge particulate filter was installed on this water system. HSNE START personnel collected the sample from the spigot at the base of the pressure tank, prior to the filter.

The approximate geographic coordinates for the property are presented below.

Collection Location	Latitude	Longitude
382 Center Street	42.796780°	73.223686°

A small carpet was placed beneath the pressure tank. Additionally, HSEN START personnel observed several paint/stain cans some with evidence of spillage, Dirtex cleaner, PVC glue, a liquid lubricant, carpet cleaner, a fuel oil AST, and several small containers of unidentified substances near the sample collection location.

Prior to sample collection, HSNE START personnel collected a standard suite of water quality parameters which are summarized in the table below.

Temperature (°C)	pH (Standard Units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
11.36	7.57	1082.4	76.2	7.25	3.97

Notes:

°C – Degrees Celsius

µS/cm – microsiemens per centimeter

mV – millivolts

mg/L – milligrams per liter

NTU – Nephelometric turbidity units

HSNE START personnel departed the property at 13:31 hours.

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### Sampling Summary

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#### Groundwater Pathway

##### Groundwater Sample Collection from Existing Private Supply Wells

The following table summarizes the groundwater sample collection details for samples collected from the existing private supply wells. Samples were analyzed by NERL for PFAAs via a modified EPA Method 537-1.

Sample ID	Collection Location	Collection Date/Time	Comments
CS-230-0	230 Center Street, Pownal	1/11/17 at 10:47	
CS-276-0	276 Center Street, Pownal	1/11/17 at 11:02	
CS-293-0	293 Center Street, Pownal	1/12/17 at 08:47	
CS-300-1	300 Center Street, Pownal	1/11/17 at 10:27	Garage Well
CS-300-2	300 Center Street, Pownal	1/11/17 at 11:11	House Well
CS-316-0	316 Center Street, Pownal	1/12/17 at 10:10	
CS-382-0	382 Center Street, Pownal	1/12/17 at 13:28	Field Duplicate Parent
CS-382-1	382 Center Street, Pownal	1/12/17 at 13:38	Field Duplicate
CS-429-0	429 Center Street, Pownal	1/11/17 at 14:03	
NPR-2685-0	2685 North Pownal Road, Pownal	1/12/17 at 13:08	MS/MSD
NPR-2705-0	2705 North Pownal Road, Pownal	1/12/17 at 09:14	

Sample ID	Collection Location	Collection Date/Time	Comments
NPR-2749-0	2749 North Pownal Road, Pownal	1/11/17 at 11:33	
NPR-2763-0	2763 North Pownal Road, Pownal	1/11/17 at 13:26	
WMC-23-0	23 West Meadow Court, Pownal	1/12/17 at 08:20	

Notes:

MS/MSD – Matrix spike/matrix spike duplicate

### **Quality Control Blank and Performance Evaluation Samples**

In addition to the field-duplicate pairs and the matrix-spike/matrix-spike duplicate (MS/MSD) samples identified above, the following table summarizes the field quality control blank and performance evaluation (PE) samples collected as part of this investigation.

Sample ID	Collection Date/Time	Comments
CS-230-FRB	1/11/17 at 10:45	Field blank collected at 230 Center Street
CS-276-FRB	1/11/17 at 11:00	Field blank collected at 276 Center Street
CS-293-FRB	1/12/17 at 08:45	Field blank collected at 293 Center Street
CS-300-FRB	1/11/17 at 10:32	Field blank collected at 300 Center Street
CS-316-FRB	1/12/17 at 10:05	Field blank collected at 316 Center Street
CS-382-FRB	1/12/17 at 13:25	Field blank collected at 382 Center Street
CS-429-FRB	1/11/17 at 14:00	Field blank collected at 429 Center Street
NPR-2685-FRB	1/12/17 at 13:05	Field blank collected at 2685 North Pownal Road
NPR-2705-FRB	1/12/17 at 09:10	Field blank collected at 2705 North Pownal Road
NPR-2749-FRB	1/11/17 at 11:30	Field blank collected at 2749 North Pownal Road
NPR-2763-FRB	1/11/17 at 13:20	Field blank collected at 2763 North Pownal Road
WMC-23-FRB	1/12/17 at 08:20	Field blank collected at 23 West Meadow Court
SRS2487	1/12/17 at 08:00	Performance evaluation sample

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### **Analytical Results Summary**

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A complete laboratory analytical-results package for this project is included in Attachment C. A summary of the analytical results is provided in the attached Tables 1 and 2, and is described in general terms below.

### **Groundwater Pathway**

#### **Groundwater Sample Collection from Existing Private Supply Wells**

Three of the water samples contained detectable concentrations of perfluoroheptanoic acid. Samples collected from 23 West Meadow Court, 2705 North Pownal Road, and the well supplying the garage at 300 Center Street. These detections ranged between 28 nanograms per liter (ng/L), to 80 ng/L. None of the analyses for the associated field blank samples reported positive detections of the analytes.

### **Quality Control Sample Summary**

The laboratory results for the performance evaluation (PE) sample were within the PE required limits.

The surrogate recoveries were within established limits.

The matrix spike sample recoveries were within specifications.

No blank samples returned detectable PFC concentrations.

The laboratory-fortified blank samples established at the 16 ng/L and 80 ng/L reporting limits were recovered within the established limits.

Based on these quality assurance and control data, the sample analytical results appear to be of sufficient quality to meet project goals.

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SITE: CENTER STREET AREA, POWNAL, VERMONT  
 SDG: 17010005  
 LABORATORY: EPA NERL

DATA SUMMARY TABLE 1  
 PERFLUORINATED ALKYL ACIDS (PFAAs)  
 AQUEOUS ANALYSIS VIA EPA METHOD 537  
 RESULTS IN ng/L

FIELD SAMPLE IDENTIFICATION SAMPLE LOCATION QC TYPE	CS-230-0		CS-276-0		CS-293-0		CS-300-2		CS-316-0		CS-382-0		CS-382-1		CS-429-0	
	230 Center Street		276 Center Street		293 Center Street		300 Center Street House		316 Center Street		382 Center Street		382 Center Street		429 Center Street	
	Field Sample		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample		Field Replicate		Field Sample	
COMPOUND	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit
Perfluorooctane sulfonate (PFOS)	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8
Perfluorooctanoic acid (PFOA)	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8
Perfluorononanoic acid (PFNA)	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16
Perfluorohexanesulfonic acid (PFHxS)	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8
Perfluoroheptanoic acid (PFHpA)	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16
Perfluorobutanesulfonic acid (PFBS)	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16
DILUTION FACTOR	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
DATE SAMPLED	1/11/2017		1/11/2017		1/12/2017		1/11/2017		1/12/2017		1/12/2017		1/12/2017		1/11/2017	
DATE PREPARED	1/17/2017		1/17/2017		1/17/2017		1/17/2017		1/17/2017		1/17/2017		1/17/2017		1/17/2017	
DATE ANALYZED	1/18/2017		1/18/2017		1/18/2017		1/18/2017		1/18/2017		1/19/2017		1/18/2017		1/19/2017	

NOTES:  
 Results are reported in nanograms per Liter (ng/L).  
 ND = Values not reported above the stated Reporting Limit

SITE: CENTER STREET AREA, POWNAL, VERMONT  
SDG: 17010005  
LABORATORY: EPA NERL

DATA SUMMARY TABLE 1  
PERFLUORINATED ALKYL ACIDS (PFAAs)  
AQUEOUS ANALYSIS VIA EPA METHOD 537  
RESULTS IN ng/L

FIELD SAMPLE IDENTIFICATION	NPR-2685-0		NPR-2705-0		NPR-2749-0		NPR-2763-0		WMC-23-0		CS-300-1	
SAMPLE LOCATION	2685 North Pownal Road		2705 North Pownal Road		2749 North Pownal Road		2763 North Pownal Road		23 West Meadow Court		300 Center Street Garage	
QC TYPE	Field Sample		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample	
COMPOUND	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit
Perfluorooctane sulfonate (PFOS)	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8
Perfluorooctanoic acid (PFOA)	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8
Perfluorononanoic acid (PFNA)	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16
Perfluorohexanesulfonic acid (PFHxS)	ND	8	ND	8	ND	8	ND	8	ND	8	ND	8
Perfluoroheptanoic acid (PFHpA)	ND	16	80	16	ND	16	ND	16	28	16	50	16
Perfluorobutanesulfonic acid (PFBS)	ND	16	ND	16	ND	16	ND	16	ND	16	ND	16
DILUTION FACTOR	1.00		1.00		1.00		1.00		1.00		1.00	
DATE SAMPLED	1/12/2017		1/12/2017		1/11/2017		1/11/2017		1/12/2017		1/11/2017	
DATE PREPARED	1/17/2017		1/17/2017		1/17/2017		1/17/2017		1/17/2017		1/17/2017	
DATE ANALYZED	1/18/2017		1/18/2017		1/18/2017		1/18/2017		1/18/2017		1/18/2017	

**NOTES:**  
Results are reported in nanograms per Liter (ng/L).  
ND = Values not reported above the stated Reporting Limit

SITE: CENTER STREET AREA, POWNAL, VERMONT  
 SDG: 17010005  
 LABORATORY: EPA NERL

FIELD BLANK DATA SUMMARY TABLE 2  
 PERFLUORINATED ALKYL ACIDS (PFAAs)  
 AQUEOUS ANALYSIS VIA EPA METHOD 537  
 RESULTS IN ng/L

FIELD SAMPLE IDENTIFICATION SAMPLE LOCATION QC TYPE	CS-300-FRB		NPR-2705-FRB		WMC-23-FRB	
	300 Center Street		2705 North Pownal Road		23 West Meadow Court	
	Field Blank		Field Blank		Field Blank	
COMPOUND	Result	Reporting Limit	Result	Reporting Limit	Result	Reporting Limit
Perfluorooctane sulfonate (PFOS)	ND	8	ND	8	ND	8
Perfluorooctanoic acid (PFOA)	ND	8	ND	8	ND	8
Perfluorononanoic acid (PFNA)	ND	16	ND	16	ND	16
Perfluorohexanesulfonic acid (PFHxS)	ND	8	ND	8	ND	8
Perfluoroheptanoic acid (PFHpA)	ND	16	ND	16	ND	16
Perfluorobutanesulfonic acid (PFBS)	ND	16	ND	16	ND	16
DILUTION FACTOR	1.00		1.00		1.00	
DATE SAMPLED	1/11/2017		1/12/2017		1/12/2017	
DATE PREPARED	1/19/2017		1/19/2017		1/19/2017	
DATE ANALYZED	1/19/2017		1/19/2017		1/19/2017	

**NOTES:**

Results are reported in nanograms per Liter (ng/L).  
 ND = Values not reported above the stated Reporting Limit

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## PROPERTY INFORMATION CARD

Address: 23 West Meadow Court

Occupant: \_\_\_\_\_

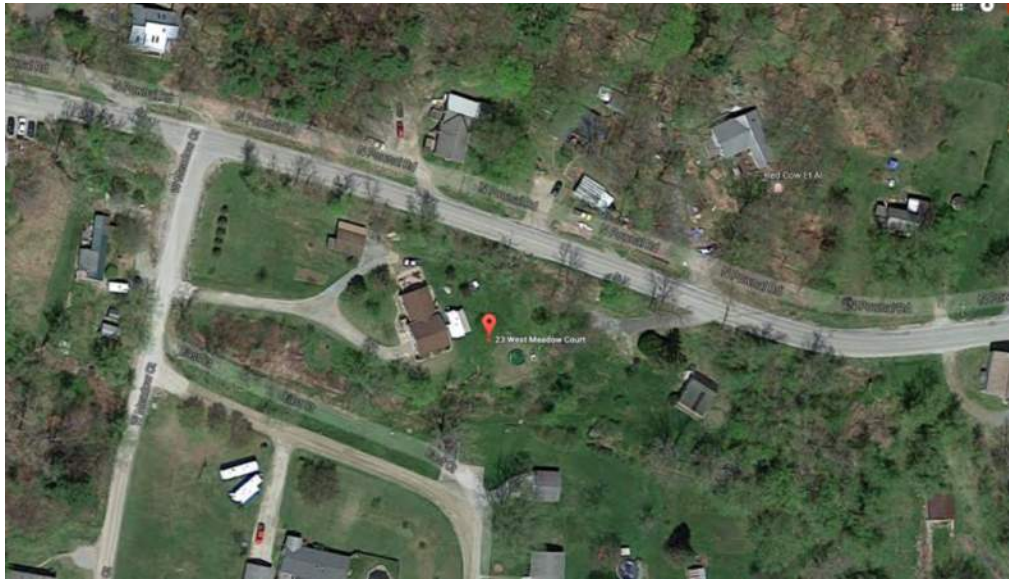
Owner Name: David and Angela Caron

Well Depth: ~100'?

Pump Depth: Unk

Water Treatment: Softener/filter

### Notes:



**MAP VIEW**



**STREET VIEW**



**SAMPLE POINT VIEW**



## PROPERTY INFORMATION CARD

Address: 230 Center Street

Occupant: \_\_\_\_\_

Owner Name: Steve Kauppi

Well Depth: 100' ? Pump Depth: Unk Water Treatment: None

**Notes:** Well installed circa 1950



### MAP VIEW



**STREET VIEW**



**SAMPLE POINT VIEW**



## PROPERTY INFORMATION CARD

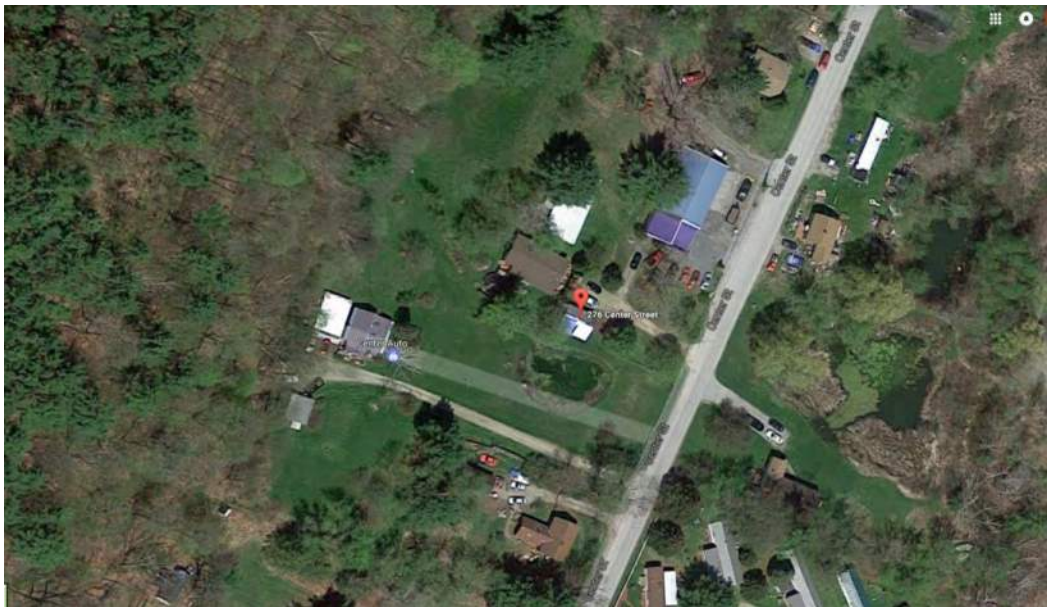
Address: 276 Center Street

Occupant: \_\_\_\_\_

Owner Name: Rodney Rawlings

Well Depth: 165' Pump Depth: Unk Water Treatment: None

**Notes:** Location of pressure tank not known



**MAP VIEW**



**STREET VIEW**



**SAMPLE POINT VIEW**



## PROPERTY INFORMATION CARD

Address: 293 Center Street

Occupant: \_\_\_\_\_

Owner Name: Brian Weyers

Well Depth: ~300'

Pump Depth: 140'

Water Treatment: Softener/Filter

**Notes:** Pressure tank not accessed



**MAP VIEW**



**STREET VIEW**



## PROPERTY INFORMATION CARD

Address: 300 Center Street

Occupant: Garage

Owner Name: Stephen Kauppi

Well Depth: 300' Pump Depth: 125' Water Treatment: None

**Notes:** Center Street auto garage; address may be 248 Center Street



### MAP VIEW



**STREET VIEW**



**SAMPLE POINT VIEW**



## PROPERTY INFORMATION CARD

Address: 300 Center Street

Occupant: House

Owner Name: Stephen Kauppi

Well Depth: 300' Pump Depth: 140' Water Treatment: None

### Notes:



**MAP VIEW**



**STREET VIEW**



**SAMPLE POINT VIEW**



## PROPERTY INFORMATION CARD

Address: 316 Center Street

Occupant: \_\_\_\_\_

Owner Name: Jeff Burrington

Well Depth: 440' Pump Depth: 400' Water Treatment: None

**Notes:** Pressure tank not accessible



### MAP VIEW



**STREET VIEW**



**SAMPLE POINT VIEW**



## PROPERTY INFORMATION CARD

Address: 382 Center Street

Occupant: \_\_\_\_\_

Owner Name: John Boucher

Well Depth: Unk'

Pump Depth: Unk'

Water Treatment: Cartridge Filter

### Notes:



**MAP VIEW**



**STREET VIEW**



**SAMPLE POINT VIEW**



## PROPERTY INFORMATION CARD

Address: 429 Center Street

Occupant: \_\_\_\_\_

Owner Name: Jeff Egan

Well Depth: Unk' Pump Depth: Unk' Water Treatment: Softener

**Notes:** Collected from the wellhead



**MAP VIEW**



**STREET VIEW**



**SAMPLE POINT VIEW**



## PROPERTY INFORMATION CARD

Address: 2685 North Pownal Road

Occupant: \_\_\_\_\_

Owner Name: Randall Wise

Well Depth: 80'

Pump Depth: Unk'

Water Treatment: None

**Notes:** Well and pressure tank are in a shed



**MAP VIEW**



**STREET VIEW**



**SAMPLE POINT VIEW**

## PROPERTY INFORMATION CARD

Address: 2705 North Pownal Road

Occupant: \_\_\_\_\_

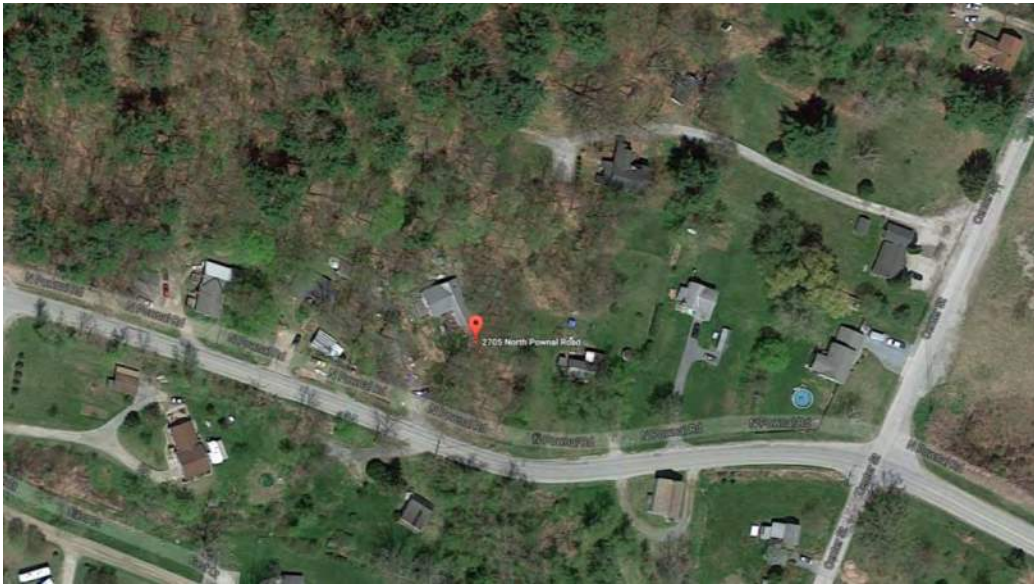
Owner Name: Walter Klinger

Well Depth: Unk'

Pump Depth: Unk'

Water Treatment: None

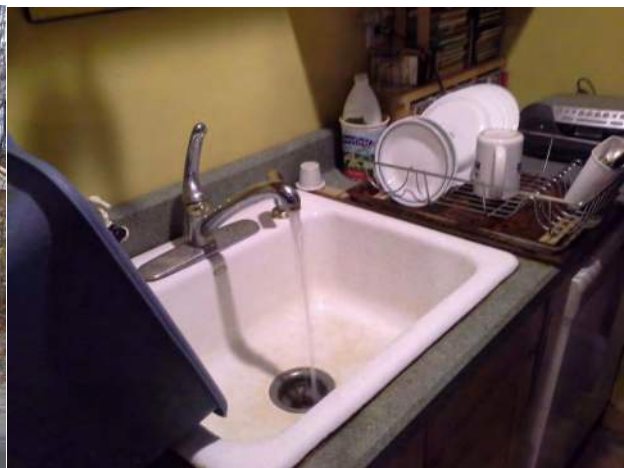
**Notes:** Pressure tank inaccessible



**MAP VIEW**



**STREET VIEW**



**SAMPLE POINT VIEW**



## PROPERTY INFORMATION CARD

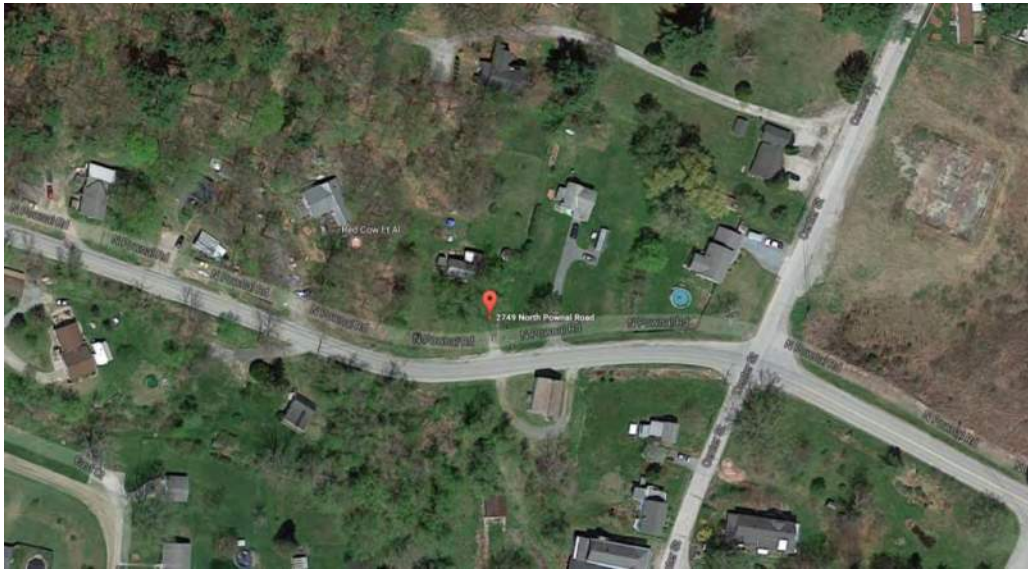
Address: 2749 North Pownal Road

Occupant: \_\_\_\_\_

Owner Name: Stephen Kauppi

Well Depth: ~260' Pump Depth: 200' Water Treatment: None

**Notes:** Well is approximately 10 years old. No access to basement is available.



**MAP VIEW**



**STREET VIEW**



**SAMPLE POINT VIEW**



## PROPERTY INFORMATION CARD

Address: 2763 North Pownal Road

Occupant: \_\_\_\_\_

Owner Name: George Andrews

Well Depth: 110'

Pump Depth: 83'

Water Treatment: Cartridge filter

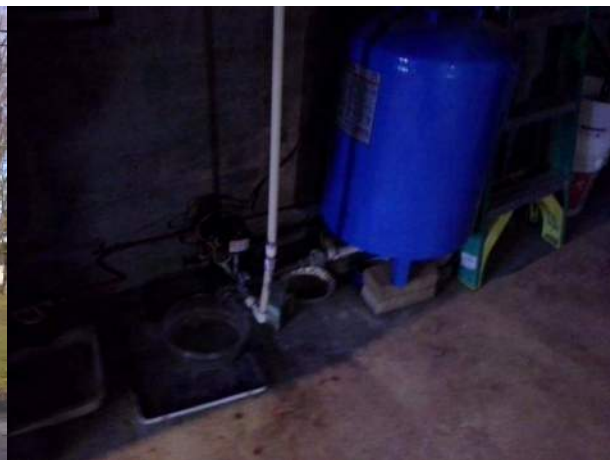
### Notes:



**MAP VIEW**



**STREET VIEW**



**SAMPLE POINT VIEW**

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Engineering a Sustainable Future

# RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 23 W. Meadow Ct, Pownal, VT

Date: 01/12/2017

Site: Pownal Center Street Investigation

Weather: Light rain, calm, 48

Owner: David and Angela Caron

Nobis Personnel: JRS, DWG

Coord.: 42.798508, -73.226332

Sampler: JRS

### SAMPLE COLLECTION INFORMATION

Purge Start Time: 08:07

Arrival time at address: 08:05

Purge Completion Time: 08:23

Departure Time: 08:28

Purge Duration: 13 min

Sample Time: 08:24

Purge Rate/Gallons Purged: NA

Sample ID: \_\_\_\_\_

Sample collection point: Spigot at bottom of pressure tank.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Water softener and particulate cartridge filter installed. Well is about 100 ft.
Water system installed:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Sample collected before system/tank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

### PROPOSED ANALYSIS

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

### WATER PARAMETERS

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
10.63	7.28	1032.6	64.3	6.74	0.39	08:20

### NOTES



Engineering a Sustainable Future

# RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 230 Center Street, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: Steve Kauppi  
 Coord.: 42.798872,-73.222304

Date: 01/11/2017  
 Weather: Clear, calm, 45F  
 Nobis Personnel: JRS, DWG  
 Sampler: JRS

### SAMPLE COLLECTION INFORMATION

Purge Start Time: 10:37 Arrival time at address: 10:37  
 Purge Completion Time: 10:47 Departure Time: 10:49  
 Purge Duration: 10 min Sample Time: 10:47  
 Purge Rate/Gallons Purged: \_\_\_\_\_ Sample ID: \_\_\_\_\_  
 Sample collection point: Outside spigot because pressure tank valve was seized.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Well circa 1950, not sure but mayne 100 ft deep
Water system installed:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Sample collected before system/tank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

### PROPOSED ANALYSIS

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

### WATER PARAMETERS

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
10.72	7.45	503.69	111.1	6.22	0.94	10:44

### NOTES

FRB collected outside next to spigot.



Engineering a Sustainable Future

# RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 276 Center Street, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: Rodney Rawlings  
 Coord.: 42.798464,-73.22266

Date: 01/11/2017  
 Weather: Clear, calm, 45F  
 Nobis Personnel: JRS, DWG  
 Sampler: DWG

### SAMPLE COLLECTION INFORMATION

Purge Start Time: 10:53 Arrival time at address: 10:53  
 Purge Completion Time: 11:02 Departure Time: 11:03  
 Purge Duration: 9 min Sample Time: 11:02  
 Purge Rate/Gallons Purged: NA Sample ID: \_\_\_\_\_  
 Sample collection point: Sampled from the outside spigot, could access pressure tank.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Well is 165 ft deep, 40 ft of casing. Could not observe the pressure tank.
Water system installed:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Sample collected before system/tank:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

### PROPOSED ANALYSIS

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

### WATER PARAMETERS

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
10.13	7.76	422.52	66.8	2.45	1.64	10:57

### NOTES



Engineering a Sustainable Future

# RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 293 Center Street, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: Brian Weyers  
 Coord.: 42.797882,-73.222281

Date: 01/12/2017  
 Weather: Light rain, calm, 48  
 Nobis Personnel: JRS, DWG  
 Sampler: \_\_\_\_\_

### SAMPLE COLLECTION INFORMATION

Purge Start Time: 08:37 Arrival time at address: 08:35  
 Purge Completion Time: 08:47 Departure Time: 08:50  
 Purge Duration: 10 min Sample Time: 08:47  
 Purge Rate/Gallons Purged: NA Sample ID: \_\_\_\_\_  
 Sample collection point: Outside spigot, untreated.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Water softener and particulate cartridge filter installed.
Water system installed:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Sample collected before system/tank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Well is about 300 ft deep, pump at 140 feet.
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

### PROPOSED ANALYSIS

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

### WATER PARAMETERS

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
10.20	7.87	426.7	75.0	2.97	0.13	08:45

### NOTES



## RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 300 Center Street, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: Stephen Kauppi  
 Coord.: 42.798518,-73.2224

Date: 01/11/2017  
 Weather: Clear, calm, 45F  
 Nobis Personnel: JRS, DWG  
 Sampler: JRS

### SAMPLE COLLECTION INFORMATION

Purge Start Time: 10:18 Arrival time at address: 10:13  
 Purge Completion Time: 10:25 Departure Time: 10:29  
 Purge Duration: 8 min Sample Time: 10:27  
 Purge Rate/Gallons Purged: 10 min. Sample ID: Garage well  
 Sample collection point: Spigot at bottom of pressure tank.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Garage sample: 300 ft deep, pump at 125 ft.
Water system installed:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	House well: 15 years old, 300 ft, pump at 140 ft.
Sample collected before system/tank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

### PROPOSED ANALYSIS

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

### WATER PARAMETERS

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
10.75	7.67	447	-32.13	2.73	7.35	

### NOTES



## RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 300 Center Street, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: Steve Kauppi  
 Coord.: 42.798426,-73.223048

Date: 01/11/2017  
 Weather: Clear, calm, 45F  
 Nobis Personnel: JRS, DWG  
 Sampler: JRS

### SAMPLE COLLECTION INFORMATION

Purge Start Time: 11:05 Arrival time at address: 11:05  
 Purge Completion Time: 11:11 Departure Time: 11:12  
 Purge Duration: 6 min Sample Time: 11:11  
 Purge Rate/Gallons Purged: NA Sample ID: House sample  
 Sample collection point: Outside spigot, owner confirms no componentms in line.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Well 300 ft deep, pump 140 ft.
Water system installed:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Sample collected before system/tank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

### PROPOSED ANALYSIS

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

### WATER PARAMETERS

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
10.70	7.89	402.18	72.6	7.94	0.19	11:07

### NOTES



## RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 316 Center Street, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: Jeff Burrington  
 Coord.: \_\_\_\_\_

Date: 01/12/2017  
 Weather: Light rain, breezy,  
 Nobis Personnel: JRS, DWG  
 Sampler: JRS

**SAMPLE COLLECTION INFORMATION**

Purge Start Time: 09:59 Arrival time at address: 09:59  
 Purge Completion Time: 10:10 Departure Time: 10:10  
 Purge Duration: 11 min Sample Time: 10:10  
 Purge Rate/Gallons Purged: NA Sample ID: \_\_\_\_\_  
 Sample collection point: Kitchen faucet, pressure tank is inaccessible.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Well is 440 ft deep, pump is 400 feet deep.
Water system installed:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Sample collected before system/tank:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

**PROPOSED ANALYSIS**

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

**WATER PARAMETERS**

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
10.29	7.78	395.65	75.2	3.79	0.28	10:02

**NOTES**



## RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 382 Center Street, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: John Boucher  
 Coord.: 42.79678,-73.223686

Date: 01/12/2017  
 Weather: Rain, calm, 45F  
 Nobis Personnel: JRS, DWG  
 Sampler: JRS

**SAMPLE COLLECTION INFORMATION**

Purge Start Time: 13:17 Arrival time at address: 13:16  
 Purge Completion Time: 13:29 Departure Time: 13:31  
 Purge Duration: 10 min Sample Time: 13:28  
 Purge Rate/Gallons Purged: NA Sample ID: \_\_\_\_\_  
 Sample collection point: Spigot at bottom of pressure tank.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Particulate cartridge filter installed.
Water system installed:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Sample collected before system/tank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

**PROPOSED ANALYSIS**

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

**WATER PARAMETERS**

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
11.36	7.57	1082.4	76.2	7.25	3.97	13:26

**NOTES**

Collected a field duplicate.



Engineering a Sustainable Future

# RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 429 Center Street, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: Jeff Egan  
 Coord.: 42.795982,-73.222887

Date: 01/11/2017  
 Weather: Clear, calm, 45F  
 Nobis Personnel: JRS, DWG  
 Sampler: JRS

### SAMPLE COLLECTION INFORMATION

Purge Start Time: 13:50 Arrival time at address: 13:54  
 Purge Completion Time: 14:01 Departure Time: 14:04  
 Purge Duration: 11 min Sample Time: 14:03  
 Purge Rate/Gallons Purged: NA Sample ID: \_\_\_\_\_  
 Sample collection point: Straight from the well.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Water softener installed installed.
Water system installed:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Sample collected before system/tank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

### PROPOSED ANALYSIS

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

### WATER PARAMETERS

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
9.25	7.85	308.57	32.3	7.34	0.47	14:02

### NOTES



## RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 2685 N. Pownal Road, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: Randall Wise  
 Coord.: 42.796829,-73.22599

Date: 01/12/2017  
 Weather: Light rain, calm, 48  
 Nobis Personnel: JRS, DWG  
 Sampler: JRS

### SAMPLE COLLECTION INFORMATION

Purge Start Time: 13:00 Arrival time at address: 12:56  
 Purge Completion Time: 13:08 Departure Time: 13:10  
 Purge Duration: 8 min Sample Time: 13:08  
 Purge Rate/Gallons Purged: NA Sample ID: \_\_\_\_\_  
 Sample collection point: Spigot at bottom of pressure tank.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Well is 80 ft deep. Well and pressure tank in outside shed.
Water system installed:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Sample collected before system/tank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

### PROPOSED ANALYSIS

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

### WATER PARAMETERS

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
11.13	7.19	769.84	94.0	8.31	0.96	13:02

### NOTES

Collected MS/MSD.



## RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 2705 N. Pownal Road, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: Walter Klinger  
 Coord.: 42.796778,-73.22502

Date: 01/12/2017  
 Weather: Light rain, breezy,  
 Nobis Personnel: JRS, DWG  
 Sampler: JRS

### SAMPLE COLLECTION INFORMATION

Purge Start Time: 09:08 Arrival time at address: 09:00  
 Purge Completion Time: 09:15 Departure Time: 09:20  
 Purge Duration: 7 min Sample Time: 09:14  
 Purge Rate/Gallons Purged: NA Sample ID: \_\_\_\_\_  
 Sample collection point: Kitchen faucet, pressure tank is inaccessible.

Property owner home/present:	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
Water system installed:	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
Sample collected before system/tank:	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
Water Parameters Monitored:	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No

### PROPOSED ANALYSIS

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

### WATER PARAMETERS

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
10.10	7.45	573.03	50.7	3.89	1.11	09:11

### NOTES



## RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 2749 N. Pownal Road, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: Steve Kauppi  
 Coord.: 42.796504,-73.223358

Date: 01/11/2017  
 Weather: Clear, calm, 45F  
 Nobis Personnel: JRS, DWG  
 Sampler: JRS

### SAMPLE COLLECTION INFORMATION

Purge Start Time: 11:24 Arrival time at address: 11:23  
 Purge Completion Time: 11:33 Departure Time: 11:34  
 Purge Duration: 9 min Sample Time: 11:33  
 Purge Rate/Gallons Purged: NA Sample ID: \_\_\_\_\_  
 Sample collection point: Kitchen sink, no access to basement.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Estimated well depth 260 ft, pump 200 ft. 10 years old.
Water system installed:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Sample collected before system/tank:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

### PROPOSED ANALYSIS

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

### WATER PARAMETERS

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
9.07	7.66	327.97	-55.3	2.12	0.39	11:26

### NOTES



## RESIDENTIAL SAMPLE COLLECTION LOG

Property Address: 2763 N. Pownal Road, Pownal, VT  
 Site: Pownal Center Street Investigation  
 Owner: George Andrews  
 Coord.: 42.796379,-73.223617

Date: 01/11/2017  
 Weather: Clear, calm, 45F  
 Nobis Personnel: JRS, DWG  
 Sampler: JRS

**SAMPLE COLLECTION INFORMATION**

Purge Start Time: 01:17 Arrival time at address: 01:16  
 Purge Completion Time: 01:25 Departure Time: 01:27  
 Purge Duration: 8 min Sample Time: 01:26  
 Purge Rate/Gallons Purged: NA Sample ID: \_\_\_\_\_  
 Sample collection point: Spigot at the pressure tank.

Property owner home/present:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Particulate cartridge filter in line. Sample collected before filter.
Water system installed:	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Well is 110 ft deep, pump is at 83 feet.
Sample collected before system/tank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Water Parameters Monitored:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

**PROPOSED ANALYSIS**

<input type="checkbox"/> VOCs	<input type="checkbox"/> Phthalic Anhydride	<input checked="" type="checkbox"/> PFASs:
<input type="checkbox"/> SVOCs	<input type="checkbox"/> Acetaldehyde/Formaldehyde	<input type="checkbox"/> Other:
<input type="checkbox"/> NDMA	<input type="checkbox"/> Hydrazine	
<input type="checkbox"/> NDPA	<input type="checkbox"/> Diphenylamine	
<input type="checkbox"/> TIC	<input type="checkbox"/> Metals	
<input type="checkbox"/> PCBs	<input type="checkbox"/> Anions	
<input type="checkbox"/> TOC	<input type="checkbox"/> Ammonia	

**WATER PARAMETERS**

Temp	pH	Spec. Cond.	ORP	DO	Turb.	Time
11.04	7.54	845.28	-22.0	2.32	0.90	01:22

**NOTES**

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## Laboratory Report

January 30, 2017

Martha Bosworth - Mail Code OSRR07-2  
US EPA New England R1

Project Number: 17010005  
Project: Pownal DW - Pownal, VT  
Analysis: Perfluorinated Alkyl Acids in Water  
EPA Chemist: Peter Philbrook

Date Samples Received by the Laboratory: 01/13/2017

### Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-LCMS537-0.

Water samples were extracted and analyzed following US EPA Method 537, DETERMINATION OF SELECTED PERFLUORINATED ALKYL ACIDS IN DRINKING WATER BY SOLID PHASE EXTRACTION AND LIQUID CHROMATOGRAPHY / TANDEM MASS SPECTROMETRY (LC/MS/MS), Version 1.1, September 2009

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

17010005\$537

**Qualifiers:**

**RL** = Reporting limit

**ND** = Not Detected above Reporting limit

**NA** = Not Applicable due to high sample dilutions or sample interferences

**NC** = Not calculated since analyte concentration is ND.

**J** = Estimated value

**J1** = Estimated value due to MS recovery outside acceptance criteria

**J2** = Estimated value due to LFB result outside acceptance criteria

**J3** = Estimated value due to RPD result outside acceptance criteria

**J4** = Estimated value due to LCS result outside acceptance criteria

**E** = Estimated value exceeds the calibration range

**L** = Estimated value is below the calibration range

**B** = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.

**R** = No recovery was calculated since the analyte concentration is greater than four times the spike level.

**P** = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.

**C** = The identification has been confirmed by GC/MS.

**A** = Suspected Aldol condensation product.

**N** = Tentatively identified compound.

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID:	CS-230-0	Lab Sample ID:	AB65215
Date of Collection:	1/11/2017	Matrix:	GW
Date of Preparation:	1/17/2017	Amount Prepared:	250 mL
Date of Analysis:	1/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	73	64 - 102
PFHxA 13C2	83	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID: CS-276-0  
Date of Collection: 1/11/2017  
Date of Preparation: 1/17/2017  
Date of Analysis: 1/18/2017  
Dry Weight Prepared: N/A  
Wet Weight Prepared: N/A

Lab Sample ID: AB65217  
Matrix: GW  
Amount Prepared: 250 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	77	64 - 102
PFHxA 13C2	97	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID: CS-293-0  
Date of Collection: 1/12/2017  
Date of Preparation: 1/17/2017  
Date of Analysis: 1/18/2017  
Dry Weight Prepared: N/A  
Wet Weight Prepared: N/A

Lab Sample ID: AB65219  
Matrix: GW  
Amount Prepared: 250 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	72	64 - 102
PFHxA 13C2	91	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID:	CS-300-2	Lab Sample ID:	AB65221
Date of Collection:	1/11/2017	Matrix:	GW
Date of Preparation:	1/17/2017	Amount Prepared:	250 mL
Date of Analysis:	1/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	75	64 - 102
PFHxA 13C2	98	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID:	CS-300-FRB	Lab Sample ID:	AB65222
Date of Collection:	1/11/2017	Matrix:	Blank
Date of Preparation:	1/19/2017	Amount Prepared:	250 mL
Date of Analysis:	1/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	69	64 - 102
PFHxA 13C2	81	71 - 112

**Comments:** This is the FRB for samples AB65221 and AB65241 (300 Center Street) - This was extracted and analyzed due to target compound hits in sample AB65241.

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID: CS-316-0  
Date of Collection: 1/12/2017  
Date of Preparation: 1/17/2017  
Date of Analysis: 1/18/2017  
Dry Weight Prepared: N/A  
Wet Weight Prepared: N/A

Lab Sample ID: AB65223  
Matrix: GW  
Amount Prepared: 250 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	75	64 - 102
PFHxA 13C2	92	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID: CS-382-0  
Date of Collection: 1/12/2017  
Date of Preparation: 1/17/2017  
Date of Analysis: 1/19/2017  
Dry Weight Prepared: N/A  
Wet Weight Prepared: N/A

Lab Sample ID: AB65225  
Matrix: GW  
Amount Prepared: 250 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	80	64 - 102
PFHxA 13C2	93	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID:	CS-382-1	Lab Sample ID:	AB65226
Date of Collection:	1/12/2017	Matrix:	GW
Date of Preparation:	1/17/2017	Amount Prepared:	250 mL
Date of Analysis:	1/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	75	64 - 102
PFHxA 13C2	88	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID:	CS-429-0	Lab Sample ID:	AB65228
Date of Collection:	1/11/2017	Matrix:	GW
Date of Preparation:	1/17/2017	Amount Prepared:	250 mL
Date of Analysis:	1/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	80	64 - 102
PFHxA 13C2	95	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID:	NPR-2685-0	Lab Sample ID:	AB65230
Date of Collection:	1/12/2017	Matrix:	GW
Date of Preparation:	1/17/2017	Amount Prepared:	250 mL
Date of Analysis:	1/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	86	64 - 102
PFHxA 13C2	99	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID: NPR-2705-0  
Date of Collection: 1/12/2017  
Date of Preparation: 1/17/2017  
Date of Analysis: 1/18/2017  
Dry Weight Prepared: N/A  
Wet Weight Prepared: N/A

Lab Sample ID: AB65232  
Matrix: GW  
Amount Prepared: 250 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: N/A

CAS Number	Compound	Concentration		RL	Qualifier
		ng/L	Dilution	ng/L	
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	80	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

Surrogate Compounds	Recoveries (%)	QC Ranges
PFDA 13C2	74	64 - 102
PFHxA 13C2	89	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID: NPR-2705-FRB  
Date of Collection: 1/12/2017  
Date of Preparation: 1/19/2017  
Date of Analysis: 1/19/2017  
Dry Weight Prepared: N/A  
Wet Weight Prepared: N/A

Lab Sample ID: AB65233  
Matrix: Blank  
Amount Prepared: 250 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	75	64 - 102
PFHxA 13C2	81	71 - 112

**Comments:** This is a FRB for sample AB65232 (2705 N. Pownal Rd) PFHpA was found in associated sample above the reporting limit.

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID: NPR-2749-0  
Date of Collection: 1/11/2017  
Date of Preparation: 1/17/2017  
Date of Analysis: 1/18/2017  
Dry Weight Prepared: N/A  
Wet Weight Prepared: N/A

Lab Sample ID: AB65234  
Matrix: GW  
Amount Prepared: 250 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	78	64 - 102
PFHxA 13C2	98	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID: NPR-2763-0  
Date of Collection: 1/11/2017  
Date of Preparation: 1/17/2017  
Date of Analysis: 1/18/2017  
Dry Weight Prepared: N/A  
Wet Weight Prepared: N/A

Lab Sample ID: AB65236  
Matrix: GW  
Amount Prepared: 250 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	79	64 - 102
PFHxA 13C2	93	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID:	SRS2487	Lab Sample ID:	AB65238
Date of Collection:	1/12/2017	Matrix:	PE Water
Date of Preparation:	1/17/2017	Amount Prepared:	250 mL
Date of Analysis:	1/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	5
Wet Weight Prepared:	N/A	pH:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	5	80	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	5	80	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	5	40	
335-67-1	Perfluorooctanoic acid - PFOA	<b>300</b>	5	40	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	<b>180</b>	5	40	
375-95-1	Perfluorononanoic acid - PFNA	ND	5	80	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	84	64 - 102
PFHxA 13C2	99	71 - 112

**Comments:** Reporting limit was elevated due to dilution (5X) required to bring target compounds within calibration range.

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID: WMC-23-0  
Date of Collection: 1/12/2017  
Date of Preparation: 1/17/2017  
Date of Analysis: 1/18/2017  
Dry Weight Prepared: N/A  
Wet Weight Prepared: N/A

Lab Sample ID: AB65239  
Matrix: GW  
Amount Prepared: 250 mL  
Percent Solids: N/A  
Extract Dilution: 1  
pH: N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	28	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	71	64 - 102
PFHxA 13C2	86	71 - 112

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID:	WMC-23-FRB	Lab Sample ID:	AB65240
Date of Collection:	1/12/2017	Matrix:	Blank
Date of Preparation:	1/19/2017	Amount Prepared:	250 mL
Date of Analysis:	1/19/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	80	64 - 102
PFHxA 13C2	92	71 - 112

**Comments:** FRB for AB65239 (23 W. Meadow Ct.), PFHpA was found in the associated sample.

**Pownal DW - Pownal, VT**

**Perfluorinated Alkyl Acids in Water**

Client Sample ID:	CS-300-1	Lab Sample ID:	AB65241
Date of Collection:	1/11/2017	Matrix:	GW
Date of Preparation:	1/17/2017	Amount Prepared:	250 mL
Date of Analysis:	1/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	50	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	66	64 - 102
PFHxA 13C2	80	71 - 112

**Pownal DW - Pownal, VT**

**Laboratory Blank**

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	GW
Date of Preparation:	1/17/2017	Amount Prepared:	250 mL
Date of Analysis:	1/18/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A

<b>CAS Number</b>	<b>Compound</b>	<b>Concentration ng/L</b>	<b>Dilution</b>	<b>RL ng/L</b>	<b>Qualifier</b>
375-73-5	Perfluorobutanesulfonic acid - PFBS	ND	1	16	
375-85-9	Perfluoroheptanoic acid - PFHpA	ND	1	16	
355-46-4	Perfluorohexanesulfonic acid - PFHxS	ND	1	8.0	
335-67-1	Perfluorooctanoic acid - PFOA	ND	1	8.0	
1763-23-1	Perfluorooctanesulfonic acid - PFOS	ND	1	8.0	
375-95-1	Perfluorononanoic acid - PFNA	ND	1	16	

<b>Surrogate Compounds</b>	<b>Recoveries (%)</b>	<b>QC Ranges</b>
PFDA 13C2	77	64 - 102
PFHxA 13C2	103	71 - 110

**Pownal DW - Pownal, VT**

**MATRIX SPIKE (MS) RECOVERY**

Sample ID: AB65230

PARAMETER	SPIKE ADDED ng/L	SAMPLE CONCENTRATION ng/L	MS CONCENTRATION ng/L	MS % REC	QC LIMITS (% REC)
Perfluorobutanesulfonic acid - PFBS	80.0	ND	87.0	109	70 - 130
Perfluoroheptanoic acid - PFHpA	80.0	ND	82.0	103	70 - 130
Perfluorohexanesulfonic acid - PFHxS	80.0	ND	84.0	105	70 - 130
Perfluorononanoic acid - PFNA	80.0	ND	80.0	100	70 - 130
Perfluorooctanesulfonic acid - PFOS	80.0	ND	81.0	102	70 - 130
Perfluorooctanoic acid - PFOA	80.0	ND	81.0	102	70 - 130

Comment:

**Pownal DW - Pownal, VT**

**Laboratory Duplicate Results**

Sample ID: AB65230

PARAMETER	SAMPLE RESULT ng/L	SAMPLE DUPLICATE RESULT ng/L	PRECISION RPD %	QC LIMITS
Perfluorobutanesulfonic acid - PFBS	ND	ND	NC	30
Perfluoroheptanoic acid - PFHpA	ND	ND	NC	30
Perfluorohexanesulfonic acid - PFHxS	ND	ND	NC	30
Perfluorononanoic acid - PFNA	ND	ND	NC	30
Perfluorooctanesulfonic acid - PFOS	ND	ND	NC	30
Perfluorooctanoic acid - PFOA	ND	ND	NC	30

Comment:

**Pownal DW - Pownal, VT**

**Laboratory Fortified Blank (LFB) Results**

PARAMETER	LFB AMOUNT SPIKED ng/L	LFB RESULT ng/L	LFB RECOVERY %	QC LIMITS %
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**High Level**

Perfluorobutanesulfonic acid - PFBS	80	75.1	93.9	70 - 130
Perfluoroheptanoic acid - PFHpA	80	70.6	88.2	70 - 130
Perfluorohexanesulfonic acid - PFHxS	80	73.7	92.1	70 - 130
Perfluorononanoic acid - PFNA	80	73.7	92.1	70 - 130
Perfluorooctanesulfonic acid - PFOS	80	71.7	89.6	70 - 130
Perfluorooctanoic acid - PFOA	80	68.2	85.2	70 - 130

**Comments:**

**Pownal DW - Pownal, VT**

**Laboratory Fortified Blank (LFB) Results**

PARAMETER	LFB AMOUNT SPIKED ng/L	LFB RESULT ng/L	LFB RECOVERY %	QC LIMITS %
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**Low Level**

Perfluorobutanesulfonic acid - PFBS	16	14.7	91.9	50 - 150
Perfluoroheptanoic acid - PFHpA	16	15.5	96.9	50 - 150
Perfluorohexanesulfonic acid - PFHxS	16	13.8	86.2	50 - 150
Perfluorononanoic acid - PFNA	16	12.5	78.1	50 - 150
Perfluorooctanesulfonic acid - PFOS	16	12.8	80.0	50 - 150
Perfluorooctanoic acid - PFOA	16	11.6	72.5	50 - 150

**Comments:**

**Samples in Batch:** AB65215, AB65217, AB65219, AB65221, AB65222, AB65223, AB65225, AB65226, AB65228, AB65230, AB65232, AB65233, AB65234, AB65236, AB65238, AB65239, AB65240, AB65241

**USEPA CLP COC (LAB COPY)**

**CHAIN OF CUSTODY RECORD**

**No: 1-011317-113141-0001**

DateShipped: 1/13/2017

Lab: New England Regional Laboratory

CarrierName: NOBIS

DAS #: S019

Lab Contact: Dan Boudreau

AirbillNo:

Cooler #:

Lab Phone: 617-918-8340

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
CS-230-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	230 Center St	01/11/2017 10:47	
CS-230-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	230 Center St	01/11/2017 10:45	
CS-276-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	276 Center St	01/11/2017 11:02	
CS-276-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	276 Center St	01/11/2017 11:00	
CS-293-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	293 Center St	01/12/2017 08:47	
CS-293-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	293 Center St	01/12/2017 08:45	
CS-300-2		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	300 Center St	01/11/2017 11:11	
CS-300-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	300 Center St	01/11/2017 10:32	
CS-316-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	316 Center St	01/12/2017 10:10	
CS-316-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	316 Center St	01/12/2017 10:05	

Special Instructions:	Shipment for Case Complete? Y
	Samples Transferred From Chain of Custody #
Analysis Key: PFAS=OEME PFAS	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Lab Droppin	Josh Stewart NOBIS?	1-13-17	[Signature] ESAT	1-13-17 13:10	4°C

USEPA CLP COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 1-011317-113141-0001

DateShipped: 1/13/2017

Lab: New England Regional Laboratory

CarrierName: NOBIS

DAS #: S019

Lab Contact: Dan Boudreau

AirbillNo:

Cooler #:

Lab Phone: 617-918-8340

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
CS-382-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	382 Center St	01/12/2017 13:28	
CS-382-1		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	382 Center St	01/12/2017 13:38	
CS-382-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	382 Center St	01/12/2017 13:25	
CS-429-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	429 Center St	01/11/2017 14:03	
CS-429-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	429 Center St	01/11/2017 14:00	
NPR-2685-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (3)	2685 N. Pownal Rd	01/12/2017 13:08	
NPR-2685-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	2685 N. Pownal Rd	01/12/2017 13:05	
NPR-2705-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	2705 N. Pownal Rd	01/12/2017 09:14	
NPR-2705-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	2705 N. Pownal Rd	01/12/2017 09:10	
NPR-2749-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	2749 N. Pownal Rd	01/11/2017 11:33	

Sample(s) to be used for Lab QC: NPR-2685-0 Tag A	Shipment for Case Complete? Y
	Samples Transferred From Chain of Custody #
Analysis Key: PFAS=OEME PFAS	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Lab DROP OFF	Josh Stewart (NOBIS)	1-13-17	[Signature] ESTI	1-13-17 13:10	4°C

USEPA CLP COC (LAB COPY)

CHAIN OF CUSTODY RECORD

No: 1-011317-113141-0001

DateShipped: 1/13/2017

Lab: New England Regional Laboratory

CarrierName: NOBIS

DAS #: S019

Lab Contact: Dan Boudreau

AirbillNo:

Cooler #:

Lab Phone: 617-918-8340

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
NPR-2749-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	2749 N. Pownal Rd	01/11/2017 11:30	
NPR-2763-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	2763 N. Pownal Rd	01/11/2017 13:26	
NPR-2763-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	2763 N. Pownal Rd	01/11/2017 13:20	
SRS2487		PE Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	PE Sample	01/12/2017 08:00	
WMC-23-0		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	23 W Meadow Ct	01/12/2017 08:24	
WMC-23-FRB		Blank/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	23 W Meadow Ct	01/12/2017 08:20	
CS-300-1		Ground Water/ Josh Stewart	Grab	PFAS(21)	A (Trizma) (1)	300 Center St	01/11/2017 10:27	

Special Instructions:	Shipment for Case Complete? Y
	Samples Transferred From Chain of Custody #
Analysis Key: PFAS=OEME PFAS	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Lab drop off	Josh Stewart (NOBIS)	1-13-17	Handwritten Signature (ESM)	1-13-17 13:10	4°C

## APPENDIX E

## MEMORANDUM (Draft)

**TO:** Trish Coppolino  
Tim Raymond

**FROM:** Steve LaRosa  
Blake Martin  
Ken Bisceglia, PE

**DATE:** April 1, 2016

**SUBJECT:** Pownal Fire District #2 Water Supply Options Related to PFOA Contamination

Weston & Sampson has prepared this memorandum to summarize our recent work that addresses water supply options for the Pownal Fire District #2 (FD#2) related to the recently discovered contamination in the supply well of perfluorooctanoic acid (PFOA). The need to identify viable water supply alternatives for the Pownal FD#2 has led the following conceptual solutions and preliminary cost estimates. A description of these initial alternatives and timing of their implementation is provided below with costs presented in **Attachment 1**.

1. Granular activated carbon (GAC) treatment at the Pownal FD#2 water supply well
2. interconnection to the existing Williamstown, MA municipal water system
3. interconnection to the existing Pownal Race Track well
4. new source well development

### **Option 1: GACTreatment System**

**Description:** This option consists of a GAC treatment system installed at the well/pump house site on VT Route 346. GAC is a proven method for treating municipal water supplies contaminated with PFOA. Although other treatment systems may be considered in the future, timing, cost and regulatory approvals dictate the use of GAC. The GAC system would be located adjacent to the existing pump building in a new building to be constructed.

We have contacted the following 3 GAC companies, TIGG, Calgon and Carbonair to obtain preliminary information. Per our discussion with the VTDEC last week, the required design shall have an empty bed contact time (EBCT) of no less than 10 minutes based on a well flow rate of 100 gallons per minute (gpm). If we base the GAC design on the TIGG CP-5000 pressure vessel, the proposed GAC system would include two vessels of 5,000 lbs of GAC aligned in series for a total of 10,000 lbs. At a well flow rate of 100 gpm or 13.4 cubic feet per minute (cu.ft./min) and GAC media volume of 249 cu.ft. per vessel, the EBCT is 18.6 minutes per vessel.

The proposed GAC filter building would be a wooden-framed structure with electrical, lighting, heat, dehumidification and ventilation. It is assumed that the existing well pump will be sufficient to meet the average day demand with the added backpressure of the GAC filters.

New instrumentation will consist of a high pressure switch/alarm that would protect the pump if the GAC filter created excessive backpressure, and an alarm for low temperature within the new building. Plumbing to the

system would consist of a connection between the existing well and pump house, as well as piping modifications to allow for GAC backwashing using filtered water flowed from the elevated storage tank. At this time we have included the backwash to be infiltrated via an underground injection permit; however, if it is acceptable to backwash to a surface detention basin that would reduce the project cost and shorten the timeline for design, permitting and construction.

Operation and maintenance (O&M) of the system will be required. At a minimum, costs for utilities and monthly sampling should be considered. As a conservative measure, we have assumed that one GAC vessel change-out will be required each year. Sampling of the system will be performed at the influent, mid-point and effluent of the filter train. Per discussions with the State of Vermont, chlorination of the treated water was considered and is included in the attached cost table. This point should be vetted out further as it will substantially add to the operation and maintenance costs as the water source is currently not chlorinated.

**Schedule:** The overall schedule to implement this option will include final design, contractor and equipment procurement, construction and startup. We assume all permitting will be expedited and not be an extenuating time factor.

- Final design is 4 to 6 weeks.
- GAC filter assembly lead time is 4 to 8 weeks.
- Contractor bidding is 2 to 4 weeks to obtain competitive bids
- Other equipment procurement and construction is 6 to 8 weeks pending contractor availability to start and available resources to complete the work.
- The total time frame for design, permitting, bidding and construction is 3 to 4 months.

## **Option 2: Interconnection to the Existing Williamstown, MA Municipal Water System**

**Description:** The nearest existing municipal supply to the Pownal FD#2 is the Williamstown, Massachusetts Water System. This system currently extends north from Williamstown into Vermont servicing several residents and commercial establishments that make-up the Pownal Fire District #3. The Williamstown system has ample supply capacity with three existing wells capable of an instantaneous demand of over 2MGD. The Stone Hill tank represents a substantial storage volume with an overflow elevation of approximately 970 feet. The system pressures at the DPW facility (elevation 600) are approximately 165 PSI. An assumed elevation of approximately 530 to 540 can be used for the current Pownal Well and an approximate tank elevation of 715. The Williamstown system would likely need pressure reduction prior to connection to the Pownal System. Notwithstanding these pressure issues, the connection distance is approximately 10,000 feet. Assuming current fire flows are handled through existing storage volumes, a connecting main could be accomplished using 4-inch HDPE (high density polyethylene). This rugged material can be fused in the field and rapidly installed. Headloss for the 4-inch main should be less than 90-feet over the anticipated 10,000 foot run at flow rates of 100gpm or less.

Conceptually an inter-municipal connection could be either temporary or permanent. On an emergency basis we would assume a shallow bury of 10-18 inches should help to maintain lower water temperatures and protect the 4-inch HDPE. A permanent installation would require 5.5-foot bury depth. Although final routing for the water main, permitting and design efforts are necessary, costs are also provided for an emergency but temporary solution. Initial visual survey of the Rte. 2 corridor indicates shallow ledge conditions may exist over 30-50% of the water main route.

Both an emergency and a permanent water main connection will have varying degrees of permitting. Long-term solutions will require Williamstown to seek state approvals for transfer of water under the Water Management Act and to increase the volume transferred out-of-state.

**Schedule:** The overall schedule to implement this option will include final design, contractor and equipment procurement and construction. We assume all permitting will be expedited and not be an extenuating time factor including issues related to Right-of-Way, VTrans and inter-state/municipal agreements.

**Emergency Connection**

- Final design is 4 to 6 weeks.
- Contractor bidding is 2 to 4 weeks to obtain competitive bids
- Equipment procurement and construction is 6 to 8 weeks pending contractor availability to start and available resources to complete the work.
- The total time frame for design, permitting, bidding and construction is 3 to 5 months.

**Permanent Connection**

- Final design is 6 to 8 weeks.
- Contractor bidding is 3 to 4 weeks to obtain competitive bids
- Equipment procurement and construction is 8 to 12 weeks pending contractor availability to start and available resources to complete the work.
- The total time frame for design, permitting, bidding and construction is 5 to 7 months.

**Option 3: Interconnection to the Existing Pownal Race Track Well**

**Description:** The nearest known existing large volume supply to the FD#2 system is located at the former Green Mountain Racetrack approximately 2,500 feet south of the existing FD#2 Well #1. The Racetrack has a gravel well which is purported to have a safe yield of over 500 gpm. The well is currently unused and contains a vertical turbine pump. It is currently unknown if this well contains PFOA. However, the Racetrack well is located hydrogeologically upgradient of the Mack Molding Plant and FD#2 Well #1. This well is slated for sampling within the next week to determine if it is free of PFOA. Preliminary conversations with the Racetrack Well owners have been positive and they indicate they would be willing to provide access to the well while permanent solutions are investigated. No conversations have been held regarding the potential for permanent connection of the FD#2 system to the Racetrack Well.

Conceptually, an interconnection could be either temporary or permanent akin to that described in Option 2 above. On an emergency basis we would assume a shallow bury of 10-18 inches should help to maintain lower water temperatures and protect the 4-inch HDPE. A permanent installation would require a 5.5-foot bury depth. In addition, it is likely that a new well pump, controls and electric service will be needed in the well to properly serve the FD#2 needs. Telemetry will be integrated to the FD#2 water storage tank. The existing pump house is assumed to be sufficiently sized to accommodate the new pump, controls and standby chlorination system. The chlorination system could be moved from the existing Well #1 pump house to avoid re-purchase of this piece of equipment.

Final routing for the water main, permitting and design efforts will be necessary to connect the Racetrack Well to FD#2, even on a temporary basis. We believe that yield testing performed several years ago by VHB will provide sufficient data to prove a safe yield greater than 100 gpm. Water quality testing to show potability will likely be necessary. However, previous sampling results have indicated the water supply is potable.

**Schedule:** The overall schedule to implement this option will include PFOA testing, production pump design and installation, interconnect design, contractor and equipment procurement, construction and startup. We assume all permitting will be expedited and not be an extenuating time factor.

- PFOA testing is scheduled for the week of April 4<sup>th</sup> and should provide results within 2 weeks
- The final design, on an expedited basis could be completed in approximately 3 to 4 weeks.
- Pump, controls and piping lead time is 4 to 8 weeks. If the existing pump and controls at FD#2 can be utilized this time could be significantly reduced.
- Contractor bidding is 3 to 4 weeks to obtain competitive bids
- Other equipment procurement and construction is estimated at 4 to 6 weeks pending contractor availability to start and available resources to complete the work.
- The total time frame to perform the testing, design, permitting, bidding and construct this option is on the order of 4 to 5 months.

#### **Option 4: New Source Well Development**

**Description:** This option consists of work necessary to develop a replacement water supply to replace the PFOA contaminated FD#2 gravel water supply. The following tasks would be performed to locate a safe and reliable new water supply source.

1. Perform a hydrogeologic study to assess the nature and extent of potentially un-impacted aquifers available in Pownal that could provide the demand of the current Fire District's system (approximately 140,000 gallons per day). This will be accomplished as follows:
  - a. Reviewing available geologic and hydrogeologic reports/maps for the area and mapping the locations of aquifers that may be able to provide a replacement demand. This information will be plotted on a map along known potential contaminant sources and Vermont Drinking Water and Groundwater Protection Division (DWGPD) Rules (Rules) set-back criteria to define areas for future exploration.
  - b. Perform a geophysical evaluation to define the thickness and lateral limits of potentially product gravel deposits and areas of high secondary permeability in the potentially productive bedrock units.
  - c. Prepare a detailed hydrogeologic report outlining the most promising productive aquifers that should be evaluated further. A major focus of this would include the potential to encounter PFOA and any other known contaminants. The report would include recommended locations for test well drilling. The DWGPD would be petitioned for approval of the 2 most promising productive and un-impacted well sites. Well sites will be ranked to identify the most suitable locations so that the community can proceed with the best sites first.
2. Up to 2 of the best well sites will be evaluated by installing test wells and conducting short-term aquifer pumping tests. This will be accomplished as follows:

- a. Engaging a test well driller to install test wells at the two most suitable sites. Samples of the aquifer material would be collected so that a production well can be designed in the future.
  - b. Performing a short-term (8hr) pumping test to evaluate the yield and quality of the water at each of the two test well sites.
  - c. Collection of water samples for PFOA and other contaminants of concern at the completion of the short term testing.
  - d. Developing and submitting a DWGPD application to permit the most suitable well site. This would including a report to DWGPD and the Town and include a final design of production well.
3. Installation, testing and permitting of a production well. It is assumed that the production well would be a deep gravel well with engineered screen interval. The production well would be drilled with engineering oversight. Once complete, the well would be appropriately developed to maximize the yield and clear the discharge. Following this work a long term 120-hour pumping test would be performed to evaluate the safe yield and determine if the well impacts any nearby wells in the same aquifer. Water samples will be collected near the end of the test to evaluate the quality of the water. A Microscopic Particulate Analysis (MPA) will also be performed to determine if the well is under the influence of any nearby surface waters. A final pumping test report to document the safe yield of the well and to summaries the quality of the water.

If the long term yield is sufficient for the FD#2 demand we would generate source permit and permit to construct applications for DWGPD review. The permit applications would include the necessary engineering design details to assure a safe and reliable supply of water from the new source into the existing distribution system. Modifications to the existing control systems and stand by chlorination systems will be included in the design package. It is assumed that the new distribution system interconnect would be less than 1,000 feet in length to connect with the existing system.

4. Construction of a new water transmission main will interconnect from the new well to the existing water distribution system. Telemetry will be integrated to the FD#2 water storage tank.

**Schedule:** The overall schedule to implement this option will include hydrogeologic study, test well installation, land acquisition, production well installation, final design, contractor and equipment procurement, construction and startup. We assume all permitting will be expedited and not be an extenuating time factor.

- Hydrogeologic study could be completed in 3 weeks
- Test well installations, testing and reporting will be partially dependent upon development of access agreements with property owners and well driller availability. It is assumed that these tasks can be completed in 3 months.
- Source permit application, production well installation and long term yield testing will also be dependent upon obtaining control of 125 foot buffer around the proposed production well, driller schedule and permit application review. Assume expedited progress the production well installation and testing could be completed in 3 months
- The final design, on an expedited basis could be completed in approximately 4 weeks.
- Pump, controls and piping lead time is 4 to 8 weeks.
- Contractor bidding is 3 to 4 weeks to obtain competitive bids
- Other equipment procurement and construction is estimated at 6 to 8 weeks pending contractor availability to start and available resources to complete the work.

- The total time frame to perform the study, testing, design, permitting, bidding and construct this option is on the order of 8 to 12 months.

# **ATTACHMENT 1**

**OPTION 1A. GAC TREATMENT SYSTEM - DESIGN & CONSTRUCTION (DRAFT)**

**OPINION OF PROBABLE COST**

Pownal FD#2

April 1, 2016

Item	Proposed Improvement	Quantity	Unit	Unit Cost	Cost	Notes
1	GAC Unit (2 x 5,000 lb)	1	LS	\$85,000	\$85,000	includes contractor markup of 15% 5,000-gal tank and leachfield shut down well pump and/or trigger alarm wall mounted propane heater, dehumidifer, ventilation fan 12" thick floating slab, 24" perimeter haunch, reinforced, insulated 24'L x 24'W x 12'H. Includes space for 3rd GAC vessel if needed assumes 50 feet with bends, restrained
2	Backwash Valving and Metering	1	LS	\$10,000	\$10,000	
3	Backwash Disposal	1	LS	\$20,000	\$20,000	
4	Controls - High Pressure Switch + Low Temperature Alarm	1	LS	\$5,000	\$5,000	
5	Interior Plumbing	1	LS	\$5,000	\$5,000	
6	Electrical - service to new building and interior	1	LS	\$5,000	\$5,000	
7	HVAC + Lighting	1	LS	\$7,500	\$8,000	
8	Concrete Slab	31	CY	\$500	\$16,000	
9	Building	576	SF	\$100	\$58,000	
10	Yard Plumbing	1	EST	\$3,000	\$3,000	
11	Mobilization (5%)	1	LS	\$10,800	\$11,000	
12	Bonds and Insurance (5%)	1	LS	\$10,800	\$11,000	
13	Construction Contingency (20%)	1	LS	\$43,000	\$43,000	
<b>Subtotal Construction Cost:</b>					\$280,000	
14	Other (land purchase, easements, etc.)				-	
15	Preliminary Engineering (*)				\$11,000	
16	Final Design Engineering (*)				\$22,000	
17	Construction Phase Engineering (*)				\$39,000	
18	Legal and Administrative					
<b>Subtotal Engineering, Legal and Administrative:</b>					\$72,000	
<b>Total Project Cost (2016 dollars):</b>					\$360,000	

Notes:

1. Costs are rounded.
2. (\*) Engineering fees based on Agency of Natural Resources Engineering Fee Cost Curve, September 2011.

**OPTION 1B. GAC TREATMENT SYSTEM - OPERATION & MAINTENANCE (DRAFT)**

**OPINION OF PROBABLE COST**

Pownal FD#2

April 1, 2016

Item	Proposed Improvement	Quantity	Unit	Unit Cost	Cost	Notes
1	Replacement of 1 GAC Unit per year (1 x 5,000 lb)	5,000	LB	\$3.00	\$15,000	Not required until year 2. Changeout, T&D, disinfection of new bed, initial backwash for new bed
2	Analytical Testing - monthly PFC samples (GAC inf/mid/eff)	36	EA	\$275	\$10,000	
3	PFC Sampling & Reporting	12	MO	\$1,500	\$18,000	consultant other than water system operator
4	Hypochlorite Disinfection System - chemical/metering costs	12	MO	\$75	\$1,000	
5	Hypochlorite Disinfection System - operator labor and reporting	52	WK	\$530	\$28,000	8 hrs per week x \$60/hr + \$50 for mileage
6	Utility Costs	1	YR	\$1,500	\$1,500	
7	Contingency (10%)	1	LS	\$7,400	\$7,400	propane heat, dehumidifier, lighting
				<b>Annual O&amp;M Cost:</b>	\$81,000	

Notes:

1. Costs are rounded.

**OPTION 2A. WILLIAMSTOWN INTERCONNECTION TEMPORARY  
OPINION OF PROBABLE COST**

Pownal FD#2  
April 1, 2016

Item	Proposed Improvement	Quantity	Unit	Unit Cost	Cost	Notes
1	4-inch HDPE pipe, per L.F.	10,000	LF	\$20	\$200,000	Production is set at 500 ft/day  estimated from Google Earth; there are two of them in project area  includes all other materials needed (i.e. air release valves)
2	Restoration	1	LS	\$20,000	\$20,000	
3	Road/Stream Crossings, per L.F.	150	LS	\$125	\$19,000	
4	PRV and Vault	1	LS	\$30,000	\$30,000	
5	Miscellaneous Appurtenances	1	LS	\$5,000	\$5,000	
6	Mobilization (5%)	1	LS	\$13,700	\$14,000	
7	Bonds and Insurance (5%)	1	LS	\$13,700	\$14,000	
8	Construction Contingency (25%)	1	LS	\$68,500	\$69,000	
<b>Subtotal Construction Cost:</b>					\$371,000	
9	Preliminary Engineering (*)				\$14,000	
10	Final Design Engineering (*)				\$28,000	
11	Construction Phase Engineering (*)				\$51,000	
12	Legal and Administrative				\$10,000	
<b>Subtotal Engineering, Legal and Administrative:</b>					\$103,000	
<b>Total Project Cost (2016 dollars):</b>					\$480,000	

*Notes:*

1. Costs are rounded.
2. (\*) Engineering fees based on Agency of Natural Resources Engineering Fee Cost Curve, September 2011.

**OPTION 2B. WILLIAMSTOWN INTERCONNECTION PERMENANT  
OPINION OF PROBABLE COST**

Pownal FD#2  
April 1, 2016

Item	Proposed Improvement	Quantity	Unit	Unit Cost	Cost	Notes
1	4-inch HDPE pipe, per L.F.	10,000	LS	\$35	\$350,000	Production is set at 250 ft/day  estimated from Google Earth; there are two of them in project area  includes all other materials needed (i.e. air release valves)
2	Restoration	1	LS	\$20,000	\$20,000	
3	Road/Stream Crossings, per L.F.	150	LS	\$125	\$19,000	
4	PRV and Vault	1	LS	\$30,000	\$30,000	
5	Miscellaneous Appurtenances	1	LS	\$15,000	\$15,000	
6	Rock Excavation (Allowance)	1	EST	\$300,000	\$300,000	
7	Mobilization (5%)	1	LS	\$21,700	\$22,000	
8	Bonds and Insurance (5%)	1	LS	\$21,700	\$22,000	
9	Construction Contingency (25%)	1	LS	\$108,500	\$109,000	
<b>Subtotal Construction Cost:</b>					<b>\$887,000</b>	
10	Preliminary Engineering (*)				\$31,000	
11	Final Design Engineering (*)				\$61,000	
12	Construction Phase Engineering (*)				\$112,000	
13	Legal and Administrative				\$10,000	
<b>Subtotal Engineering, Legal and Administrative:</b>					<b>\$214,000</b>	
<b>Total Project Cost (2016 dollars):</b>					<b>\$1,110,000</b>	

Notes:

1. Costs are rounded.
2. (\*) Engineering fees based on Agency of Natural Resources Engineering Fee Cost Curve, September 2011.

**OPTION 3. RACETRACK WELL INTERCONNECTION TEMPORARY  
OPINION OF PROBABLE COST**

Pownal FD#2

April 1, 2016

Item	Proposed Improvement	Quantity	Unit	Unit Cost	Cost	Notes
1	4-inch HDPE pipe, per L.F.	3,000	LS	\$17	\$51,000	Production is set at 500 ft/day  estimated from Google Earth; there are two of them in project area assumes new well pump will be necessary to achieve system pressure
2	Restoration	1	LS	\$10,000	\$10,000	
3	Road/Stream Crossings, per L.F.	75	LS	\$75	\$6,000	
4	Well Pump and Controls	1	LS	\$30,000	\$30,000	
5	Electrical Service	1	LS	\$5,000	\$5,000	
6	Mobilization (5%)	1	LS	\$5,100	\$5,000	
7	Bonds and Insurance (5%)	1	LS	\$5,100	\$5,000	
8	Construction Contingency (20%)	1	LS	\$20,400	\$20,000	
<b>Subtotal Construction Cost:</b>					\$132,000	
9	Preliminary Engineering (*)				\$6,000	
10	Final Design Engineering (*)				\$11,000	
11	Construction Phase Engineering (*)				\$20,000	
12	Legal and Administrative				\$10,000	
<b>Subtotal Engineering, Legal and Administrative:</b>					\$47,000	
<b>Total Project Cost (2016 dollars):</b>					\$180,000	

*Notes:*

1. (\*) *Engineering fees based on Agency of Natural Resources Engineering Fee Cost Curve, September 2011.*

**OPTION 4. NEW SOURCE WELL DEVELOPMENT  
OPINION OF PROBABLE COST**

Pownal FD#2  
April 1, 2016

Item	Proposed Improvement	Quantity	Unit	Unit Cost	Cost	Notes
1	Hydrogeologic Study to Locate Potential Source Locations	1	LS	\$26,000	\$26,000	Fracture Trace, ER, Field Investigation  120 hr test  wall mounted propane heater, dehumidifer, ventilation fan 12" thick floating slab, 24" perimeter hauch, reinforced, insulated 12'L x 12"W x 12'H. Includes space for disinfection if needed assumes 50 feet with bends, restrained
2	Test Well Installations at 2 Locations	1	LS	\$23,000	\$23,000	
3	Short Term Test Well Capacity Testing	1	LS	\$17,000	\$17,000	
4	Production Well Installation (100')	1	LS	\$35,000	\$35,000	
5	Production Well Capacity and Quality Testing	1	LS	\$45,000	\$45,000	
6	Production Pump and Piping	1	LS	\$20,000	\$20,000	
7	Interior Plumbing	1	LS	\$5,000	\$5,000	
8	Pump Controls	1	LS	\$6,000	\$6,000	
9	Electrical - service to new building and interior	1	LS	\$5,000	\$5,000	
10	HVAC + Lighting	1	LS	\$7,500	\$7,500	
11	Concrete Slab	16	CY	\$500	\$8,000	
12	Building	144	SF	\$120	\$17,300	
13	Yard Plumbing	1	EST	\$3,000	\$3,000	
14	Connection to Existing System	1,000	LF	\$85	\$85,000	
15	Allowance for shallow rock removal and potential crossings	1	EST	\$40,000	\$40,000	
16	Mobilization (5%)	1	LS	\$17,100	\$17,000	
17	Bonds and Insurance (5%)	1	LS	\$17,100	\$17,000	
18	Construction Contingency (20%)	1	LS	\$68,600	\$69,000	
<b>Subtotal Construction Cost:</b>					\$446,000	
19	Other (land purchase, easements, etc.)				\$40,000	
20	Preliminary Engineering (*)				\$17,000	
21	Final Design Engineering (*)				\$33,000	
22	Construction Phase Engineering (*)				\$60,000	
23	Permitting (Water Supply, Building)				\$7,500	
24	Legal and Administrative				\$12,000	
<b>Subtotal Engineering, Legal and Administrative:</b>					\$169,500	
<b>Total Project Cost (2016 dollars):</b>					\$620,000	

Notes:

- Costs are rounded.
- (\*) Engineering fees based on Agency of Natural Resources Engineering Fee Cost Curve, September 2011.