



PFC SITE INVESTIGATION SUMMARY REPORT

**CHAMPLAIN CABLE CORPORATION FACILITY
175 HERCULES DRIVE
COLCHESTER, VT**

**ATC PROJECT NO. 08-203606.08
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EXECUTIVE SUMMARY

This report prepared by ATC Group Services, LLC (ATC) for Ashland, Inc., summarizes perfluorinated compound (PFC) site investigation (SI) performed at the Champlain Cable Corporation facility (Site) located at 175 Hercules Drive in Colchester, Vermont performed on November 29 and 30 and December 1 and 2, 2016. Hercules Incorporated, Inc., which was acquired by Ashland, Inc., is the former owner and operator of the Site. This SI was prompted by the discovery of PFCs, primarily perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) at the Site during groundwater sampling activities in May 2016.

The SI scope of work was completed in response to a letter dated July 19, 2016, from Michael Smith of the Vermont Department of Environmental Conservation (VTDEC) and in accordance with a Work Plan prepared by Environmental Compliance Services, Inc. (now ATC). The State of Vermont recently adopted Groundwater Enforcement Standards (VGES) for PFOS and PFOA of 20 nanograms per liter (ng/L), equivalent to parts per trillion (ppt).

Since 1985 numerous investigations have been completed at the Site with oversight by the VTDEC. These investigations were designed to primarily assess volatile organic compound (VOC) contamination and identified the following four VOC contaminant source areas:

- Former Dispensing Pad;
- Chemical Storage Pad;
- Sand Pit Area (former borrow pit); and
- Former Waste Water Treatment Area

The previous investigations also determined that groundwater flow north of the plant is somewhat radial and is mostly controlled by groundwater discharge to swales/streams (designated as Swales A and E) located north of the facility. This flow pattern has resulted in a dissolved phase VOC plume that has branched towards these two groundwater discharge locations and onto the Town of Colchester property, which is undeveloped and used as a Town Park. Site soils consist predominantly of a coarsening upward sequence of clay, silt, and sand of glacialfluvial and lacustrine origin. Bedrock beneath the Site is inferred to be the Winooski Dolomite and Monkton Quartzite; however, bedrock has not been encountered in any borings to date, which have extended to 52 feet. The clay is estimated to be at least 30 to 40 feet thick and is generally encountered at depths of 12 to 20 feet.

As a result of the documented VOC contamination, Champlain Cable Corporation was designated as a Hazardous Site (DEC #770046) by the VTDEC. The Site and surrounding properties are served by municipal water and sewer connections. A zero valent iron (ZVI) permeable reactive barrier (PRB) funnel and gate system was installed at the Site in 1998 to capture groundwater VOC contamination. The Site is currently undergoing annual groundwater VOC monitoring.

The objective of this SI was to determine the degree, fate, and extent of PFCs. The SI included collecting soil samples from fourteen soil borings, that included shallow and a deep soil samples for laboratory analysis of PFCs by EPA Method 537 and fractional organic carbon (Foc) by ASTM D2974, collecting shallow and deep discrete groundwater samples from soil borings for laboratory analysis of PFCs by EPA Method 537, collecting groundwater samples from the existing monitoring wells for laboratory analysis of PFCs by EPA Method 537, and performing a qualitative sensitive receptor survey to assess potential receptors of concern including nearby surface water, wetlands, sensitive ecological areas, sewers or utility corridor and preparing this summary report.

The soil boring locations were installed site-wide in previously identified VOC source areas and at presumed background locations. Several of the existing monitoring wells that were sampled are located within VOC source areas including the former dispensing pad, the chemical storage pad and the sand pit. Surface water samples were collected from an unnamed stream to Sunderland Brook in the vicinity of and downstream of the former wastewater treatment system, downgradient of the dispensing pad area in drainage Swale A, and downgradient of the sand pit area in drainage Swale E. The results of the PFC SI are as follows:

1. Groundwater in the unconfined surficial aquifer at the site appears to flow generally northeast and northwest, controlled by groundwater discharge to two swales (designated Swale A and Swale E). The vertical groundwater flow components at the site differs depending on location of shallow and deep monitoring well couplets. There is both upward and downward vertical flow components observed at the couplet wells. The hydraulic relationship between the shallow unconfined aquifer and the bedrock aquifer, is currently unknown.
2. Several PFCs, primarily PFOA were detected in the surface and subsurface soil samples (SB-1 to SB-14); however, no concentrations exceeded the Vermont Department of Health (VTDOH) derived soil screening value (SSV) of 300 micrograms per kilogram (ug/kg). Most concentrations were <1 ug/kg and considered concentrations typical of background. It does not appear that PFCs are adsorbing significantly to available organic carbon in the soil even though the soil Foc content is within a typical range.
3. PFOA was detected above the VGES at all shallow and deep discrete groundwater sample locations (SB-1 through SB-14). PFOS was only detected above VGES at SB-1 near the former waste water treatment system. The highest discrete groundwater PFOA concentrations were detected near the area of the former wastewater treatment system (SB-1 at 1,700 ng/L) and the Sand Pit Area (SB-10 at 2,000 ng/L). The deep discrete groundwater sample at each soil boring generally had the highest PFOA concentration.
4. PFOA was also detected in groundwater samples collected from 17 of 19 existing monitoring wells sampled at concentrations above VGES. The highest concentration of PFOA (4,000 ng/L) was detected in the Sand Pit Area (well EG2D). The results were similar to the May 2016 sampling event where the highest PFC concentrations were also detected in EG2D. It should be noted that PFC concentrations were generally lower in monitoring wells located on the immediate downgradient side of SVI PRB when compared to wells located immediately upgradient of the PRB in the Sand Pit Area and Swale A. PFCs were also detected above VGES on the Town of Colchester property (MW-03). The source area wells that exhibit PFCs detections also have VOC detections. Also, conversely where PFCs were not detected VOCs are not detected such as at compliance point perimeter monitoring well ECS-2.
5. PFCs were detected in surface water samples (SW-1 and SW-3) in the unnamed tributary along the western property boundary and in drainage Swales A (SW-4) and E (SW-5). There are currently no Vermont regulatory standards for surface water; therefore, the results were compared to VGES. No PFCs were detected above VGES in SW-3. PFOA exceeded VGES in surface water samples SW-1, SW-4, and SW-5 and PFOS exceeded VGES in SW-1. The detection of PFOA and PFOS in upstream sample SW-1 at the southwest corner of the property may indicate an offsite source of PFCs.

6. A surface water SW-2 and sediment sample (SD-02) were schedule to be collected from the Champlain Cable Corporation waste water discharge point in the unnamed stream; however, permission to access the property was not granted to ATC by Charlebois (68 Champlain Drive).
7. PFCs appear to be mostly concentrated in groundwater at the Site. Based on information collected to date, sensitive receptors affected from the PFCs in groundwater include surface water at the headwaters of Swale A on the Champlain Cable Corporation property, the headwaters of Swale E on the Town of Colchester property, and the unnamed stream to Sunderland Brook along the western Site boundary. The human contact exposure to surface water in the Swales and unnamed stream is likely low as these areas are within steep slopes of the Site and Town Park and/or typically not accessed by the general public or visitors. The potential ecological exposure to PFCs in surface water is unknown at this time as the SI did not evaluate ecological impacts. The Site and surrounding properties have municipal water connections; and therefore, there is likely no exposure from PFCs detected at the Site to consumption of groundwater. Also, nearby drinking water supply wells, within a one mile radius of the Site, have been sampled and results indicated that there were no detections of PFCs above laboratory reporting limits.

RECOMMENDATIONS

Based on the above findings, ATC recommends the following;

1. Continue quarterly groundwater sampling for PFCs at existing monitoring wells to determine trends. Groundwater samples should be submitted for laboratory analysis of PFCs by EPA Method 537.
2. Sampling of surface water for PFCs further downstream in Swales A and E and the unnamed stream to determine how far PFCs are travelling in surface water. Also, sampling surface water in Swales B, C, and D, which are located off-site and downgradient of the documented PFC groundwater contamination. Surface water quality in the off-site swales could provide information on the extent of PFCs in the shallow overburden groundwater as groundwater appears to be discharging to the Swales (gaining streams). Additionally, surface water and ground water upstream of SW-1 and SB-1 should be sampled for PFCs to determine if there are offsite source of PFCs entering the unnamed stream and Champlain Cable property. Surface water and ground water samples should be submitted for laboratory analysis of PFCs by EPA Method 537.
3. Since there are no existing monitoring wells in the area of the former wastewater treatment system and this area had the highest concentration of PFCs at the Site, it is recommended to install monitoring wells in this area to further characterize PFCs in this area of the Site. Groundwater samples should be submitted for laboratory analysis of PFCs by EPA Method 537.
4. Further evaluate the ZVI PRBs with respect to the observed PFC concentration decreases in wells immediately downgradient of the corresponding PRBs in an effort to determine if the PRB is having any effect on PFCs.
5. A summary report should be prepared that includes a discussion on PFC results, figures showing inferred groundwater flow direction and contaminant distribution, contaminant time series graphs, and recommendations. The report should be submitted to Champlain Cable Corporation, and VT DEC for review.

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1.0 INTRODUCTION

ATC Group Services, LLC (ATC) by virtue of its acquisition of Environmental Compliance Services, Inc. (ECS) on October 14, 2016, has prepared this perfluorinated compounds (PFC) Site Investigation Summary Report summarizing groundwater monitoring and soil boring investigation conducted in November and December 2016 at Champlain Cable Corporation facility (site) located at 175 Hercules Drive in Colchester, VT (Figure 1 and Figure 2). This work was completed on behalf of Ashland, Inc. and was performed in accordance with ECS' 06 October 2016 work plan, which was approved by Vermont Department of Environmental Conservation (VT DEC), Mr. Michael Smith, in an email dated 11 October 2016.

1.1 SCOPE OF WORK

The objectives of the PFC site investigation were to:

- confirm the presence or absence of PFCs at the site in identified source areas and background locations, including multi-media sampling in surface water, groundwater and soil, thus determining fate and transport of PFCs at the site;
- confirm previous groundwater sampling results in existing monitoring well network;
- update the conceptual site model (CSM) by performing a sensitive receptor survey; and,
- provide conclusions and recommendations for further action at the Site.

To accomplish these objectives, the following scope of work was conducted:

- Soil samples were collected using direct push technologies from fourteen locations, including a shallow and a deep soil sample for laboratory analysis of PFCs by EPA Method 537 and fractional organic carbon (Foc) by ASTM D2974 with reported Foc by calculation;
- Groundwater samples were collected from soil boring locations using a stainless steel screen point and were collected as grab samples with a peristaltic pump including a shallow and a deep groundwater sample for laboratory analysis of PFCs by EPA Method 537;
- Groundwater samples were collected from the existing monitoring well network using low flow procedures for laboratory analysis of PFCs by EPA Method 537;
- A sensitive receptor survey was performed to assess potential receptors of concern including nearby surface water, wetlands, sensitive ecological areas, sewers or utility corridor; and,
- This summary report was prepared, which details the work performed and provides conclusions and recommendations for future action at the Site.

2.0 CONCEPTUAL SITE MODEL

Since 1985 numerous environmental investigations have been completed at the Site with oversight by the VTDEC. These investigations have been designed primarily to assess the extent of soil and groundwater volatile organic compound (VOC) contamination. Four contaminant source areas were identified including:

- Former dispensing pad north of the plant building;
- Chemical storage pad area west of the plant building;
- Sand Pit Area northeast corner of the property; and
- Wastewater treatment system southwest corner of the property.

Groundwater flow north of the plant building is somewhat radial and is largely controlled by groundwater discharge to two swales (designated Swale A and Swale E). This flow pattern has resulted in a dissolved phase VOC plume that has branched towards these two groundwater discharge locations. The site soils consist predominantly of a sequence of clay, silt, and sand of glaciofluvial and lacustrine origin. A coarsening upward sequence of interlayered silt and sand deposits overlies a clay deposit. Based on historical soil boring logs included in the March 5, 1998 Corrective Action Plan for the Site, the clay layer is at least 30 to 40 feet thick and is generally encountered at depths of 12 to 20 feet bgs across the Site. Bedrock beneath the Site is inferred to be the Winooski Dolomite and Monkton Quartzite; however, bedrock has not been encountered in any soil borings to date; which have extended to 52 feet.

Upon completion of the VOC investigations, a Corrective Action Feasibility Investigation (CAFI) and CAP were prepared that recommended a zero valent iron (ZVI) Permeable Reactive Barrier (PRB). A funnel and gate ZVI PRB was installed in 1998 and is currently undergoing annual performance verification monitoring.

The CSM was developed to evaluate potential surface water, groundwater, soil and sediment PFCs contamination. The CSM integrates information regarding the physical characteristics of the Site, exposed populations, sources of contamination, and contaminant mobility (fate and transport) to identify potential exposure routes and receptors to be evaluated in a sensitive receptor analysis. Based on historical site data, PFCs in surface soil (0-6 inches), sediment and groundwater is known to be present. Figure 3 depicts the historical site data. Nearby drinking water supply wells, within a one mile radius of the Site, have been sampled and results indicated that there were no detections of PFCs above laboratory reporting limits. During the recent SI, surface water was sampled and results indicated PFCs are present in the surface water. The surface water results are discussed in Section 3.6 of this report. The potential contaminant release mechanism is assumed to be direct contact with surface water, groundwater, surface and subsurface soils and sediment. The potential receptors of concern are current site workers and visitors, nearby surface water, wetlands, sensitive ecological receptors, and sewers or utility corridors.

3.0 INVESTIGATIVE PROCEDURES AND RESULTS

3.1 UTILITY LOCATION

On November 9, 2016, ATC oversaw a utility location survey performed by Vermont Underground Locators of South Burlington, Vermont, which utilized a dual antenna audio frequency line tracer and ground penetrating radar (GPR). Underground utilities identified and marked in the field include electric and water lines. The utility investigation did not constitute a formal geophysical survey; it was utilized to identify utilities. The location of site utilities were also obtained from the Town of Colchester, VT including sewer main locations and cleared by the DigSafe One Call system.

3.2 SOIL BORING INSTALLATION

On November 30 and December 1 and 2, 2016, ATC supervised the completion of fourteen soil borings (SB-1 through SB-14). The following table lists the soil boring locations;

Soil Boring Locations	
SB-1	Upgradient southwest of facility; near the former wastewater treatment system
SB-2	Upgradient southeast corner of facility
SB-3	Crossgradient east of facility
SB-4	Crossgradient of former dispensing pad north of facility
SB-5	Former dispensing pad, north of facility
SB-6	Crossgradient of former dispensing pad north of facility
SB-7	Downgradient of former dispensing pad
SB-8	Downgradient of former dispensing pad
SB-9	Vicinity of former sand pit
SB-10	Vicinity of former sand pit
SB-11	Downgradient of former sand pit and PRB
SB-12	Vicinity of former sand pit
SB-13	Vicinity of former sand pit
SB-14	Downgradient northeast of facility

Soil samples were screened continuously with a photoionization detector (PID) at all soil borings locations within acetate sleeves, and were inspected for visual soil classification. Soil was described and logged according to a modified Burmister system and recorded on a boring log. The logged soil data consisted of brown coarse to fine sand in the upper horizon followed by gray fine sand and silt until advancing into a gray clay layer. The soil borings were advanced to the top of the clay layer that ranged from 5 to 18 feet.

Discrete interval soil samples were collected at each soil boring location; each soil sample was collected from a one foot sample interval. Two discrete interval soil samples were collected from each boring location; one shallow soil sample was collected from 0-1 foot below ground surface (bgs) and one deep soil sample was collected at depth, just above the silt/clay interface (i.e. above top of clay). Groundwater samples were also collected from soil borings SB-1 and SB-3 through SB-14 as discussed in Section 3.5.

Soil boring were surveyed by Krebs and Lansing Engineers in relation to the existing on-site features. Each boring was located in azimuth to an accuracy of ± 1.0 feet and elevation to accuracy of ± 0.01 feet relative to existing site features.

3.3 SOIL-SCREENING RESULTS

ATC personnel screened soil samples from discrete intervals in each soil boring for the possible presence of volatile organic compounds (VOCs) using an IonScience Tiger portable PID. The PID was calibrated in the field with an isobutylene standard gas to a benzene reference. Soil samples were placed into a polyethylene bag, which was then sealed, agitated, and allowed to equilibrate. The PID probe was inserted into the headspace, and the highest reading was recorded. PID screening results are included in soil boring logs presented in Appendix A.

During the soil-boring program, soil headspace PID readings ranging from zero to 3.2 parts per million (ppm) were obtained from soil borings SB-1 through SB-14 with the highest PID reading recorded in SB-8 at approximately 10 feet bgs. This sample location also was noted as having a sweet like odor. The PID readings are indicative of previously discovered chlorinated solvent VOCs contamination that is being reported under a separate contract. At the time of this SI there was no known reliable and/or proven screening tool for PFCs; however the PID information was used to determine if the areas of the Site with chlorinated solvent VOC contamination also has PFC contamination. Other borings with PID readings above zero and/or a sweet odor noted were SB-5, SB-7, SB-10, SB-12, and SB-13.

28 soil samples were collected for laboratory analysis from SB-1 through SB-14. ATC collected soil samples in accordance with the ATC's standard operating procedures (SOP) for Sampling for PFCs. The soil samples were transported under chain-of-custody in an ice-filled cooler to TestAmerica Laboratories, Inc. of West Sacramento, California (TestAmerica). Soil samples were submitted for laboratory analysis for PFCs by EPA Method 537 and Foc by ASTM D2974 with reported Foc by calculation. The Foc lab analysis was performed by TestAmerica Laboratories, Inc. of South Burlington, Vermont.

Soil sample results indicate that there were no exceedances of the Vermont Department of Health Soil Screening Value (VT DOH SSV) of 300 micrograms per kilograms ($\mu\text{g}/\text{Kg}$) for perfluorooctanoic acid (PFOA). The highest concentration of PFOA detected was 2.4 $\mu\text{g}/\text{Kg}$ at soil boring location SB-7 in the shallow soil sample. The Foc result is the mass fraction of soil organic carbon content which is the available organic carbon for contamination, including PFCs to adsorb to. The range of Foc in the soil borings was 0.02 to 1.4%. Generally the higher Foc data was detected in the shallow soil sample collected in the organic horizon. There was no correlation between PFCs detected in soil and Foc content because PFCs were detected at the same order of magnitude in both the shallow and deep soil samples. The default value used by the USEPA for determining regional soil screening levels that are protective to groundwater is 0.2%. The site results are within a normal range. Soil sample results are summarized in Table 1 and Figure 4 through 8. The laboratory report is included in Appendix B.

3.4 GROUNDWATER CHARACTERISTICS

Depth to groundwater was measured in site monitoring wells on December 1 and 2, 2016 to assist in inferring groundwater flow direction. Depth to groundwater ranged from 2.90 feet (EG-2D) to 20.73 feet (MW-3) below top of casing. The inferred groundwater in the unconfined surficial aquifer at the site appears to flow generally northeast and northwest, influenced by groundwater discharge to two swales (designated Swale A and Swale E). The vertical groundwater flow components at the site differs depending on location of shallow and deep well couplets. Downward vertical flow components were present at couplet wells AG5S/AG6D, AG7S/AG8D, EG1S/EG2D and WG3S/WG4D. The hydraulic relationship between the shallow unconfined aquifer and the bedrock aquifer, are currently unknown.

Static water-table elevations were computed by subtracting the measured depth-to-water readings from the surveyed top-of-casing elevations, which are relative to mean sea level. Water-level measurements

and elevation calculations are presented in Table 2. An inferred groundwater flow direction map was included in the site plan (Figure 2).

3.5 GROUNDWATER SAMPLING AND ANALYSIS

On December 1 and 2, 2016, groundwater samples were collected from monitoring wells MW-1, MW-3, 89-6, 301, 516, AG5S, AG6D, AG8D, ECS-2, DG1D, ECS-1, EG1S, EG2D, WG2S, WG3S, and WG4D. 10 was dry and 401S and AG7S had insufficient water volume to collect a sample. Wells were sampled using the USEPA low flow guidance (USEPA, 2010) and peristaltic pumps. Purge water was containerized in a 55-gallon drum and stored inside the Champlain Cable building. ATC collected groundwater samples in accordance with the ATC's SOP for Sampling for PFCs. All samples were transported under chain-of-custody procedures in an ice-filled cooler to TestAmerica, where they were analyzed for the possible presence of PFCs on the by EPA Method 537 modified. Refer to Appendix C for low flow logs.

Concentrations of PFOA exceeded the Vermont Groundwater Enforcement Standards (VGESs) of 20 nanograms per liter (ng/L, equivalent to parts per trillion (ppt)) in MW-1, MW-3, 89-6, 301, 516, AG5S, AG6D, AG8D, DG1D, ECS-1, EG1S, EG2D, WG3S, and WG4D. The range of PFOA exceedances was from 28 (ng/L) in WG3S to 4,000 ng/L in EG2D. The combined total concentrations of perfluorooctanesulfonic acid (PFOS) and PFOA exceeded the VGES of 20 ng/L in MW-1, MW-3, 89-6, 301, 516, AG5S, AG6D, AG8D, DG1D, ECS-1, EG1S, EG2D, WG3S, and WG4D. The range of the combined total concentrations of PFOS and PFOA exceedances was from 28.95 ng/L in WG3S to 4,003.7 ng/L in EG2D. Perfluorononanoic acid (PFNA) exceeded the New Jersey Interim Groundwater Quality Standard (NJ IGQS) of 13 ng/L in MW-3 and 89-6. The source area wells that exhibit PFCs detections also have VOC detections. Monitoring well ECS-2 did not have any detections for PFCs or VOCs. Laboratory analytical results are summarized in Table 3. A contaminant distribution map is presented as Figure 4 through 8. Time series graphs were prepared for datasets of two or more, including groundwater samples collected in May and December 2016. At this time, there is not enough data points to discern a trend; however the presence of PFC contamination was confirmed, exhibiting similar concentrations (within and order of a magnitude) based on detections in both May and December 2016. Time series graphs are shown in Figures 9 through 16. The laboratory report is included in Appendix B.

On November 30 and December 1 and 2, 2016, groundwater samples were collected from SB-1 and SB-3 through SB-14. Two discrete interval groundwater samples were collected for each boring location; each groundwater sample was collected from an 18 inch discrete interval. One shallow (i.e. water table) groundwater sample was collected and one deep groundwater sample was collected at depth (i.e. silt/clay interface). SB-2 has insufficient water volume to collect a water sample. SB-1 and SB-3 only had a shallow water sample collected because the silt/clay interface was shallow at approximately 8.5 ft bgs at SB-1 and 5 ft bgs at SB-3.

Discrete interval groundwater samples were collected by installing an adjacent boring with a 2.25 inch screen point Geoprobe SP22 casing system. The screen point was advanced to the target depth (based on soil boring data collected from the initial boring at that location), exposing a 18 inch long sampling screen connected to the surface via high density polyethylene (HDPE) tubing. A discrete interval groundwater grab sample was then collected using a peristaltic pump and a combination of HDPE and silicone tubing. All tooling was retracted from below the ground surface and decontaminated with Alconox and deionized water following sample collection. ATC collected groundwater samples in accordance with the ATC's SOP for Sampling for PFCs. All samples were transported under chain-of-custody procedures in an ice-filled cooler to TestAmerica, where they were analyzed for the possible presence of PFCs on the by EPA Method 537 modified.

PFOS concentration exceeded the VGES only at SB-1 at 310 ng/L. Concentrations of PFOA exceeded the VGESs in SB-1 and SB-3 through SB-14 for the shallow and deep water sample. The range of PFOA exceedances for the shallow water sample was from 62 ng/L in SB-6 to 1,700 ng/L in SB-1. The range of PFOA exceedances for the deep water sample was from 100 ng/L in SB-5 to 2,000 ng/L in SB-10. The combined total concentrations of PFOS and PFOA exceeded the VGES in SB-1 and SB-3 through SB-14 for the shallow and deep water sample. The range of the combined total concentrations of PFOS and PFOA exceedances from the shallow water sample was from 66.7 ng/L in SB-6 to 2,010 ng/L in SB-1. The range of the combined total concentrations of PFOS and PFOA exceedances from the deep water sample was from 101.9 ng/L in SB-5 to 2,002 ng/L in SB-10. Perfluorononanoic acid (PFNA) exceeded the NJ IGQS in SB-5 shallow water sample, SB-6 deep water sample, SB-7 shallow water sample, SB-8 shallow water sample, SB-12 shallow and deep water sample, SB-13 shallow water sample and SB-14 shallow and deep water sample with the highest concentration being 39 ng/L in SB-8. Laboratory analytical results are summarized in Table 4. A contaminant distribution map is presented as Figure 4 through 8. The laboratory report is included in Appendix B.

3.6 SURFACE WATER SAMPLING AND ANALYSIS

On December 2, 2016, surface water samples were collected from the following locations;

Surface Water Sample Locations	
SW-1	Upgradient location, southwest of facility next to property line and Hercules Drive
SW-3	Downgradient location, northwest of facility next to property line
SW-4	Headwaters of Drainage Swale A located on property
SW-5	Headwaters of Drainage Swale E located off property

Surface water sample location SW-2 was not sampled because landowner permission (Charlebois, 68 Champlain Drive) could not be obtained.

Surface water was sampled as a grab sample in accordance with ATC's SOP 7.0 for surface water sample collection procedures and ATC's SOP for Sampling for PFCs. The surface water samples were collected with a HDPE sample bottle using direct dip methodology. All samples were transported under chain-of-custody procedures in an ice-filled cooler to TestAmerica, where they were analyzed for the possible presence of PFCs on the by EPA Method 537 modified.

There is no regulatory surface water standard in Vermont; and therefore, surface water laboratory results were compared to VGES. Concentrations of PFOS exceeded the VGES in SW-1 at 73 ng/L. All other locations were below the VGES of 20 ng/L. Concentrations of PFOA exceeded the VGESs in SW-1, SW-4 and SW-5. The range of PFOA exceedances was from 100 ng/L in SW-1 to 190 ng/L in SW-5. The combined total concentrations of PFOS and PFOA exceeded the VGES in SW-1, SW-4 and SW-5. The range of the combined total concentrations of PFOS and PFOA exceedances was from 152.5 ng/L in SW-4 to 202 ng/L in SW-5. PFNA exceeded the NJ IGQS in SW-5 at 46 ng/L. Laboratory analytical results are summarized in Table 5. A contaminant distribution map is presented as Figure 4 through 8. The laboratory report is included in Appendix B.

4.0 QUALITY ASSURANCE/QUALITY CONTROL

ATC conducted a limited review of field and laboratory quality assurance/quality control (QA/QC) data and procedures for the November and December 2016 sampling event. The sampling matrices included surface water, groundwater and soil. All sample collection procedures were performed by ATC in accordance with accepted criteria. All laboratory analyses were conducted by TestAmerica Laboratories, Inc. of West Sacramento, CA and Burlington, VT. The results of this data usability analysis indicate that the data used are of suitable quality to support the conclusions of this summary report. ATC's QA/QC analysis is presented below:

4.1 ATC FIELD QA/QC

Field trip blanks should not have a reportable concentration of any compound of interest above the reporting limit. There were no PFCs detected above laboratory reporting limits in field trip blanks associated with the surface water, groundwater and soil samples.

4.2 ATC EQUIPMENT QA/QC

Equipment rinsate blanks should not have a reportable concentration of any compound of interest above the reporting limit. Equipment rinsate blanks were collected during the sampling of groundwater and soil. Equipment rinsate blanks were collected on field equipment that come into contact with the sample and after proper decontamination was performed or on a disposable item. During the soil sampling, an equipment rinsate blank was collected on an unused acetate sleeve used for direct push sampling. During the groundwater sampling in temporary wells, an equipment blank was collected on the stainless steel screen point. There were no PFCs detected above laboratory reporting limits in equipment rinsate blanks associated with the groundwater and soil samples.

Prior to the PFCs sampling in the existing groundwater monitoring well network, VOCs were sampled using passive diffusion bags (PDBs). The PDBs were deployed on November 8, 2016 and were removed the day before (November 30, 2016) the PFC groundwater sampling occurred. The monitoring wells that contained PDBs and that were also sampled for PFCs include 516, AG-8D, DG-1D, ECS-1, EG-1S, EG-2D, and EG-4D. Since there was an overlap in the monitoring well network for each type of sampling and analysis performed then an equipment rinsate blank was collected on an unused PDB. The results indicated detections of PFOA at 2.0 ng/L, PFOS at 13 ng/L and PFNA at 1.1 J ng/L (J - Estimated value below reporting limit, but greater than or equal to method detection limit and the concentration is an approximate value). The PFCs samples were collected using USEPA Low Flow Method (USEPA, 2010) and purging occurred prior to sample collection. It can be assumed that enough purging occurred to remove the well volumes that came into contact with the PDBs. However, the data associated with the wells that contained PDBs has been qualified with a B qualifier (B - Compound was found in the blank and sample), as a conservative measure. The B qualifier was applied to data that had a positive sample result for a compound less than or equal to 5 times the concentration of the compound in the PDB equipment rinsate blank.

4.3 ATC DECONTAMINATION WATER QA/QC

Blank water used for decontamination of field equipment should not have a reportable concentration of any compound of interest above the reporting limit. A decontamination water blank sample was collected during the sampling of groundwater and soil on December 1, 2016. The source of the decontamination water was from a newly installed spigot on the Champlain Cable facility that is serviced by the Colchester

Water Department. During the collection of the decontamination water sample, it was noted that there was new Teflon tape on the water spigot threading. This decontamination water was only used on December 1, 2016 to decontaminate the direct push drill rig tooling including stainless steel rods and well screen point. The previous two days of soil and groundwater sampling, water from Cascade Environmental was brought onsite and was reported as previously tested for PFCs with not having a reportable concentration of any compound of interest above the reporting limit.

The results of the decontamination water blank sample indicated a detection of PFOA at 1.1 J ng/L. All sample results for this compound on the day of sampling had a positive sample result greater than 5 times the concentration of the blank and therefore were reported as unqualified.

4.4 COOLER TEMPERATURES

Cooler temperatures were recorded on the laboratory log-in checklists. All temperatures for surface water, groundwater and soil samples were received on ice at a range of 0.3 to 4.0 degrees Celsius, which falls within the desired 0 to 8 degrees Celsius range (2 to 6 degree limit, with ± 2 for instrument variance). The laboratory considered the samples received at an acceptable temperature.

4.5 HOLDING TIMES

All samples were analyzed within recommended analytical holding times.

4.6 J-FLAGGED ESTIMATED CVOC CONCENTRATIONS

PFCs that were estimated at concentrations below laboratory reporting limits, but above detection limits, were given estimated "J" values. These estimated values were flagged with the qualifier J in the laboratory report.

4.7 SAMPLE DILUTION (D-FLAGGED DATA)

The following samples were diluted to bring the concentration of target analytes within the calibration range: GW129.5, GW0815, MW-3, EG-1S and EG-2D. Elevated reporting limits are provided.

4.8 LABORATORY METHOD BLANKS

Method Blanks should not have a reportable concentration of any compound of interest above the reporting limit. There were no PFCs detected above laboratory reporting limits in laboratory method blanks associated with surface water, groundwater and soil. There was a detection below the laboratory reporting limit, but above the detection limit for the method blank in laboratory packet 320-24090-1. The detection was for the compound PFOA at 0.857 J ng/L. All sample results for this compound had a positive sample result greater than 5 times the concentration of the blank and therefore were reported as unqualified.

4.9 LABORATORY BLANK SPIKE / BLANK SPIKE DUPLICATE

For the laboratory blank spike, a known amount of analyte is added to a blank sample before it is analyzed. The percent recovery of the analyte indicates how much of the analyte of interest is being detected in the analysis of actual samples; hence, a spike also is an assessment of the accuracy of the method. A laboratory blank spike duplicate is a second laboratory spike sample. The recoveries for the

blank spike samples and the associated duplicate blank spike sample were within the control limits for all laboratory packets except packet 320-24090-1. The relative percent difference (RPD) of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) recovered outside control limits for the following analyte: perfluorooctance sulfonamide (FOSA). This analyte was not detected in the associated samples, therefore the data has been reported.

4.10 SURROGATE RECOVERIES

Surrogates are compounds that are spiked (i.e. added at a known concentration) into samples. A surrogate by definition is a compound that is not found in nature and is not a “normal” pollutant. These compounds have recommended recoveries in the specific methods (EPA Method 537). Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate associated with all sample batches.

4.11 OTHER LABORATORY ISSUES

The isotope dilution analyte (IDA) recovery is above the method recommended limit for the following samples: GW0811, GW078.5, GW0714, FIELD BLANK 02, AG-6D, 301, MW-DUPE, and PDB BLANK. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

5.0 SENSITIVE RECEPTOR SURVEY

The following sensitive receptors were identified in the vicinity of the property.

- The soil and groundwater in the vicinity of the following areas;
- Former dispensing pad north of the plant building;
- Chemical storage pad area west of the plant building;
- Sand pit area northeast corner of the property; and
- Wastewater treatment system southwest corner of the property.
- The surface water wetland west of the wastewater treatment system;
- The surface water and sediment in drainage Swale A and E; and
- Utility conduits.

The risk from the surface water, groundwater, soil and sediment PFCs contamination to these sensitive receptors identified above was qualitatively analyzed. In general, human exposure to PFCs is possible through inhalation, ingestion, or direct contact while impacts to environmental receptors are due either to a direct release or contaminant migration through one receptor to another or along a preferential pathway.

- The soil and groundwater in the vicinity of the former dispensing pad north of the plant building, the chemical storage pad area west of the plant building, the sand pit area northeast corner of the property and, the wastewater treatment system southwest corner of the property - The highest groundwater PFC concentrations are located in the former wastewater treatment system and the sand pit area. Access to impacted groundwater in these areas are limited and the risk to human exposure is low. The surface and subsurface soil in these areas did not have any detections above the VT DOH SSV for PFOA and are not considered a risk to human exposure. A surface and subsurface soil sample was not collected in the vicinity of the chemical storage pad area.

Surface water in unnamed stream west of the wastewater treatment system – The surface water in the unnamed stream is located approximately 200 feet west of the wastewater treatment area. This surface water wetland flows north towards a tributary of the Winooski River. A surface water sample SW-1 was collected in the unnamed stream and results exceeded the VGES for PFOA and PFOS. A downgradient surface water sample SW-3 was collected and PFCs did not exceed VGES. Sediment samples were not collected in the unnamed stream. The detection of PFCs in SW-1 may suggest PFCs are entering surface water from an offsite upstream source.

- Surface water and sediment in drainage Swale A and E - The surface water located in drainage Swale A is downgradient from the dispensing pad area and flows north discharging into a tributary of the Winooski River. A surface water sample was collected in drainage Swale A and results exceeded the VGES for PFOA and PFOS. A sediment sample was collected in drainage Swale A and results were below the VT DOH SSV for PFOA. This sensitive receptor is likely impacted by the PFCs release in the chemical storage pad area. The surface water located in drainage Swale E is downgradient from the sand pit area and flows north discharging into a tributary of the Winooski River. A surface water sample was collected in drainage Swale E and results exceeded the VGES for PFOA and PFOS and the NJ IGQS for PFNA. A sediment sample was not collected in drainage Swale E. This sensitive receptor is likely impacted by the PFCs release in the sand pit area. It appears the contaminant fate and transport of PFC contamination from the chemical storage pad and the sand pit area is groundwater to drainage Swale A and E.

- Utility Conduits - Utility conduits include sewer located near the wastewater treatment system area. The groundwater in this area had exceedances of VGES for both PFOA and PFOS. There is a potential for this contamination to impact the backfill material of the sewer line due to a shallow water table with seasonal fluctuations estimated to be 5 to 7 ft bgs.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of PFC site investigation, ATC concludes the following:

1. Groundwater in the unconfined surficial aquifer at the site appears to flow generally northeast and northwest, controlled by groundwater discharge to two swales (designated Swale A and Swale E). The vertical groundwater flow components at the site differs depending on location of shallow and deep monitoring well couplets. There is both upward and downward vertical flow components observed at the couplet wells. The hydraulic relationship between the shallow unconfined aquifer and the bedrock aquifer, is currently unknown.
2. Several PFCs, primarily PFOA were detected in the surface and subsurface soil samples (SB-1 to SB-14); however, no concentrations exceeded the Vermont Department of Health (VTDOH) derived soil screening value (SSV) of 300 micrograms per kilogram ($\mu\text{g}/\text{kg}$). Most concentrations were $<1 \mu\text{g}/\text{kg}$ and considered concentrations typical of background. It does not appear that PFCs are adsorbing significantly to available organic carbon in the soil even though the soil Foc content is within a typical range.
3. PFOA was detected above the VGES at all shallow and deep discrete groundwater sample locations (SB-1 through SB-14). PFOS was only detected above VGES at SB-1 near the former waste water treatment system. The highest discrete groundwater PFOA concentrations were detected near the area of the former wastewater treatment system (SB-1 at 1,700 ng/L) and the Sand Pit Area (SB-10 at 2,000 ng/L). The deep discrete groundwater sample at each soil boring generally had the highest PFOA concentration.
4. PFOA was also detected in groundwater samples collected from 17 of 19 existing monitoring wells sampled at concentrations above VGES. The highest concentration of PFOA (4,000 ng/L) was detected in the Sand Pit Area (well EG2D). The results were similar to the May 2016 sampling event where the highest PFC concentrations were also detected in EG2D. It should be noted that PFC concentrations were generally lower in monitoring wells located on the immediate downgradient side of SVI PRB when compared to wells located immediately upgradient of the PRB in the Sand Pit Area and Swale A. PFCs were also detected above VGES on the Town of Colchester property (MW-03). The source area wells that exhibit PFCs detections also have VOC detections. Also, conversely where PFCs were not detected VOCs are not detected such as at compliance point perimeter monitoring well ECS-2. Also, conversely where PFCs were not detected VOCs are not detected such as at compliance point perimeter monitoring well ECS-2.
5. PFCs were detected in surface water samples (SW-1 and SW-3) in the unnamed tributary along the western property boundary and in drainage Swales A (SW-4) and E (SW-5). There are currently no Vermont regulatory standards for surface water; therefore, the results were compared to VGES. No PFCs were detected above VGES in SW-3. PFOA exceeded VGES in surface water samples SW-1, SW-4, and SW-5 and PFOS exceeded VGES in SW-1. The detection of PFOA and PFOS in upstream sample SW-1 at the southwest corner of the property may indicate an offsite source of PFCs.
6. A surface water SW-2 and sediment sample (SD-02) were schedule to be collected from the Champlain Cable Corporation waste water discharge point in the unnamed stream; however, permission to access the property was not granted to ATC by Charlebois (68 Champlain Drive).

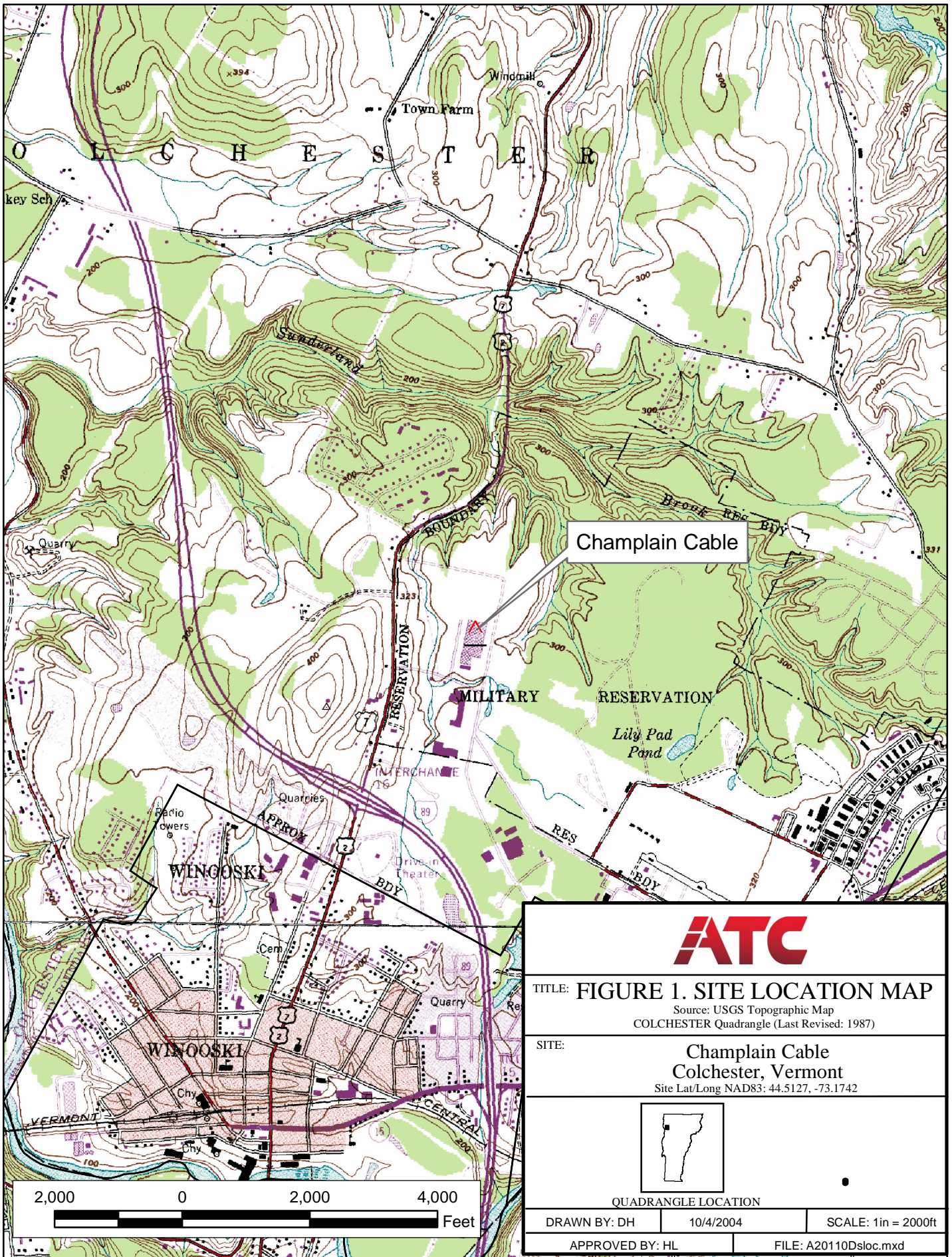
7. PFCs appear to be mostly concentrated in groundwater at the Site. Based on information collected to date, sensitive receptors affected from the PFCs in groundwater include surface water at the headwaters of Swale A on the Champlain Cable Corporation property, the headwaters of Swale E on the Town of Colchester property, and the unnamed stream to Sunderland Brook along the western Site boundary. The human contact exposure to surface water in the Swales and unnamed stream is likely low as these areas are within steep slopes of the Site and Town Park and/or typically not accessed by the general public or visitors. The potential ecological exposure to PFCs in surface water is unknown at this time as the SI did not evaluate ecological impacts. The Site and surrounding properties have municipal water connections; and therefore, there is likely no exposure from PFCs detected at the Site to consumption of groundwater. Also, nearby drinking water supply wells, within a one mile radius of the Site, have been sampled and results indicated that there were no detections of PFCs above laboratory reporting limits.

RECOMMENDATIONS

Based on the above findings, ATC recommends the following;

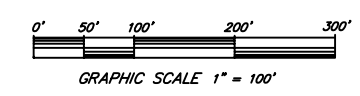
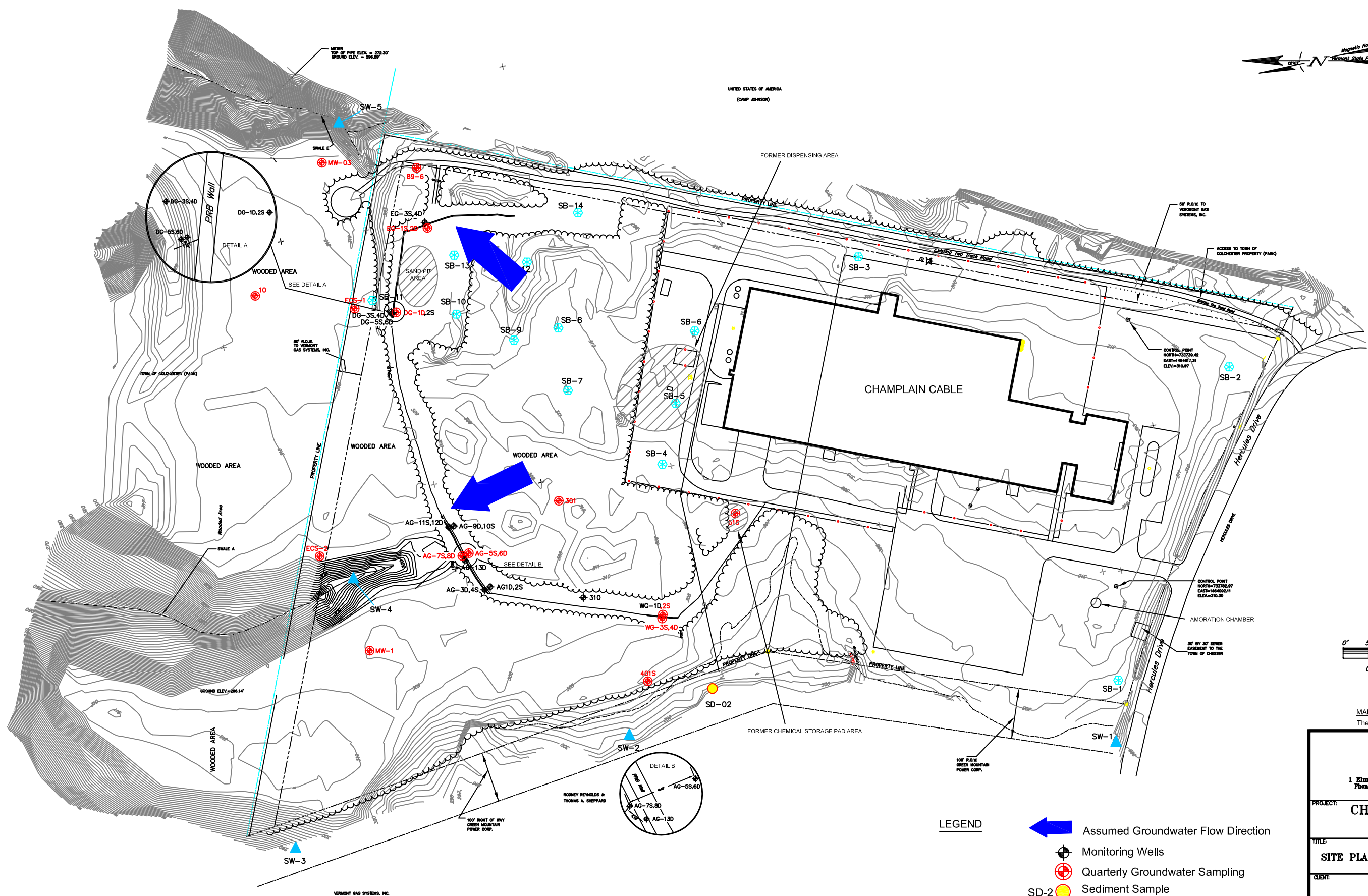
1. Continue quarterly groundwater sampling for PFCs at existing monitoring wells to determine trends. Groundwater samples should be submitted for laboratory analysis of PFCs by EPA Method 537.
2. Sampling of surface water for PFCs further downstream in Swales A and E and the unnamed stream to determine how far PFCs are travelling in surface water. Also, sampling surface water in Swales B, C, and D, which are located off-site and downgradient of the documented PFC groundwater contamination. Surface water quality in the off-site swales could provide information on the extent of PFCs in the shallow overburden groundwater as groundwater appears to be discharging to the Swales (gaining streams). Additionally, surface water and ground water upstream of SW-1 and SB-1 should be sampled for PFCs to determine if there are offsite source of PFCs entering the unnamed stream and Champlain Cable property. Surface water and ground water samples should be submitted for laboratory analysis of PFCs by EPA Method 537.
3. Since there are no existing monitoring wells in the area of the former wastewater treatment system and this area had the highest concentration of PFCs at the Site, it is recommended to install monitoring wells in this area to further characterize PFCs in this area of the Site. Groundwater samples should be submitted for laboratory analysis of PFCs by EPA Method 537.
4. Further evaluate the ZVI PRBs with respect to the observed PFC concentration decreases in wells immediately downgradient of the corresponding PRBs in an effort to determine if the PRB is having any effect on PFCs.
5. A summary report should be prepared that includes a discussion on PFC results, figures showing inferred groundwater flow direction and contaminant distribution, contaminant time series graphs, and recommendations. The report should be submitted to Champlain Cable Corporation, and VT DEC for review.

FIGURES












UNITED STATES OF AMERICA
(CAMP JOHNSON)



MAP REFERENCE:
The Base Map was taken from Krebs and Lansing

LEGEND

-  Assumed Groundwater Flow Direction
-  Monitoring Wells
-  Quarterly Groundwater Sampling
-  SD-2 Sediment Sample
-  SW-2 Surface Water Sample
-  SB-2 Boring/Discrete Interval Sampling
-  Approximate Limits of CVOC Source Area as Defined by Weston, 1992

110 Shaded Value Exceeds VT Groundwater Quality Standard of 20 ppt

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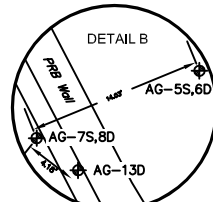
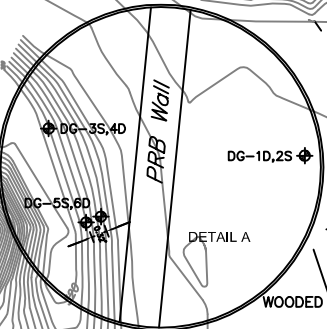
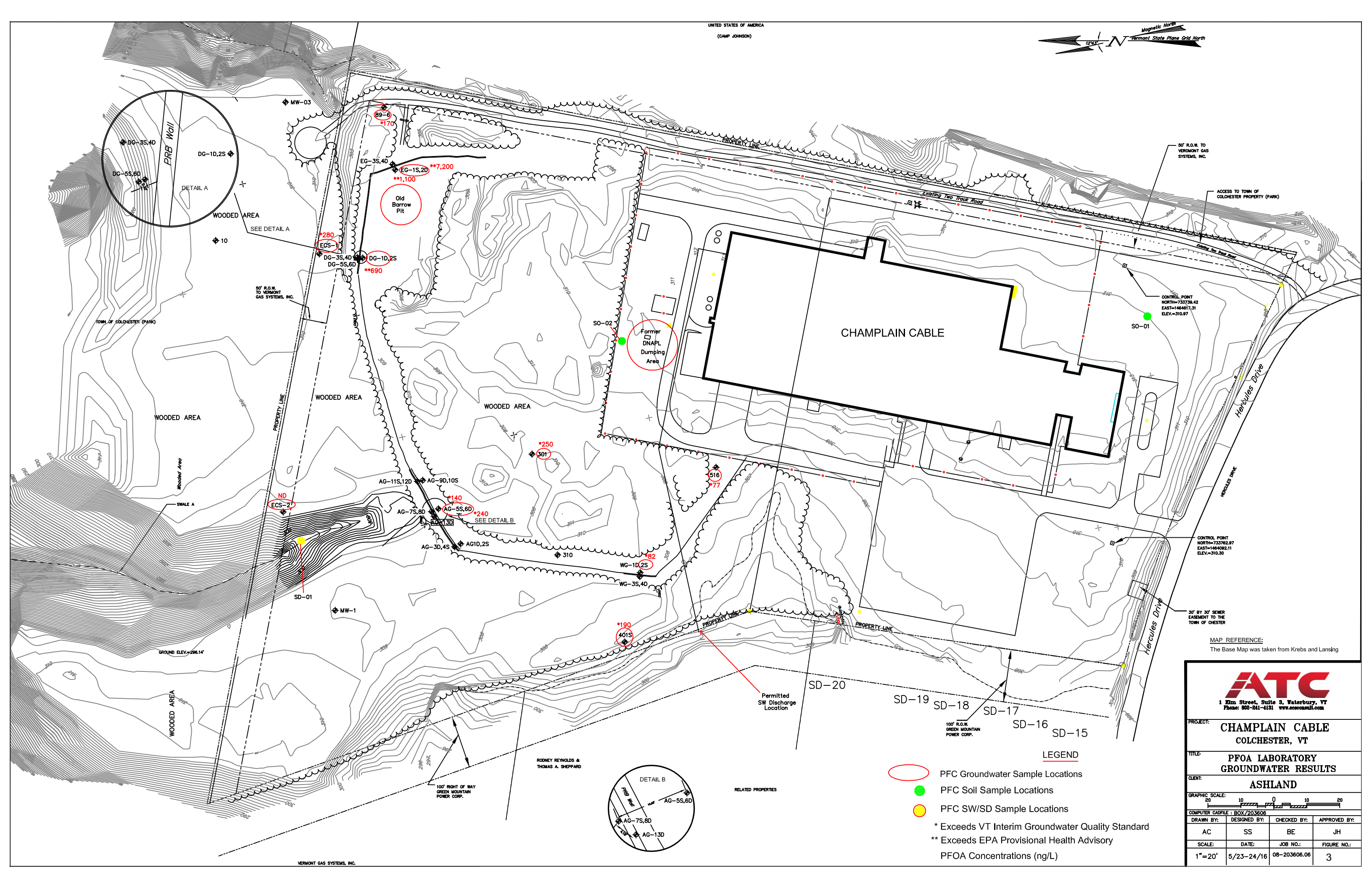
PROJECT: **CHAMPLAIN CABLE
COLCHESTER, VT**

TITLE: **SITE PLAN with GW Flow Direction**

CLIENT: **ASHLAND**


COMPUTER CADFILE: BOX/203606

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AC	SS	JH	JH
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
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- LEGEND**
- PFC Groundwater Sample Locations
 - PFC Soil Sample Locations
 - PFC SW/SD Sample Locations
 - * Exceeds VT Interim Groundwater Quality Standard
 - ** Exceeds EPA Provisional Health Advisory PFOA Concentrations (ng/L)

MAP REFERENCE:
The Base Map was taken from Krebs and Lansing

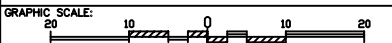


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COLCHESTER, VT**

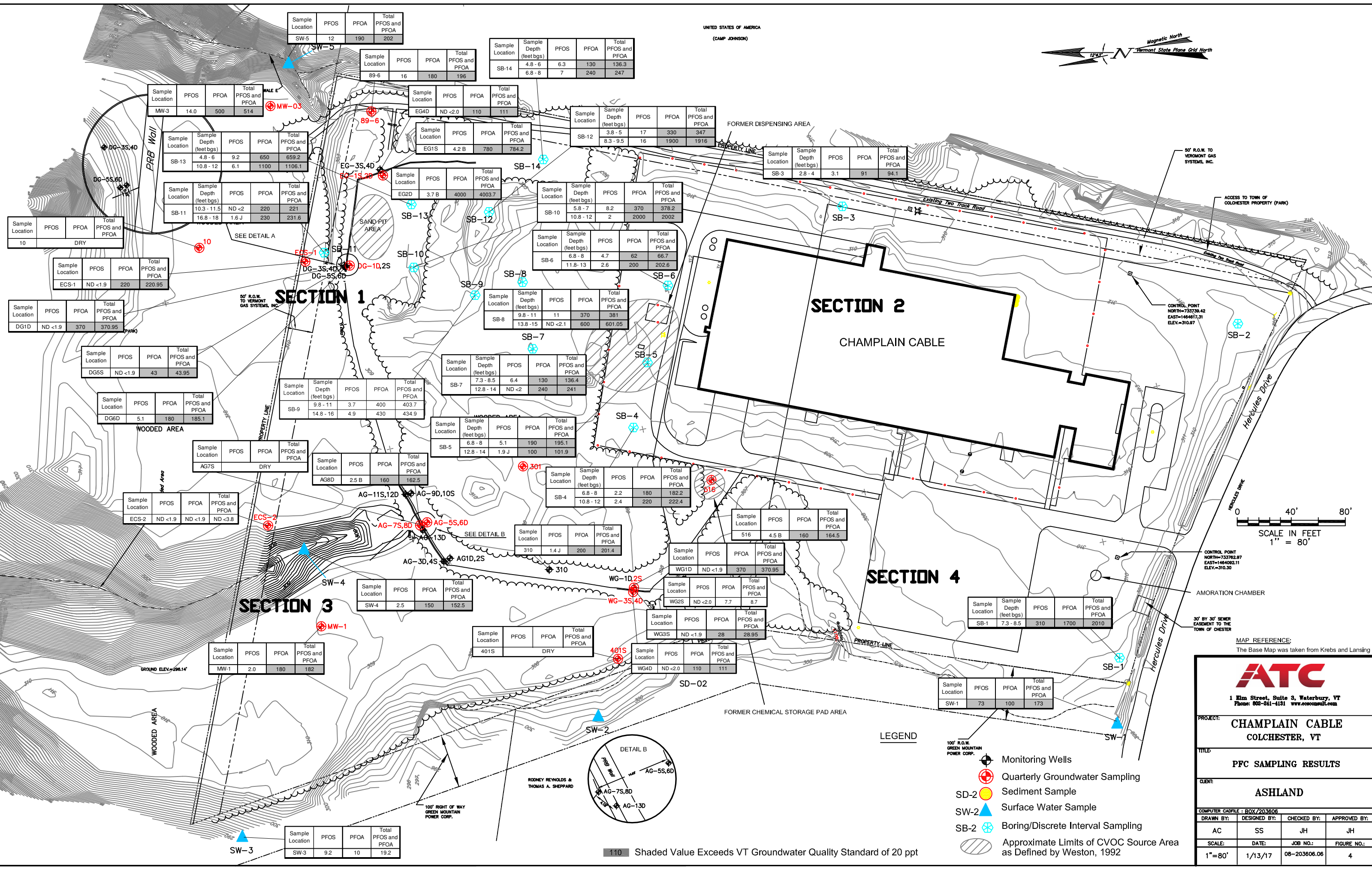
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GROUNDWATER RESULTS**

CLIENT: **ASHLAND**

GRAPHIC SCALE: 

COMPUTER CADFILE: BOX/203606

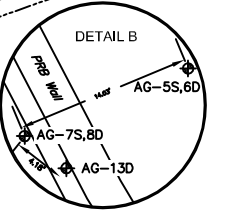
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Sample Location	PFOS	PFOA	Total PFOS and PFOA
SW-5	12	190	202
MW-3	14.0	500	514
SB-13	4.8 - 6	9.2	650
SB-11	10.3 - 11.5	6.1	1100
SB-11	16.8 - 18	1.6 J	230
10	DRY		
ECS-1	ND <1.9	220	220.95
DG1D	ND <1.9	370	370.95
DG5S	ND <1.9	43	43.95
DG6D	5.1	180	185.1
DG5S	ND <1.9	43	43.95
AG7S	DRY		
AG8D	2.5 B	160	162.5
ECS-2	ND <1.9	ND <1.9	ND <3.8
AG-11S,12D			
AG-9D,10S			
AG-7S,8D			
AG-5S,6D			
AG-3D,4S			
AG1D,2S			
SW-4	2.5	150	152.5
MW-1	2.0	180	182
SW-3	9.2	10	19.2

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
EG4D	ND <2.0	110	111	
EG1S	4.2 B	780	784.2	
SB-12	3.8 - 5	17	330	347
SB-12	8.3 - 9.5	16	1900	1916
SB-3	2.8 - 4	3.1	91	94.1
SB-10	5.8 - 7	8.2	370	378.2
SB-10	10.8 - 12	2	2000	2002
SB-6	6.8 - 8	4.7	62	66.7
SB-6	11.8 - 13	2.6	200	202.6
SB-8	9.8 - 11	11	370	381
SB-8	13.8 - 15	ND <2.1	600	601.05
SB-7	7.3 - 8.5	6.4	130	136.4
SB-7	12.8 - 14	ND <2	240	241
SB-9	9.8 - 11	3.7	400	403.7
SB-9	14.8 - 16	4.9	430	434.9
SB-5	6.8 - 8	5.1	190	195.1
SB-5	12.8 - 14	1.9 J	100	101.9
SB-4	6.8 - 8	2.2	180	182.2
SB-4	10.8 - 12	2.4	220	222.4
SB-4	6.8 - 8	2.2	180	182.2
SB-4	10.8 - 12	2.4	220	222.4
WG1D	ND <1.9	370	370.95	
WG2S	ND <2.0	7.7	8.7	
WG3S	ND <1.9	28	28.95	
WG4D	ND <2.0	110	111	
SD-02				
401S	DRY			
WG4D	ND <2.0	110	111	

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-14	4.8 - 6	6.3	130	136.3
SB-14	6.8 - 8	7	240	247
SB-12	3.8 - 5	17	330	347
SB-12	8.3 - 9.5	16	1900	1916
SB-3	2.8 - 4	3.1	91	94.1
SB-10	5.8 - 7	8.2	370	378.2
SB-10	10.8 - 12	2	2000	2002
SB-6	6.8 - 8	4.7	62	66.7
SB-6	11.8 - 13	2.6	200	202.6
SB-8	9.8 - 11	11	370	381
SB-8	13.8 - 15	ND <2.1	600	601.05
SB-7	7.3 - 8.5	6.4	130	136.4
SB-7	12.8 - 14	ND <2	240	241
SB-9	9.8 - 11	3.7	400	403.7
SB-9	14.8 - 16	4.9	430	434.9
SB-5	6.8 - 8	5.1	190	195.1
SB-5	12.8 - 14	1.9 J	100	101.9
SB-4	6.8 - 8	2.2	180	182.2
SB-4	10.8 - 12	2.4	220	222.4
SB-4	6.8 - 8	2.2	180	182.2
SB-4	10.8 - 12	2.4	220	222.4
WG1D	ND <1.9	370	370.95	
WG2S	ND <2.0	7.7	8.7	
WG3S	ND <1.9	28	28.95	
WG4D	ND <2.0	110	111	
SD-02				
401S	DRY			
WG4D	ND <2.0	110	111	
SB-1	7.3 - 8.5	310	1700	2010
SW-1	73	100	173	



LEGEND

- Monitoring Wells
- Quarterly Groundwater Sampling
- Sediment Sample
- Surface Water Sample
- Boring/Discrete Interval Sampling
- Approximate Limits of CVOC Source Area as Defined by Weston, 1992

110 Shaded Value Exceeds VT Groundwater Quality Standard of 20 ppt

MAP REFERENCE:
The Base Map was taken from Krebs and Lansing

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PROJECT: **CHAMPLAIN CABLE COLCHESTER, VT**

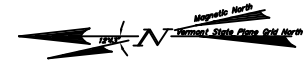
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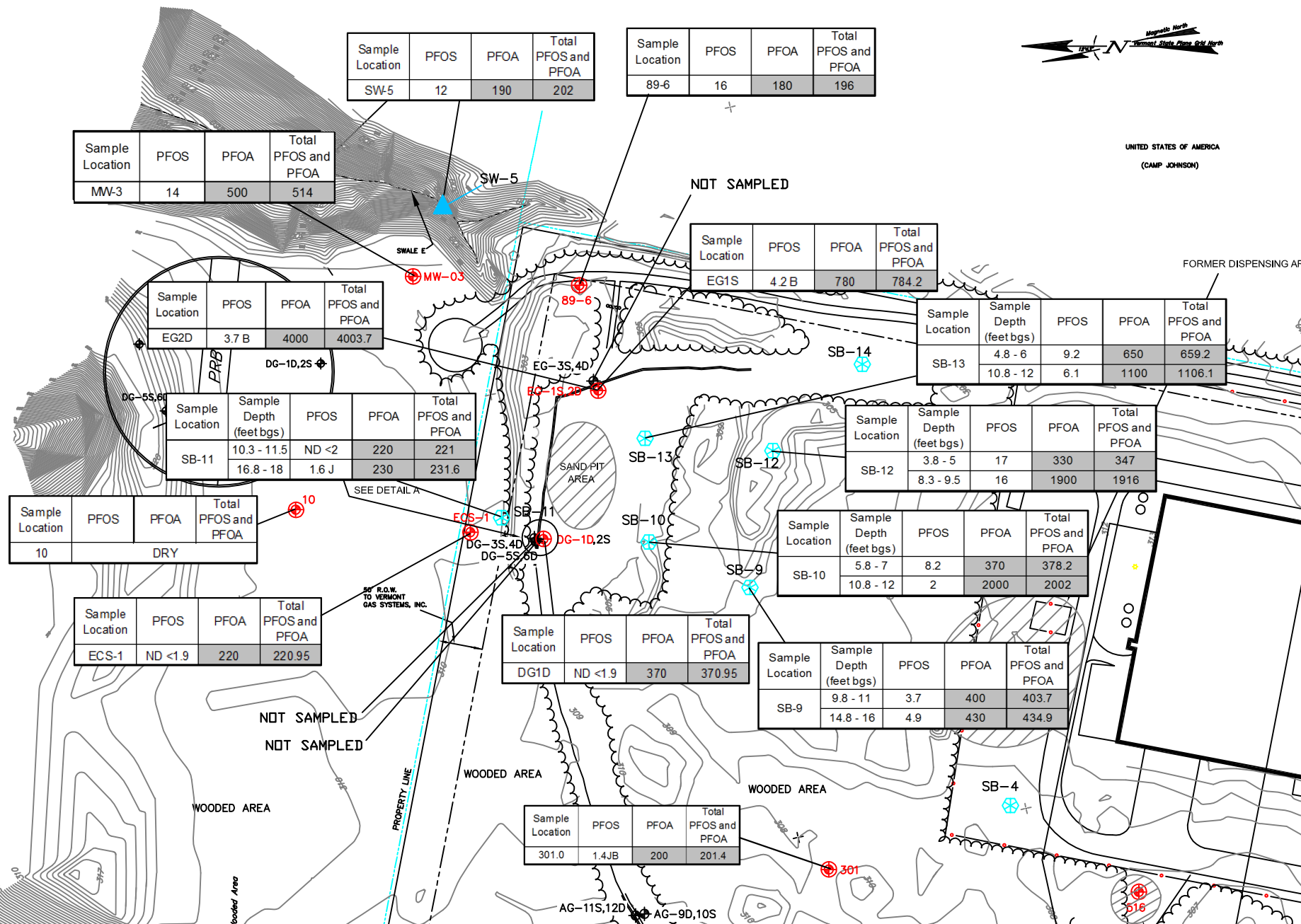
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UNITED STATES OF AMERICA
(CAMP JOHNSON)



Sample Location	PFOS	PFOA	Total PFOS and PFOA
SW-5	12	190	202

Sample Location	PFOS	PFOA	Total PFOS and PFOA
89-6	16	180	196

Sample Location	PFOS	PFOA	Total PFOS and PFOA
MW-3	14	500	514

Sample Location	PFOS	PFOA	Total PFOS and PFOA
EG1S	4.2 B	780	784.2

Sample Location	PFOS	PFOA	Total PFOS and PFOA
EG2D	3.7 B	4000	4003.7

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-13	4.8 - 6	9.2	650	659.2
	10.8 - 12	6.1	1100	1106.1

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-11	10.3 - 11.5	ND <2	220	221
	16.8 - 18	1.6 J	230	231.6

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-12	3.8 - 5	17	330	347
	8.3 - 9.5	16	1900	1916

Sample Location	PFOS	PFOA	Total PFOS and PFOA
10	DRY		

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-10	5.8 - 7	8.2	370	378.2
	10.8 - 12	2	2000	2002

Sample Location	PFOS	PFOA	Total PFOS and PFOA
ECS-1	ND <1.9	220	220.95

Sample Location	PFOS	PFOA	Total PFOS and PFOA
DG1D	ND <1.9	370	370.95

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-9	9.8 - 11	3.7	400	403.7
	14.8 - 16	4.9	430	434.9

Sample Location	PFOS	PFOA	Total PFOS and PFOA
301.0	1.4 JB	200	201.4

REVISIONS		
No.	Date	Description

PROJECT:	CHAMPLAIN CABLE COLCHESTER, VT
TITLE:	

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Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-14	4.8 - 6	6.3	130	136.3
	6.8 - 8	7	240	247

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-3	2.8 - 4	3.1	91	94.1

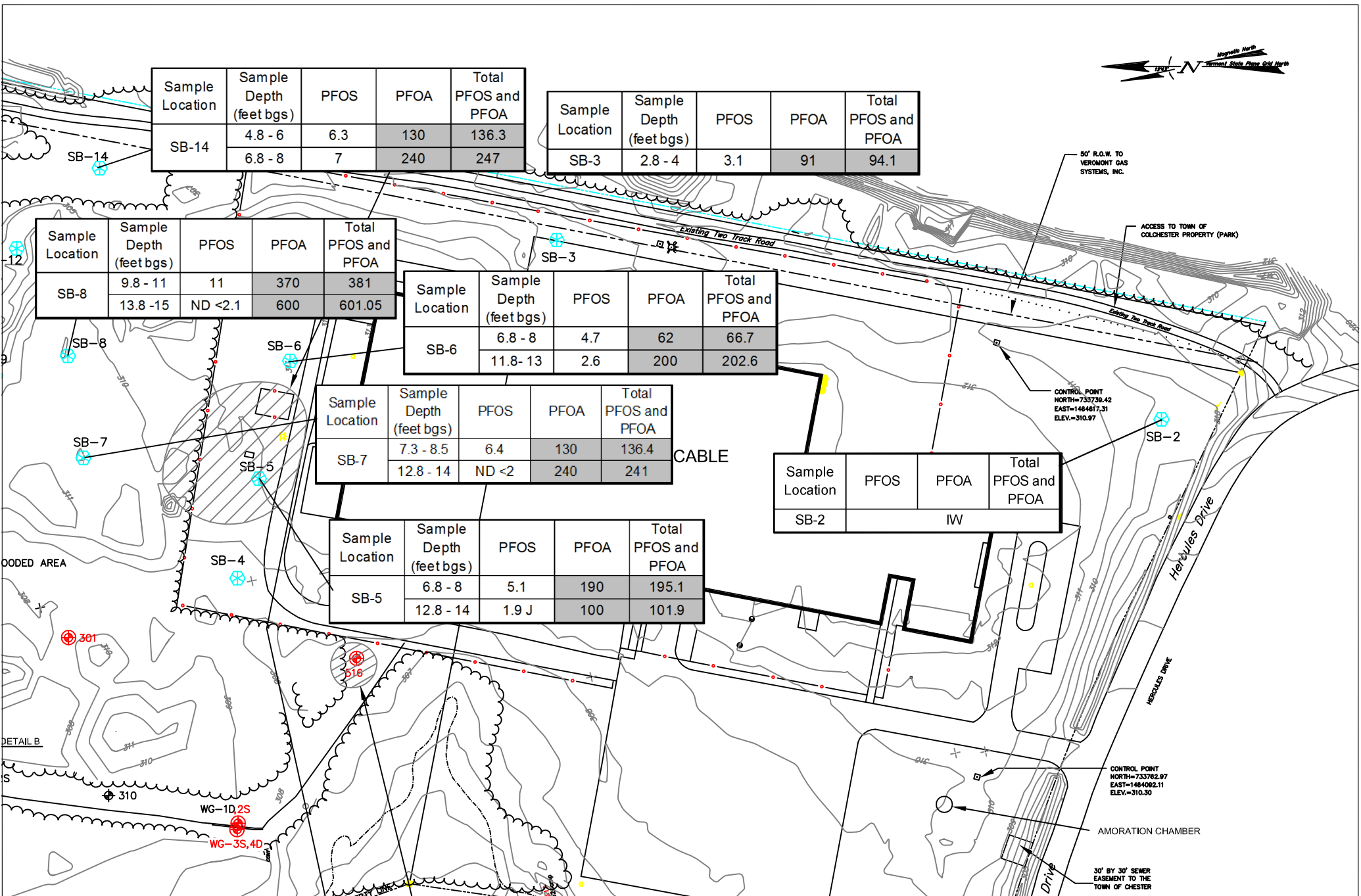
Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-8	9.8 - 11	11	370	381
	13.8 - 15	ND <2.1	600	601.05

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-6	6.8 - 8	4.7	62	66.7
	11.8 - 13	2.6	200	202.6

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-7	7.3 - 8.5	6.4	130	136.4
	12.8 - 14	ND <2	240	241

Sample Location	PFOS	PFOA	Total PFOS and PFOA
SB-2	IW		

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-5	6.8 - 8	5.1	190	195.1
	12.8 - 14	1.9 J	100	101.9



WOODED AREA

DETAIL B

S

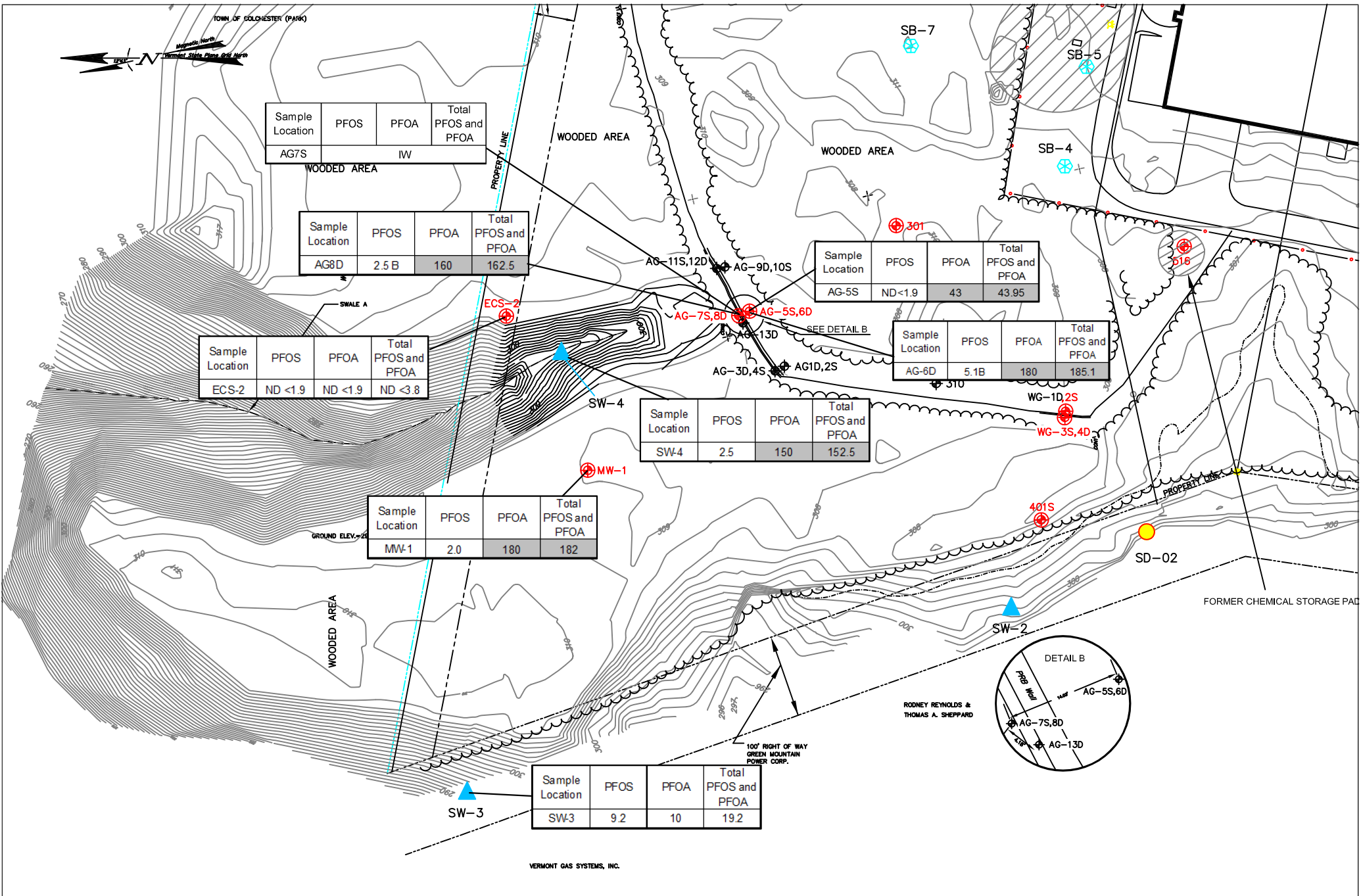
ATC
 1 Elm Street, Suite 3 * Waterbury, VT 05676
 Phone: 802-241-4131 Fax: 802-244-6894
 www.ecsconsult.com

REVISIONS		
No.	Date	Description

PROJECT: **CHAMPLAIN CABLE COLCHESTER, VT**

TITLE: **PFC SAMPLING RESULTS - SECTION 2**

COMPUTER CADFILE : BOX\08-203606.08			
DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
SS\AC	SS	JH	JH
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
1"=50'	1-18-17	203606.08	6



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1 Elm Street, Suite 3 * Waterbury, VT 05676
 Phone: 802-241-4131 Fax: 802-244-6894
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REVISIONS		
No.	Date	Description

PROJECT:	CHAMPLAIN CABLE COLCHESTER, VT	COMPUTER CADFILE FILE
TITLE:		PFC SAMPLING RESULTS - SECTION 3

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
SS\AC	SS	JH	JH
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
1"=50'	1-18-17	08-203606.08	7

Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-4	6.8 - 8	2.2	180	182.2
	10.8 - 12	2.4	220	222.4

Sample Location	PFOS	PFOA	Total PFOS and PFOA
516	4.5 B	160	164.5

Sample Location	PFOS	PFOA	Total PFOS and PFOA
WG2S	ND <2.0	7.7	8.7

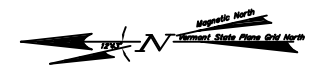
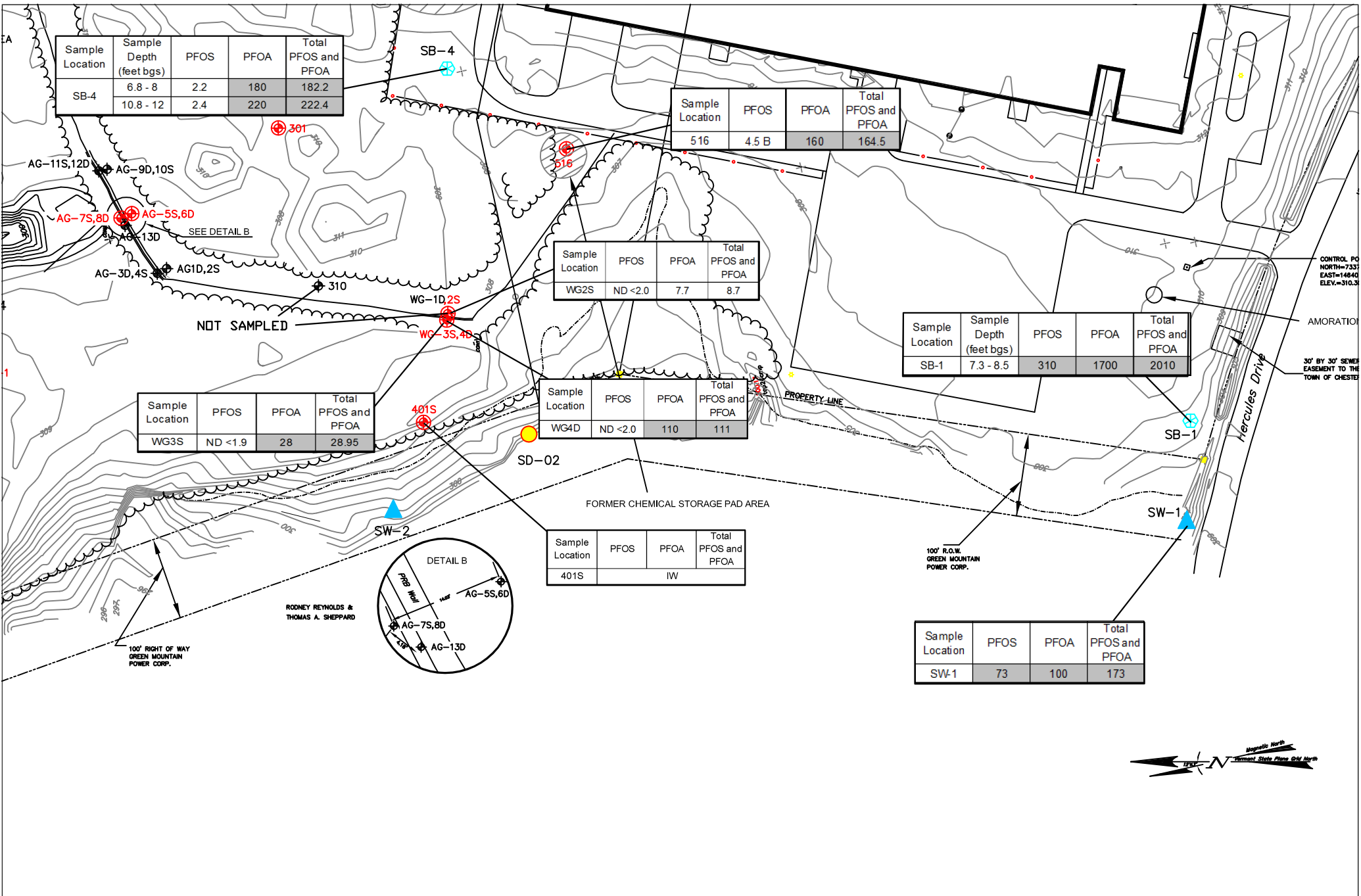
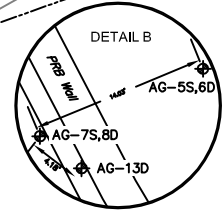
Sample Location	Sample Depth (feet bgs)	PFOS	PFOA	Total PFOS and PFOA
SB-1	7.3 - 8.5	310	1700	2010

Sample Location	PFOS	PFOA	Total PFOS and PFOA
WG3S	ND <1.9	28	28.95

Sample Location	PFOS	PFOA	Total PFOS and PFOA
WG4D	ND <2.0	110	111

Sample Location	PFOS	PFOA	Total PFOS and PFOA
401S		IW	

Sample Location	PFOS	PFOA	Total PFOS and PFOA
SW-1	73	100	173



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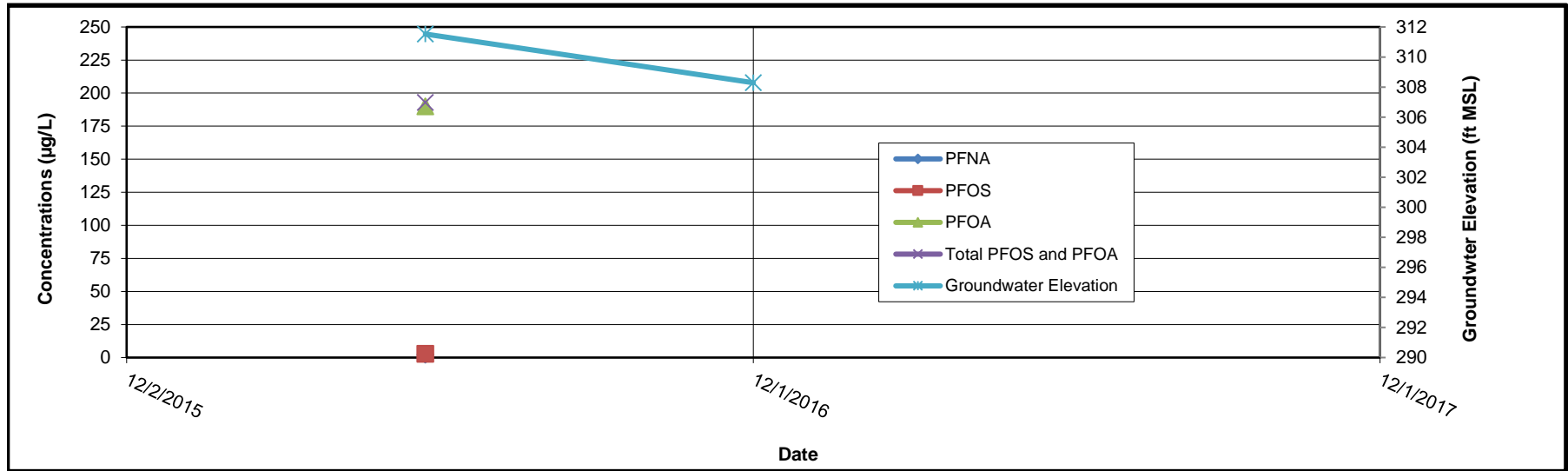
REVISIONS		
No.	Date	Description

PROJECT:	CHAMPLAIN CABLE COLCHESTER, VT
TITLE:	

COMPUTER CADFILE FILE			
DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
SS\AC	SS	JH	JH
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
1"=50'	1-18-17	08-203606.08	8

**Figure 9. MW-401S
PFC Concentrations**

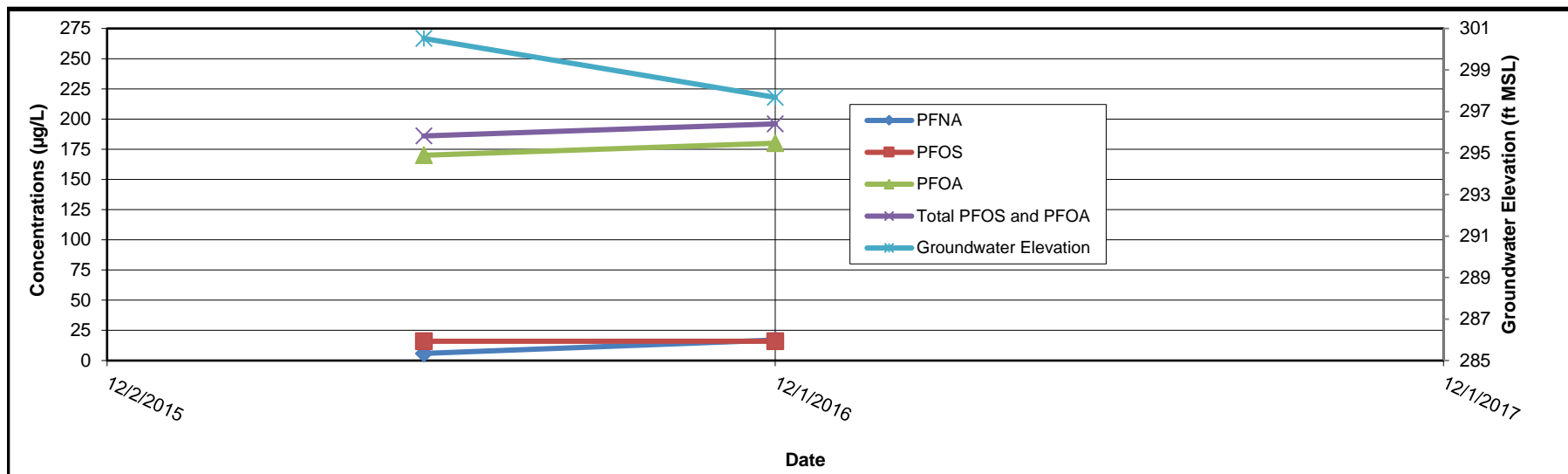
Champlain Cable
Colchester, Vermont



Date	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA	Groundwater Elevation
5/24/2016	3	11	ND<1.9	2.1	2.9	190	192.9	311.53
12/1/2016	Insufficient Water							308.29
VGES	--	--	--	--	20	20	20	
NJ IGQS	--	--	--	13	--	--	--	

**Figure 10. MW-89-6
PFC Concentrations**

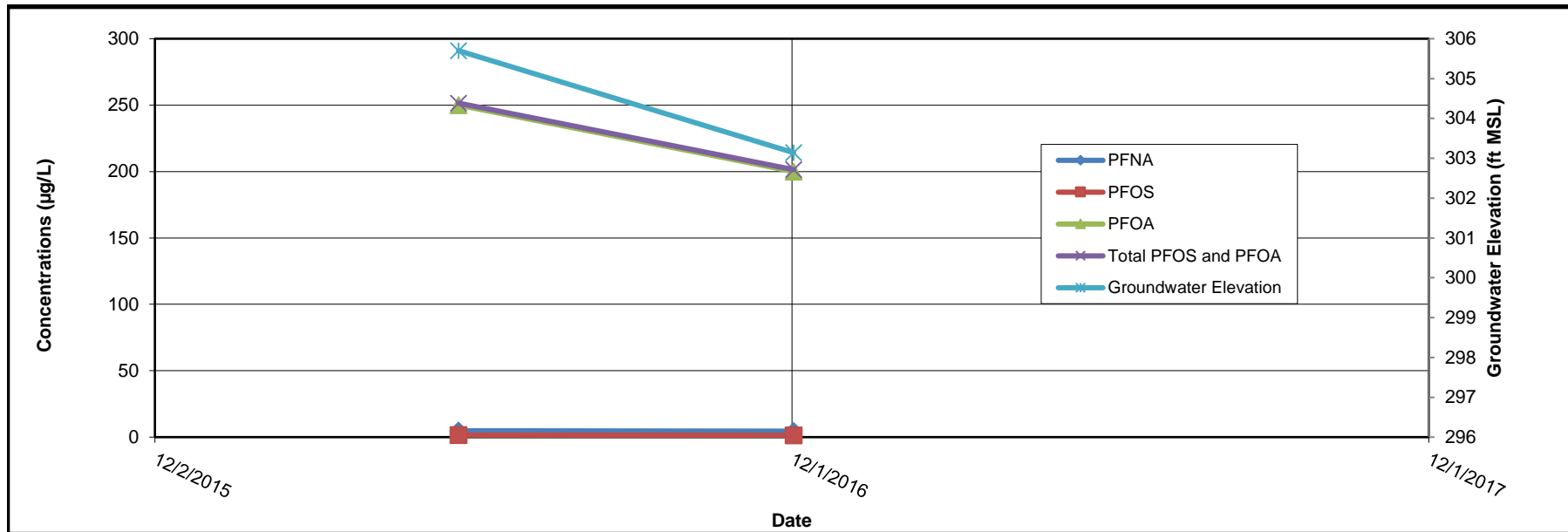
Champlain Cable
Colchester, Vermont



Date	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA	Groundwater Elevation
5/23/2016	1.8 J	29	3	5.9	16	170	186.0	300.52
12/1/2016	ND <2.0	43	2.3	17	16	180	196	297.68
VGES	--	--	--	--	20	20	20	
NJ IGQS	--	--	--	13	--	--	--	

**Figure 11. MW-301
PFC Concentrations**

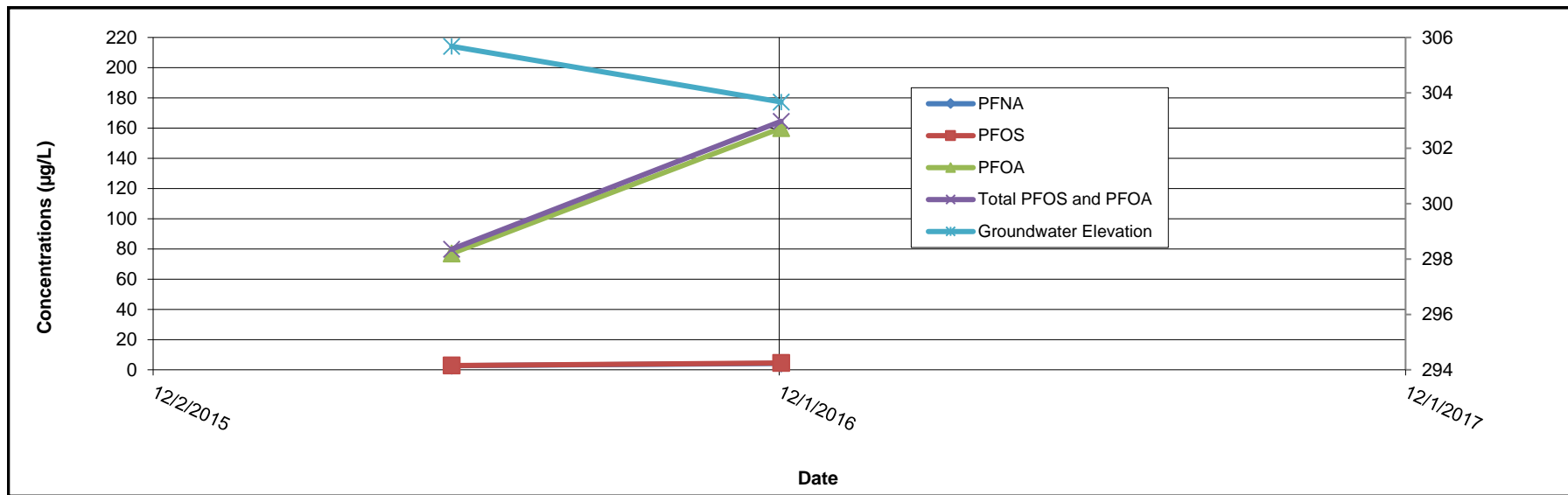
Champlain Cable
Colchester, Vermont



Date	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA	Groundwater Elevation
5/24/2016	1.3 J	32	0.89 J	4.8	1.5	250	251.5	305.7
12/2/2016	ND <2.1	27	ND <2.1	4.5	1.4	200	201.4	303.14
<i>VGES</i>	--	--	--	--	20	20	20	
<i>NJ IGQS</i>	--	--	--	13	--	--	--	

**Figure 12. MW-516
PFC Concentrations**

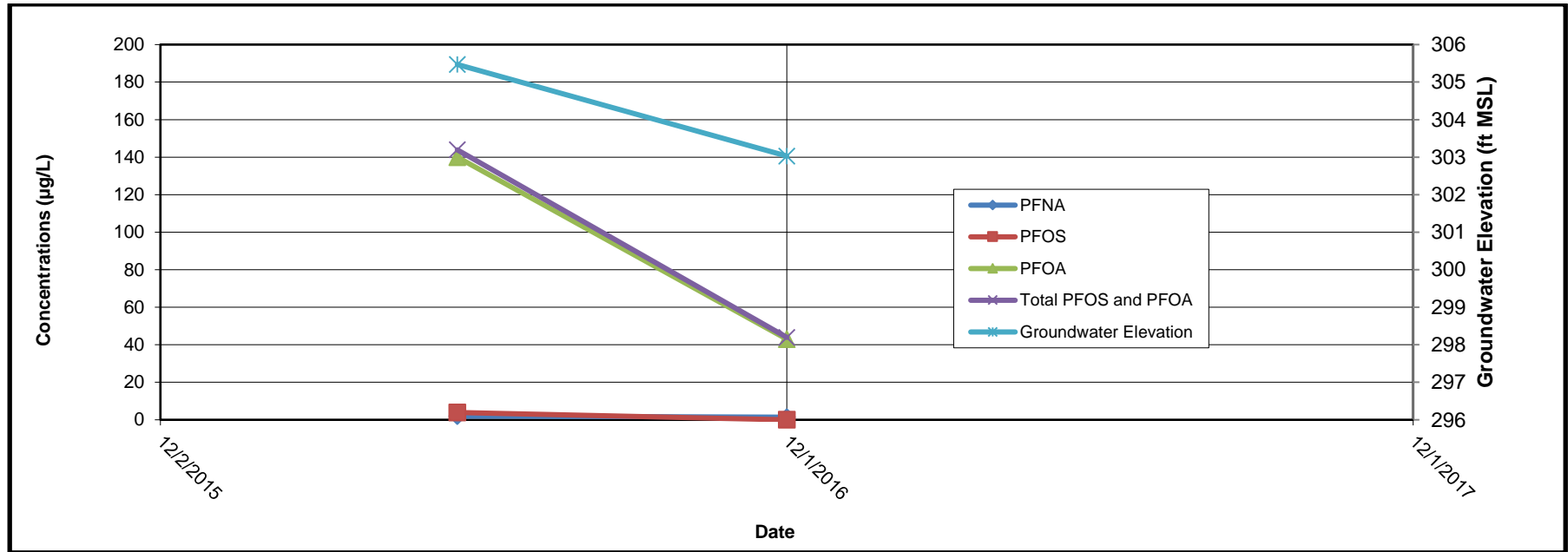
Champlain Cable
Colchester, Vermont



Date	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA	Groundwater Elevation
5/24/2016	45	11	ND<1.9	2.7	2.8	77	79.8	305.68
12/2/2016	2.8	26	ND <2.0	4.2	4.5	160	164.5	303.67
VGES	--	--	--	--	20	20	20	
NJ IGQS	--	--	--	13	--	--	--	

**Figure 13. MW-AG5S
PFC Concentrations**

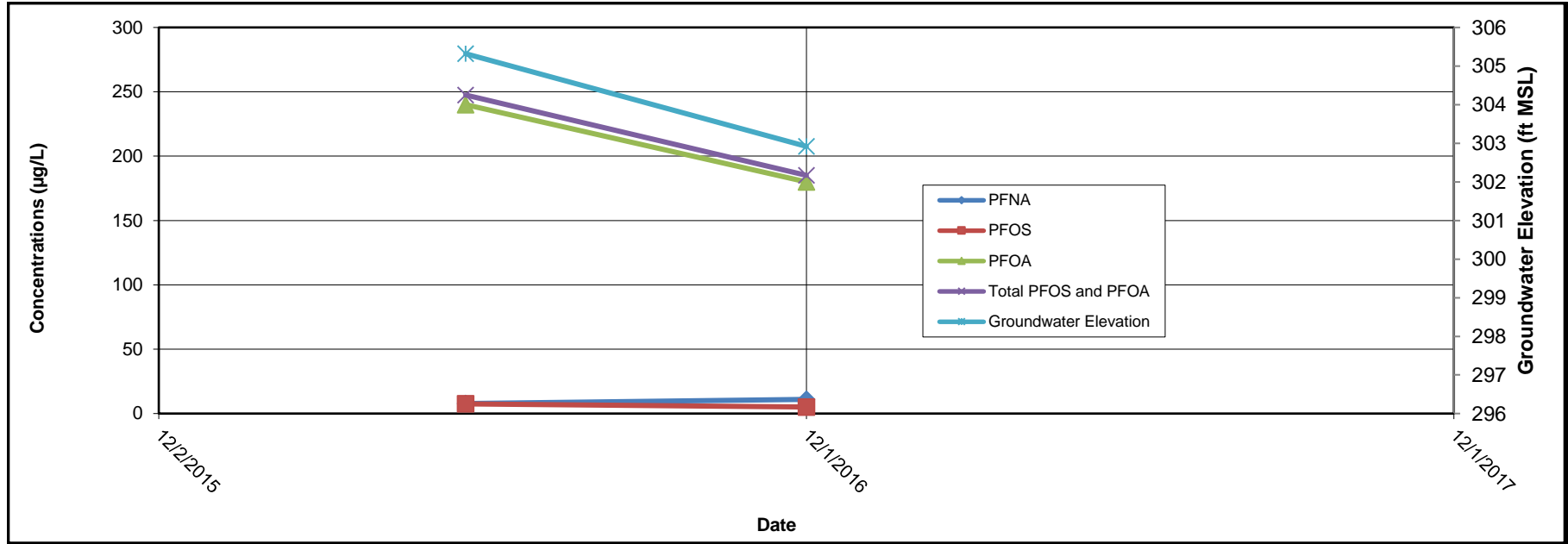
Champlain Cable
Colchester, Vermont



Date	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA	Groundwater Elevation
5/23/2016	1.5 J	8.6	ND<1.9	2	3.9	140	143.9	305.47
12/1/2016	0.98 J	3.7	ND <1.9	1.4	ND <1.9	43	43.95	303.03
<i>VGES</i>	--	--	--	--	20	20	20	
<i>NJ IGQS</i>	--	--	--	13	--	--	--	

**Figure 14. MW-AG6D
PFC Concentrations**

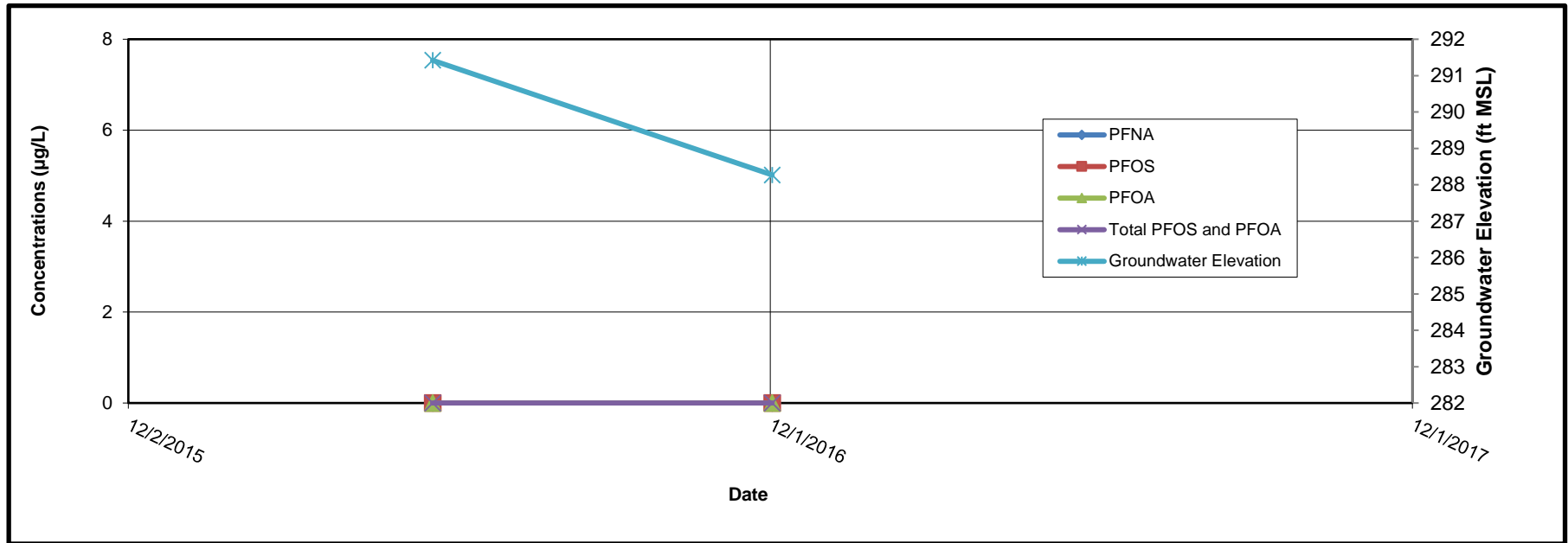
Champlain Cable
Colchester, Vermont



Date	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA	Groundwater Elevation
5/23/2016	1.6 J	23	1.1 J	7.8	7.5	240	247.5	305.32
12/1/2016	ND <2.0	20	0.88 J	11	5.1	180	185.1	302.92
<i>VGES</i>	--	--	--	--	20	20	20	
<i>NJ IGQS</i>	--	--	--	13	--	--	--	

**Figure 15. ECS-2
PFC Concentrations**

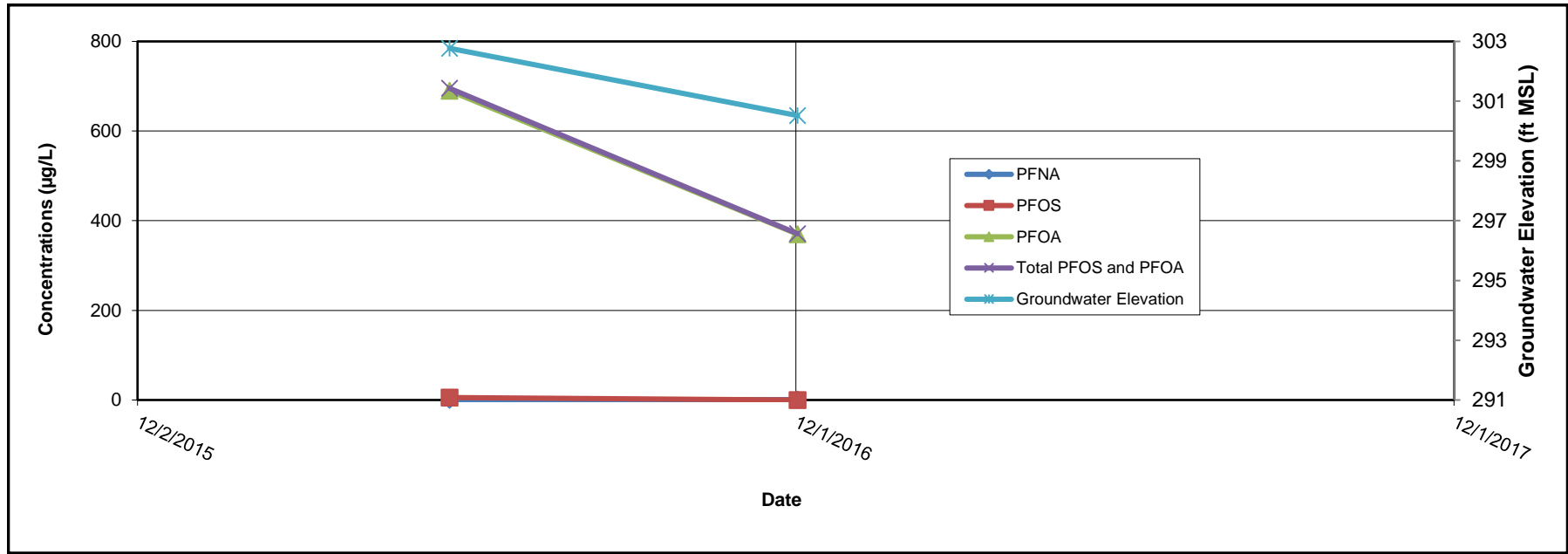
Champlain Cable
Colchester, Vermont



Date	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA	Groundwater Elevation
5/23/2016	ND < 1.8	ND < 1.8	ND < 1.8	ND < 1.8	ND < 1.8	ND < 1.8	ND < 3.6	291.42
12/2/2016	ND < 1.9	ND < 1.9	ND < 1.9	ND < 1.9	ND < 1.9	ND < 1.9	ND < 3.8	288.27
<i>VGES</i>	--	--	--	--	20	20	20	
<i>NJ IGQS</i>	--	--	--	13	--	--	--	

**Figure 16. MW-DG1D
PFC Concentrations**

Champlain Cable
Colchester, Vermont



Date	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA	Groundwater Elevation
5/23/2016	1.5 J	25	1.4 J	0.64	5.5	690	695.5	302.77
12/2/2016	ND <1.9	21	1.1 J	0.82	ND <1.9	370	370.95	300.52
VGES	--	--	--	--	20	20	20	
NJ IGQS	--	--	--	13	--	--	--	

TABLES

TABLE 1
SUMMARY OF SOIL QUALITY ANALYTICAL RESULTS
November and December 2016 - PFC Sampling - Surface and Subsurface Soil
Champlain Cable
Colchester, Vermont

Sample Location	Sample ID	Sample Collection Date	Sample Depth (feet bgs)	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	FOC
SB-1	SB0101	11/30/2016	0 - 1	ND <0.22	ND <0.22	ND <0.22	ND <0.22	0.16 J	0.31	1.2
	SB019.5	11/30/2016	8.5 - 9.5	ND <0.26	ND <0.26	ND <0.26	ND <0.26	0.2 J	1.2	0.7
SB-2	SB0201	11/30/2016	0 - 1	ND <0.23	ND <0.23	ND <0.23	ND <0.23	ND <0.23	0.19 J	0.6
	SB0205	11/30/2016	4 - 5	ND <0.26	ND <0.26	ND <0.26	ND <0.26	ND <0.26	ND <0.26	0.9
SB-3	SB0301	11/29/2016	0 - 1	ND <0.22	ND <0.22	ND <0.22	0.15 J	ND <0.22	ND <0.22	0.5
	SB0305	11/29/2016	4 - 5	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	0.5
SB-4	SB0401	11/29/2016	0 - 1	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	0.16 J	0.6
	SB0412	11/29/2016	11 - 12	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	0.5
SB-5	SB0501	11/29/2016	0 - 1	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	0.12 J	0.2
	SB0514	11/29/2016	13 - 14	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	0.2
SB-6	SB0601	11/29/2016	0 - 1	ND <0.22	ND <0.22	ND <0.22	0.094 J	ND <0.22	0.3	0.8
	SB0613	11/29/2016	12 - 13	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	0.2
SB-7	SB0701	12/1/2016	0 - 1	ND <0.21	ND <0.21	ND <0.21	0.1 J	ND <0.21	2.4	1.3
	SB0714	12/1/2016	13 - 14	ND <0.25	ND <0.25	ND <0.25	ND <0.25	ND <0.25	ND <0.25	0.1
SB-8	SB0801	12/1/2016	0 - 1	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	0.37	0.4
	SB0815	12/1/2016	14 - 15	ND <0.25	ND <0.25	ND <0.25	ND <0.25	ND <0.25	0.2 J	0.02
SB-9	SB0901	12/1/2016	0 - 1	ND <0.21	ND <0.21	ND <0.21	ND <0.21	ND <0.21	0.41	0.9
	SB0916	12/1/2016	15 - 16	ND <0.28	ND <0.28	ND <0.28	ND <0.28	ND <0.28	ND <0.28	0.3
SB-10	SB1001	11/30/2016	0 - 1	ND <0.22	ND <0.22	ND <0.22	ND <0.22	2.5	0.98	0.5
	SB1012	11/30/2016	11 - 12	ND <0.26	ND <0.26	ND <0.26	ND <0.26	ND <0.26	0.61	0.1
SB-11	SB1101	11/30/2016	0 - 1	ND <0.21	ND <0.21	ND <0.21	ND <0.21	ND <0.21	0.69	0.8
	SB1118	11/30/2016	17 - 18	ND <0.25	ND <0.25	ND <0.25	ND <0.25	ND <0.25	0.17 J	0.4
SB-12	SB1201	12/1/2016	0 - 1	ND <0.22	ND <0.22	ND <0.22	ND <0.22	ND <0.22	0.11 J	0.7
	SB129.5	12/1/2016	8.5 - 9.5	ND <0.26	ND <0.26	ND <0.26	ND <0.26	ND <0.26	1	0.06
SB-13	SB1301	11/30/2016	0 - 1	ND <0.24	ND <0.24	ND <0.24	0.11 J	ND <0.24	0.49	1.4
	SB1312	11/30/2016	11 - 12	ND <0.27	ND <0.27	ND <0.27	ND <0.27	ND <0.27	0.54	0.2
SB-14	SB1401	11/30/2016	0 - 1	ND <0.21	ND <0.21	ND <0.21	ND <0.21	ND <0.21	ND <0.21	0.3
	SB1409	11/30/2016	8 - 9	ND <0.28	ND <0.28	ND <0.28	ND <0.28	ND <0.28	0.17 J	0.4
QA/QC										
SB-9	SB0901	12/1/2016	0 - 1	ND <0.21	ND <0.21	ND <0.21	ND <0.21	ND <0.21	0.41	0.9
	Duplicate	12/1/2016	0 - 1	ND <0.21	ND <0.21	ND <0.21	ND <0.21	ND <0.21	0.36	1.3
<i>RPD</i>				--	--	--	--	--	13	36
EQUIPMENT BLANK 01		11/29/2016	--	ND <1.9	ND <1.9	ND <1.9	ND <1.9	ND <1.9	ND <1.9	--
FIELD BLANK 01		11/29/2016	--	ND <1.9	ND <1.9	ND <1.9	ND <1.9	ND <1.9	ND <1.9	--
DECON WATER		12/1/2016	--	ND <1.7	ND <1.7	ND <1.7	ND <1.7	ND <1.7	1.1 J	--
VT DOH SSV				--	--	--	--	--	300	

Notes:

Soil concentrations reported in ug/Kg, equivalent to parts per billion (ppb). Aqueous blank samples reported in ng/L [parts per trillion (ppt)]. FOC is reported in percent.

PFC samples analyzed by EPA Method 537 (modified for soil).

BOLD detected above the method detection limit

Gray shaded cells indicate Vermont Department of Health Soil Screening Value (VT DOH SSV) exceedance for PFOA (300 ppb)

PFBS = Perfluorobutanesulfonic acid

PFHxS = Perfluorohexanesulfonic acid

PFHpA = Perfluoroheptanoic acid

PFOA = Perfluorooctanoic acid

PFOS = Perfluorooctanesulfonic acid

PFNA = Perfluorononanoic acid

FOC=Fractional Organic Carbon

ND = None Detected above quantitation limit.

RPD = relative percent difference.

J - Estimated value below reporting limit, but greater than or equal to method detection limit and the concentration is an approximate value.

**TABLE 2
GROUNDWATER ELEVATION CALCULATIONS**

Champlain Cable
Colchester, Vermont

December 1 and 2, 2016

Well I.D.	Location with Respect to PRB Gate	Top-of-Ground Surface	Top-of-Casing (TOC) Elevation	Depth-to-Water	Depth to Bottom	Groundwater Elevation
Plume Fringe Wells						
MW-1	Downgradient	--	311.55	11.62	14.98	299.93
MW-3	Downgradient	309	312.43	20.73	22.81	291.70
10	Downgradient	311	311.83	DRY	15.62	--
310	Upgradient	309.14	309.14	NG	--	--
401S	Downgradient	308	318.23	9.94	10.08	308.29
89-6	Downgradient	304	306.93	9.25	15.72	297.68
Source Area Wells						
301	Upgradient	309	311.06	7.92	19.12	303.14
516	Upgradient	307.6	310.5	6.83	14.40	303.67
Gate A						
AG-1D	Upgradient	307.85	307.19	NG	--	--
AG2S	Upgradient	307.85	307.21	NG	--	--
AG3D	Downgradient	308.27	307.60	NG	--	--
AG4S	Downgradient	308.27	307.62	NG	--	--
AG5S	Upgradient	307.17	306.50	3.47	6.34	303.03
AG6D	Upgradient	307.17	306.48	3.56	13.02	302.92
AG7S	Downgradient	307.17	306.75	5.96	6.38	300.79
AG8D	Downgradient	307.17	306.75	6.27	12.66	300.48
AG9D	Upgradient	307.60	306.97	NG	--	--
AG10S	Upgradient	307.60	306.98	NG	--	--
AG11S	Downgradient	307.42	306.83	NG	--	--
AG12D	Downgradient	307.42	306.81	NG	--	--
*AG13D	Mid-gradient	--	306.88	NG	--	--
ECS-2	Downgradient	--	298.02	9.75	14.06	288.27
Gate D						
DG1D	Upgradient	305.55	305.14	4.62	20.20	300.52
DG2S	Upgradient	305.55	305.15	NG	--	--
DG3S	Downgradient	305.81	305.10	NG	--	--
DG4D	Downgradient	305.81	305.04	NG	--	--
*DG5S	Mid-gradient	--	305.41	NG	--	--
*DG6D	Mid-gradient	--	305.37	NG	--	--
ECS-1	Downgradient	310	313.33	13.33	22.20	300.00
Gate E						
EG1S	Upgradient	304.05	303.20	3.01	9.05	300.19
EG2D	Upgradient	304.05	303.00	2.90	20.00	300.10
EG3S	Downgradient	304.05	303.47	NG	--	--
EG4D	Downgradient	304.05	303.46	NG	--	--
West Gate						
WG1D	Upgradient	308.81	308.19	NG	--	--
WG2S	Upgradient	308.81	308.23	5.01	6.54	303.22
WG3S	Downgradient	308.69	307.96	5.24	6.43	302.72
WG4D	Downgradient	308.69	308.05	6.19	12.90	301.86

Notes:

* Monitoring wells installed within downgradient edge of iron zone.

Depth-to water and depth-to bottom measured from below TOC.

Monitoring wells were initially surveyed by Krebs and Lancing on 04 June 1999 by Ian Jewkes.

Top of casing elevations for monitoring wells located at Gate D were re-surveyed by ECS on 7 November 2003.

NG = Not gauged

TABLE 3
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
December 2016 - PFC Sampling - Groundwater
Champlain Cable
Colchester, Vermont

Sample Location	Location with Respect to PRB Gate	Sample Collection Date	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA	
Plume Fringe Wells										
MW-1	Downgradient	12/1/2016	ND <1.9	18	0.92 J	2.9	2.0	180	182	
MW-3	Downgradient	12/1/2016	0.98 J	67	2.7	19	14	500	514	
10	Downgradient	12/1/2016	DRY							
310	Upgradient	NS	NS	NS	NS	NS	NS	NS	NS	
401S	Downgradient	12/1/2016	Insufficient Water							
89-6	Downgradient	12/1/2016	ND <2.0	43	2.3	17	16	180	196	
Source Area Wells										
301	Upgradient	12/2/2016	ND <2.1	27	ND <2.1	4.5 B	1.4 JB	200	201.4	
516	Upgradient	12/2/2016	2.8	26	ND <2.0	4.2 B	4.5 B	160	164.5	
Gate A										
AG1D	Upgradient	NS	NS	NS	NS	NS	NS	NS	NS	
AG2S	Upgradient	NS	NS	NS	NS	NS	NS	NS	NS	
AG3D	Downgradient	NS	NS	NS	NS	NS	NS	NS	NS	
AG4S	Downgradient	NS	NS	NS	NS	NS	NS	NS	NS	
AG5S	Upgradient	12/1/2016	0.98 J	3.7	ND <1.9	1.4 JB	ND <1.9	43	43.95	
AG6D	Upgradient	12/1/2016	ND <2.0	20	0.88 J	11	5.1 B	180	185.1	
AG7S	Downgradient	12/1/2016	Insufficient Water							
AG8D	Downgradient	12/1/2016	1.9	12	ND <1.9	2.6 B	2.5 B	160	162.5	
AG9D	Upgradient	NS	NS	NS	NS	NS	NS	NS	NS	
AG10S	Upgradient	NS	NS	NS	NS	NS	NS	NS	NS	
AG11S	Downgradient	NS	NS	NS	NS	NS	NS	NS	NS	
AG12D	Downgradient	NS	NS	NS	NS	NS	NS	NS	NS	
*AG13D	Mid-gradient	NS	NS	NS	NS	NS	NS	NS	NS	
ECS-2	Downgradient	12/2/2016	ND <1.9	ND <1.9	ND <1.9	ND <1.9	ND <1.9	ND <1.9	ND <3.8	
Gate D										
DG1D	Upgradient	12/2/2016	ND <1.9	21	1.1 J	0.82 JB	ND <1.9	370	370.95	
DG2S	Upgradient	NS	NS	NS	NS	NS	NS	NS	NS	
DG3S	Downgradient	NS	NS	NS	NS	NS	NS	NS	NS	
DG4D	Downgradient	NS	NS	NS	NS	NS	NS	NS	NS	
DG5S	Mid-gradient	NS	NS	NS	NS	NS	NS	NS	NS	
*DG6D	Mid-gradient	NS	NS	NS	NS	NS	NS	NS	NS	
ECS-1	Downgradient	12/2/2016	ND <1.9	14	1.1 J	ND <1.9	ND <1.9	220	220.95	
Gate E										
EG1S	Upgradient	12/1/2016	1.5 J	60	1.8 J	6.0	4.2 B	780	784.2	
EG2D	Upgradient	12/1/2016	1.2 J	87	2.0	6.8	3.7 B	4000	4003.7	
EG3S	Downgradient	NS	NS	NS	NS	NS	NS	NS	NS	
EG4D	Downgradient	NS	NS	NS	NS	NS	NS	NS	NS	
Gate W										
WG1D	Upgradient	NS	NS	NS	NS	NS	NS	NS	NS	
WG2S	Upgradient	12/2/2016	1.0 J	0.98 J	ND <2.0	ND <2.0	ND <2.0	7.7	8.7	
WG3S	Downgradient	12/2/2016	1.5 J	3.2	ND <1.9	ND <1.9	ND <1.9	28	28.95	
WG4D	Downgradient	12/2/2016	2.4	9.0	ND <2.0	1.1 J	ND <2.0	110	111	
QA/QC										
DG-1D	Upgradient	12/2/2016	ND <1.9	21	1.1 J	0.82 J	ND <1.9	370	370.95	
Duplicate (DG-1D)	Upgradient	12/2/2016	ND <2.0	20	1.1 J	0.76 J	ND <2.0	380	381	
RPD			--	5	0	8	--	3	--	
PDB Blank		12/2/2016	ND <2.0	ND <2.0	ND <2.0	1.1 J	13	2.0 B	15	
Rinsate Blank (Field Blank)		12/2/2016	ND <1.9	ND <1.9	ND <1.9	ND <1.9	ND <1.9	ND <1.9	ND <3.8	
VGES			--	--	--	--	20	20	20	
NJ IGQS			--	--	--	13	--	--	--	

Notes:

- Water concentrations reported in ng/L, equivalent to parts per trillion (ppt).
- PFC samples analyzed by EPA Method 537 (modified for groundwater).
- Gray shaded cells indicate VGES exceedance for PFOS and PFOA combined (20 ppt)
- Bold** = Bold, gray shaded cells indicate NJ IGQS exceedance (13 ppt)
- VGES= Vermont Groundwater Enforcement Standard
- NJ IGQS = New Jersey Interim Groundwater Quality Standard
- PFBS = Perfluorobutanesulfonic acid
- PFHxS = Perfluorohexanesulfonic acid
- PFHpA = Perfluoroheptanoic acid
- PFOA = Perfluorooctanoic acid
- PFOS = Perfluorooctanesulfonic acid
- PFNA = Perfluorononanoic acid
- NS = Not sampled
- ND = None Detected above quantitation limit.
- RPD = relative percent difference.
- J - Estimated value below reporting limit, but greater than or equal to method detection limit and the concentration is an approximate value.
- *Monitoring wells installed within downgradient edge of iron zone.
- B - Compound was found in the blank and sample.
- Non detect values are assumed to be 1/2 the reporting limit when combining PFOS and PFOA

TABLE 4
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
November and December 2016 - PFC Sampling - Groundwater
Champlain Cable
Colchester, Vermont

Sample Location	Sample ID	Sample Collection Date	Sample Depth (feet bgs)	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA
SB-1	GW018.5	11/30/2016	7.3 - 8.5	4.5	51	28	3.2	310	1700	2010
SB-2	--	11/30/2016	Insufficient Water							
SB-3	GW0304	11/29/2016	2.8 - 4	ND <2	9.1	ND <2	3.5	3.1	91	94.1
SB-4	GW0408	11/29/2016	6.8 - 8	1.5 J	22	ND <2	6.7	2.2	180	182.2
	GW0412	11/29/2016	10.8 - 12	1.1 J	24	ND <2	12	2.4	220	222.4
SB-5	GW0508	11/29/2016	6.8 - 8	150	14	ND <2	13	5.1	190	195.1
	GW0514	11/29/2016	12.8 - 14	9.1	17	ND <2	9.1	1.9 J	100	101.9
SB-6	GW0608	11/29/2016	6.8 - 8	1.3 J	7.2	ND <2	12	4.7	62	66.7
	GW0613	11/29/2016	11.8 - 13	ND <2	39	ND <2	23	2.6	200	202.6
SB-7	GW078.5	12/1/2016	7.3 - 8.5	0.98 J	25	0.86 J	13	6.4	130	136.4
	GW0714	12/1/2016	12.8 - 14	ND <2	15	1.1 J	1.7 J	ND <2	240	241
SB-8	GW0811	12/1/2016	9.8 - 11	1.1 J	190	0.99 J	39	11	370	381
	GW0815	12/1/2016	13.8 - 15	ND <2.1	34	1.5 J	4.9	ND <2.1	600	601.05
SB-9	GW0911	12/1/2016	9.8 - 11	1.1 J	31	1.2 J	4.5	3.7	400	403.7
	GW0916	12/1/2016	14.8 - 16	ND <2.2	36	1.2 J	5.3	4.9	430	434.9
SB-10	GW1007	11/30/2016	5.8 - 7	1.3 J	36	1.6 J	12	8.2	370	378.2
	GW1012	11/30/2016	10.8 - 12	1.3	57	2.1	2.1	2	2000	2002
SB-11	GW1111.5	11/30/2016	10.3 - 11.5	ND <2	21	1.1 J	1 J	ND <2	220	221
	GW1118	11/30/2016	16.8 - 18	ND <2	23	1.3 J	1.3 J	1.6 J	230	231.6
SB-12	GW1205	12/1/2016	3.8 - 5	0.84 J	120	0.99 J	34	17	330	347
	GW129.5	12/1/2016	8.3 - 9.5	ND <2	170	1.8 J	26	16	1900	1916
SB-13	GW1306	11/30/2016	4.8 - 6	1.1	180	2	23	9.2	650	659.2
	GW1312	11/30/2016	10.8 - 12	2.1	59	2.3	9.8	6.1	1100	1106.1
SB-14	GW1406	11/30/2016	4.8 - 6	1.2 J	33	0.96 J	18	6.3	130	136.3
	GW1408	11/30/2016	6.8 - 8	ND <2	49	0.96 J	25	7	240	247
QA/QC										
SB-14	GW1408	11/30/2016	6.8 - 8	ND <2	49	0.96 J	25	7	240	247
	Duplicate	11/30/2016	6.8 - 8	0.89 J	50	1 J	25	7.1	250	257.1
RPD				--	2	4	0	1	4	--
EQUIPMENT BLANK 02	11/29/2016	--	ND <2	ND <2	ND <2	ND <2	ND <2	ND <2	ND <2	ND <4
FIELD BLANK 02	12/1/2016	--	ND <1.8	ND <1.8	ND <1.8	ND <1.8	ND <1.8	ND <1.8	ND <1.8	ND <3.6
DECON WATER	12/1/2016	--	ND <1.7	ND <1.7	ND <1.7	ND <1.7	ND <1.7	ND <1.7	1.1 J	1.95
VGES				--	--	--	--	20	20	20
NJ IGQS				--	--	--	13	--	--	--

Notes:

Water concentrations reported in ng/L, equivalent to parts per trillion (ppt).

PFC samples analyzed by EPA Method 537 (modified for groundwater).

Gray shaded cells indicate VGES exceedance for PFOS, PFOA and PFOS and PFOA combined (20 ppt)

Bold = Bold, gray shaded cells indicate NJ IGQS exceedance (13 ppt)

VGES= Vermont Groundwater Enforcement Standard

NJ IGQS = New Jersey Interim Groundwater Quality Standard

PFBS = Perfluorobutanesulfonic acid

PFHxS = Perfluorohexanesulfonic acid

PFHpA = Perfluoroheptanoic acid

PFOA = Perfluorooctanoic acid

PFOS = Perfluorooctanesulfonic acid

PFNA = Perfluorononanoic acid

NS = Not sampled

ND = None Detected above quantitation limit.

RPD = relative percent difference.

J - Estimated value below reporting limit, but greater than or equal to method detection limit and the concentration is an approximate value.

Non detect values are assumed to be 1/2 the reporting limit when combining PFOS and PFOA

TABLE 5
SUMMARY OF WATER QUALITY ANALYTICAL RESULTS
December 2016 - PFC Sampling - Surface Water
Champlain Cable
Colchester, Vermont

Sample Location	Sample ID	Sample Collection Date	PFBS	PFHpA	PFHxS	PFNA	PFOS	PFOA	Total PFOS and PFOA
SW-1	SW0101	12/2/2016	ND <2	3.8	2.8	ND <2	73	100	173
SW-3	SW0301	12/2/2016	8.4	1.9 J	1.5 J	ND <2	9.2	10	19.2
SW-4	SW0401	12/2/2016	1.3 J	12	ND <2	2.6	2.5	150	152.5
SW-5	SW0501	12/2/2016	1.2 J	31	0.93 J	46	12	190	202
QA/QC									
SW-3	SW0301	12/2/2016	8.4	1.9 J	1.5 J	ND <2	9.2	10	19.2
	Duplicate	12/2/2016	8.3	1.9 J	1.3 J	ND <2	8.8	10	18.8
<i>RPD</i>			--	0	14	--	4	0	--
FIELD BLANK		12/2/2016	ND <2	ND <2	ND <2	ND <2	ND <2	ND <2	ND <4
VGES			--	--	--	--	20	20	20
NJ IGQS			--	--	--	13	--	--	--

Notes:

Water concentrations reported in ng/L, equivalent to parts per trillion (ppt).

PFC samples analyzed by EPA Method 537 (modified for groundwater).

Gray shaded cells indicate VGES exceedance for PFOS, PFOA and PFOS and PFOA combined (20 ppt)

Bold = Bold, gray shaded cells indicate NJ IGQS exceedance (13 ppt)

VGES= Vermont Groundwater Enforcement Standard

NJ IGQS = New Jersey Interim Groundwater Quality Standard

PFBS = Perfluorobutanesulfonic acid

PFHxS = Perfluorohexanesulfonic acid

PFHpA = Perfluoroheptanoic acid

PFOA = Perfluorooctanoic acid

PFOS = Perfluorooctanesulfonic acid

PFNA = Perfluorononanoic acid

NS = Not sampled

ND = None Detected above quantitation limit.

RPD = relative percent difference.

J - Estimated value below reporting limit, but greater than or equal to method detection limit and the concentration is an approximate value.

APPENDIX A
BORING LOGS



1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: SB-1

SITE NAME: Champlain Cable
 SITE LOCATION: Colchester VT
 INSTALLATION DATE: 11/30/2016
 JOB NUMBER: 08-203606.08

WELL DEPTH: _____ BORING DEPTH: 14'
 DEPTH TO WATER (DURING DRILLING): 7' ECS REPRESENTATIVE: km
 SCREEN DIAMETER: _____ DEPTH: ~~7'~~ DRILLING COMPANY: Cascade
 SCREEN TYPE/SIZE: _____ SAMPLING METHOD: Direct push
 RISER DIAMETER: _____ DEPTH: _____ REFERENCE POINT (RP): grade
 RISER TYPE/SIZE: _____ ELEVATION OF RP: _____
 REMARKS: set well screen 7.3' - 8.5'

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		41"	damp loose brown C-F SAND	0		Concrete
1						Native Material
2			collect sample SB0101			Bentonite
3			from 0-1 FT			Filter Sand
4						Riser
5		28"	3" same as above			Screen
6			15" wet loose brown C-F SAND			Water level
7			7" wet soft brown SILT & CLAY			
8			3" wet soft gray CLAY			
9			collect sample SB09.5 from 8.5-9.5			
10		48"	same as above			
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = _____ feet
 Well set @ _____ feet

PROPORTIONS USED AND 33-50% SOME 20-33% LITTLE 10-20% TRACE 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE	Notes: PID used: Depth to water was _____ feet after four hours.
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1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: **82**

SITE NAME: **Champlain Cable**
 SITE LOCATION: **Colchester VT**
 INSTALLATION DATE: **11/30/2016**
 JOB NUMBER: **00-20360608**

WELL DEPTH: **10'** BORING DEPTH: _____ ECS REPRESENTATIVE: _____
 DEPTH TO WATER (DURING DRILLING): **no water before clay** DRILLING COMPANY: **Cascade**
 SCREEN DIAMETER: _____ DEPTH: _____ SAMPLING METHOD: **direct push**
 SCREEN TYPE/SIZE: _____ REFERENCE POINT (RP): **grade**
 RISER DIAMETER: _____ DEPTH: _____ ELEVATION OF RP: _____
 RISER TYPE/SIZE: _____
 REMARKS: _____

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		48"	25" damp loose brown C-F SAND, well graded	0		Concrete
1						Native Material
2			23" damp soft brownish gray SILT & CLAY			Bentonite
3						Filter Sand
4			sample SBO201 0-1ft & SBO205 4-5ft			Riser
5		60"	60" med stiff brownish grey CLAY, trace silt @ 13ft	0		Screen
6						Water level
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = ___ feet
 Well set @ ___ feet

PROPORTIONS USED AND 33-50% SOME 20-33% LITTLE 10-20% TRACE 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE	Notes: PID used: Depth to water was ___ feet after four hours.
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1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: **SB-3**

SITE NAME: Champlain Cable

SITE LOCATION: Colchester VT

INSTALLATION DATE: 11/29/16

JOB NUMBER: 08-203 (006.08)

WELL DEPTH: _____ BORING DEPTH: **10** ECS REPRESENTATIVE: **km**
 DEPTH TO WATER (DURING DRILLING): **3** DRILLING COMPANY: **Cascade**
 SCREEN DIAMETER: _____ DEPTH: _____ SAMPLING METHOD: **direct push**
 SCREEN TYPE/SIZE: _____ REFERENCE POINT (RP): **grade**
 RISER DIAMETER: _____ DEPTH: _____ ELEVATION OF RP: _____
 RISER TYPE/SIZE: _____
 REMARKS: **set well screen 2.5-4'**

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		5"	24" damp loose brown C-F SAND, well graded			Concrete
1						Native Material
2			23" wet soft brown SILT & CLAY			Bentonite
3			4" wet soft gray CLAY & SILT			Filter Sand
4			sample: SB0301 FROM 0-1 FT			Riser
5			sample SB0305 from 4-5 FT			Screen
6		45"	45" same as above	0		Water level
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = _____ feet
 Well set @ _____ feet

PROPORTIONS USED AND 33-50% SOME 20-33% LITTLE 10-20% TRACE 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE	Notes: PID used: Depth to water was _____ feet after four hours.
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1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: SB-4

SITE NAME: Champlain Cable
 SITE LOCATION: Colchester VT
 INSTALLATION DATE: 11/29/16
 JOB NUMBER: 08-203606.08

WELL DEPTH:		BORING DEPTH:	15'	ECS REPRESENTATIVE:	KM
DEPTH TO WATER (DURING DRILLING):		DEPTH:	8'	DRILLING COMPANY:	Cascade
SCREEN DIAMETER:		DEPTH:		SAMPLING METHOD:	Direct Push
SCREEN TYPE/SIZE:		DEPTH:		REFERENCE POINT (RP):	grade
RISER DIAMETER:		DEPTH:		ELEVATION OF RP:	
REMARKS:	set well screen 6.8-8' & 10.8-12'				

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		38"	amp loose brown C-F SAND,	0		Concrete
1			well graded			Native Material
2			collect sample SB0401			Bentonite
3			from 0-1 ft bgs			Filter Sand
4						Riser
5		44"	same as above	0		Screen
6			16" wet same as above			Water level
7						
8						
9						
10		49"	9" same as above			
11			11" wet soft brown SILT	0		
12			and clay			
13			29" wet soft Gray CLAY,			
14			plastic			
15						
16			collect sample SB0412			
17			from 11-12 ft bgs			
18						
19						
20						

End of Sampling = _____ feet
 Well set @ _____ feet

PROPORTIONS USED AND SOME 33-50% LITTLE 20-33% TRACE 10-20% 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE	Notes: PID used: Depth to water was _____ feet after four hours.
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1 ELM STREET
WATERBURY, VERMONT 05676

(802) 241-4131
(802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: **SB-5**

SITE NAME: **Champlain Cable**
 SITE LOCATION: **Colchester VT**
 INSTALLATION DATE: **11/29/16**
 JOB NUMBER: **08-203606-08**

WELL DEPTH: _____ BORING DEPTH: **7' 15"** ECS REPRESENTATIVE: **KM**
 DEPTH TO WATER (DURING DRILLING): _____ DRILLING COMPANY: **Cascade**
 SCREEN DIAMETER: _____ DEPTH: _____ SAMPLING METHOD: **direct push**
 SCREEN TYPE/SIZE: _____ REFERENCE POINT (RP): **grade**
 RISER DIAMETER: _____ DEPTH: _____ ELEVATION OF RP: _____
 RISER TYPE/SIZE: _____
 REMARKS: **set well screen 6.5'-8' & 12.8'-14'**

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		12"	12" damp loose brown C-F SAND, well graded	0		Concrete
1			collect sample SB0501 from 0-1 ft bgs			Native Material
2						Bentonite
3						Filter Sand
4						Riser
5		38"	12" same as above			Screen
6			7" Black asphalt and			Water level
7			damp loose reddish brown			
8			C-F SAND, 17" Wet loose brown	0		
9			C-F SAND, 2" Wet soft brown SILT			
10	0	54"	42" same as above	27		
11			12" Wet soft gray CLAY			
12			collect sample SB051A			
13			from 13-14 FT bgs			
14			sweet odor			
15						
16						
17						
18						
19						
20						

PROPORTIONS USED

AND	33-50%
SOME	20-33%
LITTLE	10-20%
TRACE	0-10%

BLOW COUNT (COHESIVE SOILS)

<2	VERY SOFT
2-4	SOFT
4-8	MEDIUM STIFF
8-15	STIFF
15-30	VERY STIFF
>30	HARD

BLOW COUNT (GRANULAR SOILS)

0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM DENSE
30-50	DENSE
>50	VERY DENSE

Notes:
 PID used:
 Depth to water was _____ feet after four hours.



1 ELM STREET
WATERBURY, VERMONT 05676

(802) 241-4131
(802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: SB-6

SITE NAME: Champlain Cable

SITE LOCATION: Colchester VT

INSTALLATION DATE: 11/29/16

JOB NUMBER: 08-203606.08

WELL DEPTH:

BORING DEPTH: 151

ECS REPRESENTATIVE: KM

DEPTH TO WATER (DURING DRILLING):

7 FT

DRILLING COMPANY: Cascades

SCREEN DIAMETER:

DEPTH:

SAMPLING METHOD: direct push

SCREEN TYPE/SIZE:

DEPTH:

REFERENCE POINT (RP): grade

RISER DIAMETER:

DEPTH:

ELEVATION OF RP:

RISER TYPE/SIZE:

REMARKS:

set screen from 6.8'-8' & 11.8'-13' bgs

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		37"	damp loose brown C-F SAND, \odot			Concrete
1			well graded			Native Material
2			sample SBO601 from			Bentonite
3			0-1 FT bgs			Filter Sand
4						Riser
5		51"	15" same as above \odot			Screen
6			36" wet soft brown SILT ∇			Water level
7						
8						
9						
10		49"	25" same as above \odot			
11			24" wet soft gray CLAY			
12			sample SBO612 from			
13			12-13 FT bgs			
14						
15						
16						
17						
18						
19						
20						

PROPORTIONS USED
AND 33-50%
SOME 20-33%
LITTLE 10-20%
TRACE 0-10%

BLOW COUNT (COHESIVE SOILS)
<2 VERY SOFT
2-4 SOFT
4-8 MEDIUM STIFF
8-15 STIFF
15-30 VERY STIFF
>30 HARD

BLOW COUNT (GRANULAR SOILS)
0-4 VERY LOOSE
4-10 LOOSE
10-30 MEDIUM DENSE
30-50 DENSE
>50 VERY DENSE

Notes:
 PID used:
 Depth to water was _____ feet after four hours.



1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: SB-7

SITE NAME: Champlain Cable
 SITE LOCATION: Colchester, VT
 INSTALLATION DATE: 12/1/2016
 JOB NUMBER: 68-203606.08

WELL DEPTH:	BORING DEPTH:	ECS REPRESENTATIVE:
DEPTH TO WATER (DURING DRILLING):	7.5	KM
SCREEN DIAMETER:	DEPTH:	DRILLING COMPANY:
SCREEN TYPE/SIZE:		Cascade
RISER DIAMETER:	DEPTH:	SAMPLING METHOD:
RISER TYPE/SIZE:		Direct push
REMARKS:	screen 7.3-8.5' and 12.8 to 14'	REFERENCE POINT (RP):
		ELEVATION OF RP:
		grade

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		32"	Loose damp brown C-F SAND	0		Concrete
1			SB0701 0-1'			Native Material
2						Bentonite
3						Filter Sand
4						Riser
5		54"	11" same as above			Screen
6			6" loose damp brown F-SAND			Water level
7			37" wet loose med dense brown F-SAND			
8			reddish at 7.5'			
9						
10		52"	28" same as above			
11			13" wet soft med dense gray F-SAND, LITTLE SILT	11.0		
12			10" wet soft gray CLAY & SILT	0.2		
13			SB0714 13-14'			
14			sweet odor			
15						
16						
17						
18						
19						
20						

End of Sampling = ___ feet
 Well set @ ___ feet

PROPORTIONS USED AND 33-50% SOME 20-33% LITTLE 10-20% TRACE 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE	Notes: PID used: Depth to water was ___ feet after four hours.
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1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: **SB-8**

SITE NAME: Champlain Cable
 SITE LOCATION: Colchester VT
 INSTALLATION DATE: 12/1/16
 JOB NUMBER: 08-203606-08

WELL DEPTH:	BORING DEPTH: 20	ECS REPRESENTATIVE: km
DEPTH TO WATER (DURING DRILLING):	10	DRILLING COMPANY: Cascade
SCREEN DIAMETER:	DEPTH:	SAMPLING METHOD: direct push
SCREEN TYPE/SIZE:		REFERENCE POINT (RP): grade
RISER DIAMETER:	DEPTH:	ELEVATION OF RP:
RISER TYPE/SIZE:		
REMARKS:	screen 0.8-10' and 13.8-15'	

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		31"	loose damp C-F SAND	0		Concrete
1			<u>SB0801</u> 0-1 FT			Native Material
2						Bentonite
3						Filter Sand
4						Riser
5		45"	same as above, reddish/black at 7.5'	0		Screen
6						Water level
7						
8						
9						
10		45"	wet same as above			
11			3" wet loose ^{med dense} brown F-SAND			
12			11" wet loose ^{med dense} gray F-SAND	3.2		
13			sample SB0815-14-15'			
14			Sweet odor			
15		53"	wet soft gray SILT & CLAY	0		
16						
17						
18						
19						
20						

End of Sampling = ___ feet
 Well set @ ___ feet

PROPORTIONS USED AND 33-50% SOME 20-33% LITTLE 10-20% TRACE 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-60 DENSE >60 VERY DENSE	Notes: PID used: Depth to water was ___ feet after four hours.
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1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: **SB-9**

SITE NAME: Champlain Cable
 SITE LOCATION: Colchester VT
 INSTALLATION DATE: 12/1/2016
 JOB NUMBER: 08-203606.08

WELL DEPTH:	20	BORING DEPTH:	20	ECS REPRESENTATIVE:	pm
DEPTH TO WATER (DURING DRILLING):	10			DRILLING COMPANY:	Cascade
SCREEN DIAMETER:		DEPTH:		SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:				REFERENCE POINT (RP):	grade
RISER DIAMETER:		DEPTH:		ELEVATION OF RP:	
RISER TYPE/SIZE:					
REMARKS:	SCREEN 9.8'-11' and 14.8'-16'				

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		36"	damp loose brown C-F SAND	0		Concrete
1			sample SB0901 & duplicate from 0-1 Ft			Native Material
2						Bentonite
3						Filter Sand
4						Riser
5		46"	same as above, some reddish/black sand at 7 Ft	0		Screen
6						Water level
7			9+10 Ft is moist			
8						
9						
10		39"	35" wet same as above	0.1		
11			4" wet med-dense loose brown F-SAND			
12						
13						
14						
15		53"	wet soft gray SILTY CLAY	0		
16			SB 0912 from 15-16'			
17						
18						
19						
20						

End of Sampling = ___ feet
 Well set @ ___ feet

PROPORTIONS USED AND 33-50% SOME 20-33% LITTLE 10-20% TRACE 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE	Notes: PID used: Depth to water was ___ feet after four hours.
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1 ELM STREET
WATERBURY, VERMONT 05676
(802) 241-4131
(802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: **SB-10**

SITE NAME: Champlain Cable
SITE LOCATION: Colchester VT
INSTALLATION DATE: 11/30/2016
JOB NUMBER: 08-203606-08

WELL DEPTH: _____ BORING DEPTH: **15** ECS REPRESENTATIVE: **KM**
 DEPTH TO WATER (DURING DRILLING): **0** DRILLING COMPANY: **Cascade**
 SCREEN DIAMETER: _____ DEPTH: _____ SAMPLING METHOD: **direct push**
 SCREEN TYPE/SIZE: _____ REFERENCE POINT (RP): **grade**
 RISER DIAMETER: _____ DEPTH: _____ ELEVATION OF RP: _____
 RISER TYPE/SIZE: _____
 REMARKS: **well screen set at 5.8-7' and 10.8-12'**

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		38"	damp loose brown C-F SAND,	0		Concrete
1			well graded, Reddish Bleek			Native Material
2			@ 4-5ft			Bentonite
3			sample SB1001 0-1ft			Filter Sand
4						Riser
5		46"	4" same as above	0		Screen
6			42" wet loose med-dense brown F-SAND			Water level
7						
8						
9						
10		48"	6" same as above			
11			12" wet soft gray SILT	1.3		
12			30" wet soft-med stiff gray			
13			CLAY, trace SILT			
14			sample SB1012 11-12ft			
15						
16						
17						
18						
19						
20						

End of Sampling = _____ feet
Well set @ _____ feet

PROPORTIONS USED AND 33-50% SOME 20-33% LITTLE 10-20% TRACE 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD		BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE		Notes: PID used: Depth to water was _____ feet after four hours.
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BORING / WELL IDENTIFICATION: SB-11

1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

SITE NAME: Champlain Cable
 SITE LOCATION: Colchester VT
 INSTALLATION DATE: 11/30/2016
 JOB NUMBER: 08-203606.08

WELL DEPTH:	BORING DEPTH:	20	ECS REPRESENTATIVE:	km
DEPTH TO WATER (DURING DRILLING):	10.5'		DRILLING COMPANY:	Cascade
SCREEN DIAMETER:	DEPTH:		SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:			REFERENCE POINT (RP):	grade
RISER DIAMETER:	DEPTH:		ELEVATION OF RP:	
RISER TYPE/SIZE:				
REMARKS:	set well screen 10.3-10.5' & 16.8'-18'			

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		37"	Jump loose brown C-F	0		Concrete
1			SAND, well graded			Native Material
2			sample SB101 0-1 FT			Bentonite
3						Filter Sand
4						Riser
5		45"	35' same as above	0		Screen
6			10" wet loose brown F-sand med dense			Water level
7						
8						
9						
10		45"	same as above	0		
11						
12						
13						
14						
15		57"	27" same as above			
16			13" wet med stiff brown			
17			SILT & little F-SAND			
18			17" wet soft grey CLAY	0		
19			SILT			
20			sample SB118			

PROPORTIONS USED AND 33-50% SOME 20-33% LITTLE 10-20% TRACE 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE	Notes: PID used: Depth to water was _____ feet after four hours.
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1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: **SB-12**

SITE NAME: Champlain Cable
 SITE LOCATION: Colchester VT
 INSTALLATION DATE: 12/1/2016
 JOB NUMBER: 08-203606.08

WELL DEPTH: _____ BORING DEPTH: 15'
 DEPTH TO WATER (DURING DRILLING): 4' ECS REPRESENTATIVE: _____
 SCREEN DIAMETER: _____ DEPTH: _____ DRILLING COMPANY: Cascade
 SCREEN TYPE/SIZE: _____ SAMPLING METHOD: direct push
 RISER DIAMETER: _____ DEPTH: _____ REFERENCE POINT (RP): grade
 RISER TYPE/SIZE: _____ ELEVATION OF RP: _____
 REMARKS: screen 3.8-5.1 and 8.3 to 9.5'

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		4.1"	12" loose damp brown C-F SAND			Concrete
1			29" damp loose brown F-SAND	0		Native Material
2			wet at 4ft			Bentonite
3			sample SB1201 from 0-1ft			Filter Sand
4						Riser
5		5.0"	39" same as above, med dense			Screen
6			7" wet soft gray SILT	0.9		Water level
7			4" wet soft gray CLAY			
8			sample SB129.5 from 8.5-9.5'			
9						
10		4.5"	wet soft gray CLAY/SILT	0.1		
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = _____ feet
 Well set @ _____ feet

PROPORTIONS USED AND 33-50% SOME 20-33% LITTLE 10-20% TRACE 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE	Notes: PID used: Depth to water was _____ feet after four hours.
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BORING / WELL IDENTIFICATION **SB-13**

1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

SITE NAME: Champlain Cable
 SITE LOCATION: Colchester VT
 INSTALLATION DATE: 11/30/2016
 JOB NUMBER: 08-203606.08

WELL DEPTH:	BORING DEPTH:	ECS REPRESENTATIVE:
DEPTH TO WATER (DURING DRILLING):	4' 5" 15'	DRILLING COMPANY: Cascade
SCREEN DIAMETER:	DEPTH:	SAMPLING METHOD: direct push
SCREEN TYPE/SIZE:	DEPTH:	REFERENCE POINT (RP): grade
RISER DIAMETER:	DEPTH:	ELEVATION OF RP:
RISER TYPE/SIZE:	REMARKS: set well screen @ 4.8-6' & 10.8-12'	

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		44"	damp loose brown C-F SAND	0		Concrete
1			well graded			Native Material
2			Black/red staining @ 4ft			Bentonite
3			Sample SB1301 0-1 FT			Filter Sand
4						Riser
5		37"	2" same as above	0		Screen
6			35" wet loose ^{med dense} brown F-SAND			Water level
7			"			
8						
9						
10		52"	19" wet soft loose ^{med dense} brown F-SAND			
11			6 SILT	0.13		
12			2" wet soft gray CLAY			
13			19" wet soft gray SILT			
14			12" wet soft gray CLAY			
15			Sample SB1312 11-12 FT			
16						
17						
18						
19						
20						

PROPORTIONS USED AND SOME LITTLE TRACE 33-50% 20-33% 10-20% 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE	Notes: PID used: Depth to water was _____ feet after four hours.
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1 ELM STREET (802) 241-4131
 WATERBURY, VERMONT 05676 (802) 244-6894 - FAX

BORING / WELL IDENTIFICATION: **SB-14**

SITE NAME: Champlun Cable

SITE LOCATION: Colchester VT

INSTALLATION DATE: 11/30/2016

JOB NUMBER: 08-203606.08

WELL DEPTH:		BORING DEPTH:	10	ECS REPRESENTATIVE:	KM
DEPTH TO WATER (DURING DRILLING):			5'	DRILLING COMPANY:	Cascade
SCREEN DIAMETER:		DEPTH:		SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:				REFERENCE POINT (RP):	grade
RISER DIAMETER:		DEPTH:		ELEVATION OF RP:	
RISER TYPE/SIZE:					
REMARKS:	set well screen 4.8' - 6' and 6.8' - 8'				

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0		36"	33" damp loose brown C-F SAND, well graded, 3" damp loose brown F-SAND	0		Concrete
1						Native Material
2						Bentonite
3			sample SB1401 0-1 FT			Filter Sand
4						Riser
5		47"	27" wet loose ^{med dense} brown F-SAND	0		Screen
6			7" wet soft brown SILT & CLAY			Water level
7			13" wet soft gray CLAY & SILT			
8			sample SB1409 8-9'			
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = ___ feet
 Well set @ ___ feet

PROPORTIONS USED AND 33-50% SOME 20-33% LITTLE 10-20% TRACE 0-10%	BLOW COUNT (COHESIVE SOILS) <2 VERY SOFT 2-4 SOFT 4-8 MEDIUM STIFF 8-15 STIFF 15-30 VERY STIFF >30 HARD	BLOW COUNT (GRANULAR SOILS) 0-4 VERY LOOSE 4-10 LOOSE 10-30 MEDIUM DENSE 30-50 DENSE >50 VERY DENSE	Notes: PID used: Depth to water was ___ feet after four hours.
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APPENDIX B

LABORATORY ANALYTICAL REPORTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-23914-2
Client Project/Site: Champlain Cable

For:
ATC Group Services LLC
1 Elm Street, Suite 3
Waterbury, Vermont 05676

Attn: Chelsea Fellows-Stanley



Authorized for release by:
1/26/2017 2:05:55 PM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Job ID: 320-23914-2

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 12/1/2016 7:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.3° C.

Geotechnical

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Client Sample ID: SB0401

Lab Sample ID: 320-23914-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	1.1				%	1		D2974	Total/NA
Moisture Content	7.6				%	1		D2974	Total/NA
Ash Content	98.9				%	1		D2974	Total/NA
Fractional Organic Carbon	0.6				%	1		D2974	Total/NA

Client Sample ID: SB0412

Lab Sample ID: 320-23914-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.9				%	1		D2974	Total/NA
Moisture Content	28.5				%	1		D2974	Total/NA
Ash Content	99.1				%	1		D2974	Total/NA
Fractional Organic Carbon	0.5				%	1		D2974	Total/NA

Client Sample ID: SB0501

Lab Sample ID: 320-23914-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.3				%	1		D2974	Total/NA
Moisture Content	3.8				%	1		D2974	Total/NA
Ash Content	99.7				%	1		D2974	Total/NA
Fractional Organic Carbon	0.2				%	1		D2974	Total/NA

Client Sample ID: SB0514

Lab Sample ID: 320-23914-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.3				%	1		D2974	Total/NA
Moisture Content	29.0				%	1		D2974	Total/NA
Ash Content	99.7				%	1		D2974	Total/NA
Fractional Organic Carbon	0.2				%	1		D2974	Total/NA

Client Sample ID: SB0601

Lab Sample ID: 320-23914-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	1.4				%	1		D2974	Total/NA
Moisture Content	8.9				%	1		D2974	Total/NA
Ash Content	98.6				%	1		D2974	Total/NA
Fractional Organic Carbon	0.8				%	1		D2974	Total/NA

Client Sample ID: SB0613

Lab Sample ID: 320-23914-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.4				%	1		D2974	Total/NA
Moisture Content	32.1				%	1		D2974	Total/NA
Ash Content	99.6				%	1		D2974	Total/NA
Fractional Organic Carbon	0.2				%	1		D2974	Total/NA

Client Sample ID: SB0301

Lab Sample ID: 320-23914-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.8				%	1		D2974	Total/NA
Moisture Content	12.0				%	1		D2974	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Client Sample ID: SB0301 (Continued)

Lab Sample ID: 320-23914-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ash Content	99.2				%	1		D2974	Total/NA
Fractional Organic Carbon	0.5				%	1		D2974	Total/NA

Client Sample ID: SB0305

Lab Sample ID: 320-23914-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.9				%	1		D2974	Total/NA
Moisture Content	31.4				%	1		D2974	Total/NA
Ash Content	99.1				%	1		D2974	Total/NA
Fractional Organic Carbon	0.5				%	1		D2974	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Client Sample ID: SB0401

Lab Sample ID: 320-23914-10

Date Collected: 11/29/16 09:02

Matrix: Solid

Date Received: 12/01/16 07:40

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	1.1				%			01/23/17 20:43	1
Moisture Content	7.6				%			01/23/17 20:43	1
Ash Content	98.9				%			01/23/17 20:43	1
Fractional Organic Carbon	0.6				%			01/23/17 20:43	1

Client Sample ID: SB0412

Lab Sample ID: 320-23914-11

Date Collected: 11/29/16 09:38

Matrix: Solid

Date Received: 12/01/16 07:40

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.9				%			01/23/17 20:43	1
Moisture Content	28.5				%			01/23/17 20:43	1
Ash Content	99.1				%			01/23/17 20:43	1
Fractional Organic Carbon	0.5				%			01/23/17 20:43	1

Client Sample ID: SB0501

Lab Sample ID: 320-23914-12

Date Collected: 11/29/16 11:36

Matrix: Solid

Date Received: 12/01/16 07:40

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.3				%			01/23/17 20:43	1
Moisture Content	3.8				%			01/23/17 20:43	1
Ash Content	99.7				%			01/23/17 20:43	1
Fractional Organic Carbon	0.2				%			01/23/17 20:43	1

Client Sample ID: SB0514

Lab Sample ID: 320-23914-13

Date Collected: 11/29/16 12:02

Matrix: Solid

Date Received: 12/01/16 07:40

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.3				%			01/23/17 20:43	1
Moisture Content	29.0				%			01/23/17 20:43	1
Ash Content	99.7				%			01/23/17 20:43	1
Fractional Organic Carbon	0.2				%			01/23/17 20:43	1

Client Sample ID: SB0601

Lab Sample ID: 320-23914-14

Date Collected: 11/29/16 13:05

Matrix: Solid

Date Received: 12/01/16 07:40

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	1.4				%			01/23/17 20:43	1
Moisture Content	8.9				%			01/23/17 20:43	1
Ash Content	98.6				%			01/23/17 20:43	1
Fractional Organic Carbon	0.8				%			01/23/17 20:43	1

TestAmerica Sacramento

Client Sample Results

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Client Sample ID: SB0613

Date Collected: 11/29/16 13:22

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-15

Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.4				%			01/23/17 20:43	1
Moisture Content	32.1				%			01/23/17 20:43	1
Ash Content	99.6				%			01/23/17 20:43	1
Fractional Organic Carbon	0.2				%			01/23/17 20:43	1

Client Sample ID: SB0301

Date Collected: 11/29/16 14:55

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-17

Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.8				%			01/23/17 20:43	1
Moisture Content	12.0				%			01/23/17 20:43	1
Ash Content	99.2				%			01/23/17 20:43	1
Fractional Organic Carbon	0.5				%			01/23/17 20:43	1

Client Sample ID: SB0305

Date Collected: 11/29/16 15:10

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-18

Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.9				%			01/23/17 20:43	1
Moisture Content	31.4				%			01/23/17 20:43	1
Ash Content	99.1				%			01/23/17 20:43	1
Fractional Organic Carbon	0.5				%			01/23/17 20:43	1

QC Association Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Geotechnical

Analysis Batch: 113454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23914-10	SB0401	Total/NA	Solid	D2974	
320-23914-11	SB0412	Total/NA	Solid	D2974	
320-23914-12	SB0501	Total/NA	Solid	D2974	
320-23914-13	SB0514	Total/NA	Solid	D2974	
320-23914-14	SB0601	Total/NA	Solid	D2974	
320-23914-15	SB0613	Total/NA	Solid	D2974	
320-23914-17	SB0301	Total/NA	Solid	D2974	
320-23914-18	SB0305	Total/NA	Solid	D2974	

Lab Chronicle

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Client Sample ID: SB0401

Date Collected: 11/29/16 09:02

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113454	01/23/17 20:43	MAP	TAL BUR

Client Sample ID: SB0412

Date Collected: 11/29/16 09:38

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-11

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113454	01/23/17 20:43	MAP	TAL BUR

Client Sample ID: SB0501

Date Collected: 11/29/16 11:36

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-12

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113454	01/23/17 20:43	MAP	TAL BUR

Client Sample ID: SB0514

Date Collected: 11/29/16 12:02

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-13

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113454	01/23/17 20:43	MAP	TAL BUR

Client Sample ID: SB0601

Date Collected: 11/29/16 13:05

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-14

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113454	01/23/17 20:43	MAP	TAL BUR

Client Sample ID: SB0613

Date Collected: 11/29/16 13:22

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-15

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113454	01/23/17 20:43	MAP	TAL BUR

TestAmerica Sacramento

Lab Chronicle

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Client Sample ID: SB0301

Date Collected: 11/29/16 14:55

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-17

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113454	01/23/17 20:43	MAP	TAL BUR

Client Sample ID: SB0305

Date Collected: 11/29/16 15:10

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-18

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113454	01/23/17 20:43	MAP	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Certification Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17 *
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

Laboratory: TestAmerica Burlington

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-17
Florida	NELAP	4	E87467	06-30-17
L-A-B	DoD ELAP		L2336	02-26-17 *
Maine	State Program	1	VT00008	04-17-17
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17
New York	NELAP	2	10391	04-01-17 *
Pennsylvania	NELAP	3	68-00489	04-30-17
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

* Certification renewal pending - certification considered valid.

TestAmerica Sacramento

Method Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Method	Method Description	Protocol	Laboratory
D2974	Moisture, Ash and Organic Matter	ASTM	TAL BUR

Protocol References:

ASTM = ASTM International

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

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Sample Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-23914-10	SB0401	Solid	11/29/16 09:02	12/01/16 07:40
320-23914-11	SB0412	Solid	11/29/16 09:38	12/01/16 07:40
320-23914-12	SB0501	Solid	11/29/16 11:36	12/01/16 07:40
320-23914-13	SB0514	Solid	11/29/16 12:02	12/01/16 07:40
320-23914-14	SB0601	Solid	11/29/16 13:05	12/01/16 07:40
320-23914-15	SB0613	Solid	11/29/16 13:22	12/01/16 07:40
320-23914-17	SB0301	Solid	11/29/16 14:55	12/01/16 07:40
320-23914-18	SB0305	Solid	11/29/16 15:10	12/01/16 07:40





320-23914 Chain of Custody

Chain of Custody Record

TestAmerica Sacramento
 880 Riverside Parkway
 West Sacramento, CA 95605
 Phone (916) 373-5600 Fax (916) 372-1059

Client Information (Sub Contract Lab)

Company: TestAmerica Laboratories, Inc.
 Address: 30 Community Drive, Suite 11, South Burlington
 State, Zip: VT, 05403
 Phone: 802-660-1990(Tel) 802-660-1919(Fax)
 Email: [Redacted]
 Project Name: Champlain Cable
 Site: [Redacted]

Sampler: Lab PM: Kellmann, Jill
 Phone: jill.kellmann@testamericainc.com
 E-Mail: jill.kellmann@testamericainc.com
 Vermont

ICOC No: 320-83948.1
 Page: 1 of 1
 Job #: 320-23914-2

Preservation Codes:
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MeOH
 G - Amchlor
 H - Ascorbic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDA
 Other: [Redacted]

M - Hexane
 N - None
 O - AsNaO2
 P - Na2O4S
 Q - Na2SO3
 R - Na2SO3
 S - H2SO4
 T - TSP Dodecahydrate
 U - Acetone
 V - MCAA
 W - pH 4-5
 Z - other (specify)

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Specific Gravimetry, Other)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	D 2974	Total Number of Containers	Special Instructions/Note:
SB0401 (320-23914-10)	11/29/16	09:02 Eastern	Solid	Solid	X	X		1	
SB0412 (320-23914-11)	11/29/16	09:38 Eastern	Solid	Solid	X	X		1	
SB0501 (320-23914-12)	11/29/16	11:36 Eastern	Solid	Solid	X	X		1	
SB0514 (320-23914-13)	11/29/16	12:02 Eastern	Solid	Solid	X	X		1	
SB0601 (320-23914-14)	11/29/16	13:05 Eastern	Solid	Solid	X	X		1	
SB0613 (320-23914-15)	11/29/16	13:22 Eastern	Solid	Solid	X	X		1	
SB0301 (320-23914-17)	11/29/16	14:55 Eastern	Solid	Solid	X	X		1	
SB0305 (320-23914-18)	11/29/16	15:10 Eastern	Solid	Solid	X	X		1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify)
 Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Empty Kit Relinquished by: [Signature]
 Date: 12/8-17 1630
 Company: STARS
 Relinquished by: [Signature]
 Date/Time: 11/20/17 0930A
 Company: BUD
 Relinquished by: [Signature]
 Date/Time: [Redacted]
 Company: [Redacted]

Custody Seals Intact: Δ Yes Δ No
 Custody Seal No.: N/A
 Cooler Temperature(s) °C and Other Remarks: 1.0°C intact



Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 320-23914-2

Login Number: 23914

List Source: TestAmerica Sacramento

List Number: 1

Creator: Nelson, Kym D

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	False	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 320-23914-2

Login Number: 23914
List Number: 2
Creator: Hayden, Anita L

List Source: TestAmerica Burlington
List Creation: 01/20/17 04:35 PM

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.0 C corrected
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-23992-2
Client Project/Site: Champlain Cable

For:
ATC Group Services LLC
1 Elm Street, Suite 3
Waterbury, Vermont 05676

Attn: Chelsea Fellows-Stanley



Authorized for release by:
1/27/2017 4:01:33 PM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

LINKS

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Job ID: 320-23992-2

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 12/2/2016 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0° C.

Geotechnical

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Client Sample ID: SB0101

Lab Sample ID: 320-23992-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	2.1				%	1		D2974	Total/NA
Moisture Content	12.7				%	1		D2974	Total/NA
Ash Content	97.9				%	1		D2974	Total/NA
Fractional Organic Carbon	1.2				%	1		D2974	Total/NA

Client Sample ID: SB019.5

Lab Sample ID: 320-23992-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	1.2				%	1		D2974	Total/NA
Moisture Content	31.3				%	1		D2974	Total/NA
Ash Content	98.8				%	1		D2974	Total/NA
Fractional Organic Carbon	0.7				%	1		D2974	Total/NA

Client Sample ID: SB0201

Lab Sample ID: 320-23992-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	1				%	1		D2974	Total/NA
Moisture Content	20.7				%	1		D2974	Total/NA
Ash Content	99.0				%	1		D2974	Total/NA
Fractional Organic Carbon	0.6				%	1		D2974	Total/NA

Client Sample ID: SB0205

Lab Sample ID: 320-23992-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	1.6				%	1		D2974	Total/NA
Moisture Content	27.9				%	1		D2974	Total/NA
Ash Content	98.4				%	1		D2974	Total/NA
Fractional Organic Carbon	0.9				%	1		D2974	Total/NA

Client Sample ID: SB1401

Lab Sample ID: 320-23992-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.5				%	1		D2974	Total/NA
Moisture Content	22.2				%	1		D2974	Total/NA
Ash Content	99.5				%	1		D2974	Total/NA
Fractional Organic Carbon	0.3				%	1		D2974	Total/NA

Client Sample ID: SB1409

Lab Sample ID: 320-23992-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.8				%	1		D2974	Total/NA
Moisture Content	30.2				%	1		D2974	Total/NA
Ash Content	99.2				%	1		D2974	Total/NA
Fractional Organic Carbon	0.4				%	1		D2974	Total/NA

Client Sample ID: SB1301

Lab Sample ID: 320-23992-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	2.4				%	1		D2974	Total/NA
Moisture Content	18.0				%	1		D2974	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Client Sample ID: SB1301 (Continued)

Lab Sample ID: 320-23992-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ash Content	97.6				%	1		D2974	Total/NA
Fractional Organic Carbon	1.4				%	1		D2974	Total/NA

Client Sample ID: SB1312

Lab Sample ID: 320-23992-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.4				%	1		D2974	Total/NA
Moisture Content	28.4				%	1		D2974	Total/NA
Ash Content	99.6				%	1		D2974	Total/NA
Fractional Organic Carbon	0.2				%	1		D2974	Total/NA

Client Sample ID: SB1001

Lab Sample ID: 320-23992-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.8				%	1		D2974	Total/NA
Moisture Content	15.3				%	1		D2974	Total/NA
Ash Content	99.2				%	1		D2974	Total/NA
Fractional Organic Carbon	0.5				%	1		D2974	Total/NA

Client Sample ID: SB1012

Lab Sample ID: 320-23992-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.3				%	1		D2974	Total/NA
Moisture Content	32.3				%	1		D2974	Total/NA
Ash Content	99.7				%	1		D2974	Total/NA
Fractional Organic Carbon	0.1				%	1		D2974	Total/NA

Client Sample ID: SB1101

Lab Sample ID: 320-23992-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	1.4				%	1		D2974	Total/NA
Moisture Content	18.1				%	1		D2974	Total/NA
Ash Content	98.6				%	1		D2974	Total/NA
Fractional Organic Carbon	0.8				%	1		D2974	Total/NA

Client Sample ID: SB1118

Lab Sample ID: 320-23992-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.6				%	1		D2974	Total/NA
Moisture Content	25.6				%	1		D2974	Total/NA
Ash Content	99.4				%	1		D2974	Total/NA
Fractional Organic Carbon	0.4				%	1		D2974	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Client Sample ID: SB0101

Date Collected: 11/30/16 08:15

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-11

Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	2.1				%			01/24/17 16:14	1
Moisture Content	12.7				%			01/24/17 16:14	1
Ash Content	97.9				%			01/24/17 16:14	1
Fractional Organic Carbon	1.2				%			01/24/17 16:14	1

Client Sample ID: SB019.5

Date Collected: 11/30/16 08:28

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-12

Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	1.2				%			01/24/17 16:14	1
Moisture Content	31.3				%			01/24/17 16:14	1
Ash Content	98.8				%			01/24/17 16:14	1
Fractional Organic Carbon	0.7				%			01/24/17 16:14	1

Client Sample ID: SB0201

Date Collected: 11/30/16 10:27

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-13

Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	1				%			01/24/17 16:14	1
Moisture Content	20.7				%			01/24/17 16:14	1
Ash Content	99.0				%			01/24/17 16:14	1
Fractional Organic Carbon	0.6				%			01/24/17 16:14	1

Client Sample ID: SB0205

Date Collected: 11/30/16 10:42

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-14

Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	1.6				%			01/24/17 16:14	1
Moisture Content	27.9				%			01/24/17 16:14	1
Ash Content	98.4				%			01/24/17 16:14	1
Fractional Organic Carbon	0.9				%			01/24/17 16:14	1

Client Sample ID: SB1401

Date Collected: 11/30/16 11:20

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-15

Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.5				%			01/24/17 16:14	1
Moisture Content	22.2				%			01/24/17 16:14	1
Ash Content	99.5				%			01/24/17 16:14	1
Fractional Organic Carbon	0.3				%			01/24/17 16:14	1

TestAmerica Sacramento

Client Sample Results

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Client Sample ID: SB1409

Lab Sample ID: 320-23992-16

Date Collected: 11/30/16 11:45

Matrix: Solid

Date Received: 12/02/16 09:40

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.8				%			01/24/17 16:14	1
Moisture Content	30.2				%			01/24/17 16:14	1
Ash Content	99.2				%			01/24/17 16:14	1
Fractional Organic Carbon	0.4				%			01/24/17 16:14	1

Client Sample ID: SB1301

Lab Sample ID: 320-23992-17

Date Collected: 11/30/16 12:42

Matrix: Solid

Date Received: 12/02/16 09:40

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	2.4				%			01/24/17 16:14	1
Moisture Content	18.0				%			01/24/17 16:14	1
Ash Content	97.6				%			01/24/17 16:14	1
Fractional Organic Carbon	1.4				%			01/24/17 16:14	1

Client Sample ID: SB1312

Lab Sample ID: 320-23992-18

Date Collected: 11/30/16 12:58

Matrix: Solid

Date Received: 12/02/16 09:40

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.4				%			01/24/17 16:14	1
Moisture Content	28.4				%			01/24/17 16:14	1
Ash Content	99.6				%			01/24/17 16:14	1
Fractional Organic Carbon	0.2				%			01/24/17 16:14	1

Client Sample ID: SB1001

Lab Sample ID: 320-23992-19

Date Collected: 11/30/16 13:40

Matrix: Solid

Date Received: 12/02/16 09:40

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.8				%			01/24/17 16:14	1
Moisture Content	15.3				%			01/24/17 16:14	1
Ash Content	99.2				%			01/24/17 16:14	1
Fractional Organic Carbon	0.5				%			01/24/17 16:14	1

Client Sample ID: SB1012

Lab Sample ID: 320-23992-20

Date Collected: 11/30/16 13:51

Matrix: Solid

Date Received: 12/02/16 09:40

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.3				%			01/24/17 16:14	1
Moisture Content	32.3				%			01/24/17 16:14	1
Ash Content	99.7				%			01/24/17 16:14	1
Fractional Organic Carbon	0.1				%			01/24/17 16:14	1

TestAmerica Sacramento

Client Sample Results

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Client Sample ID: SB1101
Date Collected: 11/30/16 14:55
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-21
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	1.4				%			01/24/17 16:14	1
Moisture Content	18.1				%			01/24/17 16:14	1
Ash Content	98.6				%			01/24/17 16:14	1
Fractional Organic Carbon	0.8				%			01/24/17 16:14	1

Client Sample ID: SB1118
Date Collected: 11/30/16 15:10
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-22
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.6				%			01/25/17 17:08	1
Moisture Content	25.6				%			01/25/17 17:08	1
Ash Content	99.4				%			01/25/17 17:08	1
Fractional Organic Carbon	0.4				%			01/25/17 17:08	1

QC Association Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Geotechnical

Analysis Batch: 113489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23992-11	SB0101	Total/NA	Solid	D2974	
320-23992-12	SB019.5	Total/NA	Solid	D2974	
320-23992-13	SB0201	Total/NA	Solid	D2974	
320-23992-14	SB0205	Total/NA	Solid	D2974	
320-23992-15	SB1401	Total/NA	Solid	D2974	
320-23992-16	SB1409	Total/NA	Solid	D2974	
320-23992-17	SB1301	Total/NA	Solid	D2974	
320-23992-18	SB1312	Total/NA	Solid	D2974	
320-23992-19	SB1001	Total/NA	Solid	D2974	
320-23992-20	SB1012	Total/NA	Solid	D2974	
320-23992-21	SB1101	Total/NA	Solid	D2974	

Analysis Batch: 113543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23992-22	SB1118	Total/NA	Solid	D2974	

Lab Chronicle

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Client Sample ID: SB0101
Date Collected: 11/30/16 08:15
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

Client Sample ID: SB019.5
Date Collected: 11/30/16 08:28
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

Client Sample ID: SB0201
Date Collected: 11/30/16 10:27
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-13
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

Client Sample ID: SB0205
Date Collected: 11/30/16 10:42
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-14
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

Client Sample ID: SB1401
Date Collected: 11/30/16 11:20
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-15
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

Client Sample ID: SB1409
Date Collected: 11/30/16 11:45
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-16
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

TestAmerica Sacramento

Lab Chronicle

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Client Sample ID: SB1301
Date Collected: 11/30/16 12:42
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-17
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

Client Sample ID: SB1312
Date Collected: 11/30/16 12:58
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-18
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

Client Sample ID: SB1001
Date Collected: 11/30/16 13:40
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-19
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

Client Sample ID: SB1012
Date Collected: 11/30/16 13:51
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-20
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

Client Sample ID: SB1101
Date Collected: 11/30/16 14:55
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-21
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113489	01/24/17 16:14	MAP	TAL BUR

Client Sample ID: SB1118
Date Collected: 11/30/16 15:10
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-22
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113543	01/25/17 17:08	MAP	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TestAmerica Sacramento

Certification Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17 *
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

Laboratory: TestAmerica Burlington

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-17
Florida	NELAP	4	E87467	06-30-17
L-A-B	DoD ELAP		L2336	02-26-17 *
Maine	State Program	1	VT00008	04-17-17
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17
New York	NELAP	2	10391	04-01-17 *
Pennsylvania	NELAP	3	68-00489	04-30-17
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

* Certification renewal pending - certification considered valid.

TestAmerica Sacramento

Method Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

Method	Method Description	Protocol	Laboratory
D2974	Moisture, Ash and Organic Matter	ASTM	TAL BUR

Protocol References:

ASTM = ASTM International

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

- 1
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- 13

Sample Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-2

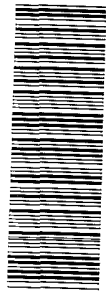
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-23992-11	SB0101	Solid	11/30/16 08:15	12/02/16 09:40
320-23992-12	SB019.5	Solid	11/30/16 08:28	12/02/16 09:40
320-23992-13	SB0201	Solid	11/30/16 10:27	12/02/16 09:40
320-23992-14	SB0205	Solid	11/30/16 10:42	12/02/16 09:40
320-23992-15	SB1401	Solid	11/30/16 11:20	12/02/16 09:40
320-23992-16	SB1409	Solid	11/30/16 11:45	12/02/16 09:40
320-23992-17	SB1301	Solid	11/30/16 12:42	12/02/16 09:40
320-23992-18	SB1312	Solid	11/30/16 12:58	12/02/16 09:40
320-23992-19	SB1001	Solid	11/30/16 13:40	12/02/16 09:40
320-23992-20	SB1012	Solid	11/30/16 13:51	12/02/16 09:40
320-23992-21	SB1101	Solid	11/30/16 14:55	12/02/16 09:40
320-23992-22	SB1118	Solid	11/30/16 15:10	12/02/16 09:40



TestAmerica Sacramento

880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600 Fax (916) 372-1059

Chain of Custody Record



320-23992 Chain of Custody



320-23992 Chain of Custody

Client Information (Sub Contract Lab)
 Company: TestAmerica Laboratories, Inc.
 Address: 30 Community Drive, Suite 11, South Burlington, VT, 05403
 Phone: 802-660-1990 (Tel) 802-660-1919 (Fax)
 Email: [Redacted]
 Project Name: Champlain Cable
 Site: [Redacted]

Client Information (Sub Contract Lab)
 Lab PM: Kellmann, Jill
 E-Mail: jill.kellmann@testamericainc.com
 State of Origin: Vermont
 Page 1 of 2
 Job #: 320-23992-2
 Preservation Codes:
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MeOH
 G - Amchlor
 H - Ascorbic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDA
 Other: [Redacted]

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, On-water, BT=Tissue, AA=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers	Special Instructions/Note:
SB0101 (320-23992-11)	11/30/16	08:15 Eastern	Solid	Solid	X	X	1	
SB019.5 (320-23992-12)	11/30/16	08:28 Eastern	Solid	Solid	X	X	1	
SB0201 (320-23992-13)	11/30/16	10:27 Eastern	Solid	Solid	X	X	1	
SB0205 (320-23992-14)	11/30/16	10:42 Eastern	Solid	Solid	X	X	1	
SB1401 (320-23992-15)	11/30/16	11:20 Eastern	Solid	Solid	X	X	1	
SB1409 (320-23992-16)	11/30/16	11:45 Eastern	Solid	Solid	X	X	1	
SB1301 (320-23992-17)	11/30/16	12:42 Eastern	Solid	Solid	X	X	1	
SB1312 (320-23992-18)	11/30/16	12:58 Eastern	Solid	Solid	X	X	1	
SB1001 (320-23992-19)	11/30/16	13:40 Eastern	Solid	Solid	X	X	1	

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____
 Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *CMR* Date: 1-18-17 6:30
 Relinquished by: *DAWS* Date: 11/20/17 09:30
 Relinquished by: _____ Date: _____
 Custody Seal No.: *N/A*
 Custody Seals Intact: Yes No
 Cooler Temperature(s) °C and Other Remarks: *10.0°C instead*



Chain of Custody Record

Client Information (Sub Contract Lab)		Sampler:	Lab P/N:	Carrier Tracking No(s):	COC No:
Client Contact: Shipping/Receiving		Phone:	Kellmann, Jill		320-83948.2
Company: TestAmerica Laboratories, Inc.		E-Mail: jill.kellmann@testamericainc.com		State of Origin: Vermont	Page 2 of 2
Address: 30 Community Drive, Suite 11, South Burlington VT, 05403		Accreditations Required (See note):		Job #:	320-23992-2
PO #: 802-660-1990(Tel) 802-660-1919(Fax)		Due Date Requested: 2/3/2017		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
WO #: Project #: 32007936		TAT Requested (days):		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Site: Champlain Cable		Analysis Requested		Special Instructions/Note:	
Sample Identification - Client ID (Lab ID)		Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers	
SB1012 (320-23992-20)	Sample Date: 11/30/16	Sample Time: 13:51 Eastern	X	X	1
SB1101 (320-23992-21)	Sample Date: 11/30/16	Sample Time: 14:55 Eastern	X	X	1
SB1118 (320-23992-22)	Sample Date: 11/30/16	Sample Time: 15:10 Eastern	X	X	1
<p>Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.</p>					
<p>Possible Hazard Identification</p> <p>Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) _____ Primary Deliverable Rank: 2</p> <p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>					
Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by: <i>[Signature]</i>		Date/Time: 1-18-17 1630		Company: <i>[Signature]</i>	
Relinquished by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.: N/A		Cooler Temperature(s) °C and Other Remarks: 1.0°C intact	



Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 320-23992-2

Login Number: 23992

List Source: TestAmerica Sacramento

List Number: 1

Creator: Edman, Connor M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 320-23992-2

Login Number: 23992
List Number: 2
Creator: Hayden, Anita L

List Source: TestAmerica Burlington
List Creation: 01/20/17 03:58 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.0 C corrected
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-24020-2
Client Project/Site: Champlain Cable

For:
ATC Group Services LLC
1 Elm Street, Suite 3
Waterbury, Vermont 05676

Attn: Chelsea Fellows-Stanley



Authorized for release by:
1/27/2017 4:07:54 PM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Job ID: 320-24020-2

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 12/3/2016 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8° C.

Geotechnical

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Client Sample ID: SB1201

Lab Sample ID: 320-24020-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	1.3				%	1		D2974	Total/NA
Moisture Content	21.1				%	1		D2974	Total/NA
Ash Content	98.7				%	1		D2974	Total/NA
Fractional Organic Carbon	0.7				%	1		D2974	Total/NA

Client Sample ID: SB129.5

Lab Sample ID: 320-24020-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.1				%	1		D2974	Total/NA
Moisture Content	27.1				%	1		D2974	Total/NA
Ash Content	99.9				%	1		D2974	Total/NA
Fractional Organic Carbon	0.06				%	1		D2974	Total/NA

Client Sample ID: SB0901

Lab Sample ID: 320-24020-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	1.5				%	1		D2974	Total/NA
Moisture Content	9.0				%	1		D2974	Total/NA
Ash Content	98.5				%	1		D2974	Total/NA
Fractional Organic Carbon	0.9				%	1		D2974	Total/NA

Client Sample ID: DUPLICATE

Lab Sample ID: 320-24020-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	2.3				%	1		D2974	Total/NA
Moisture Content	9.3				%	1		D2974	Total/NA
Ash Content	97.7				%	1		D2974	Total/NA
Fractional Organic Carbon	1.3				%	1		D2974	Total/NA

Client Sample ID: SB0916

Lab Sample ID: 320-24020-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.5				%	1		D2974	Total/NA
Moisture Content	25.6				%	1		D2974	Total/NA
Ash Content	99.5				%	1		D2974	Total/NA
Fractional Organic Carbon	0.3				%	1		D2974	Total/NA

Client Sample ID: SB0801

Lab Sample ID: 320-24020-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.7				%	1		D2974	Total/NA
Moisture Content	8.8				%	1		D2974	Total/NA
Ash Content	99.3				%	1		D2974	Total/NA
Fractional Organic Carbon	0.4				%	1		D2974	Total/NA

Client Sample ID: SB0815

Lab Sample ID: 320-24020-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.03				%	1		D2974	Total/NA
Moisture Content	34.3				%	1		D2974	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Client Sample ID: SB0815 (Continued)

Lab Sample ID: 320-24020-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ash Content	100				%	1		D2974	Total/NA
Fractional Organic Carbon	0.02				%	1		D2974	Total/NA

Client Sample ID: SB0701

Lab Sample ID: 320-24020-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	2.2				%	1		D2974	Total/NA
Moisture Content	23.1				%	1		D2974	Total/NA
Ash Content	97.8				%	1		D2974	Total/NA
Fractional Organic Carbon	1.3				%	1		D2974	Total/NA

Client Sample ID: SB0714

Lab Sample ID: 320-24020-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	0.2				%	1		D2974	Total/NA
Moisture Content	29.3				%	1		D2974	Total/NA
Ash Content	99.8				%	1		D2974	Total/NA
Fractional Organic Carbon	0.1				%	1		D2974	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Client Sample ID: SB1201
Date Collected: 12/01/16 08:38
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-10
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	1.3				%			01/25/17 17:08	1
Moisture Content	21.1				%			01/25/17 17:08	1
Ash Content	98.7				%			01/25/17 17:08	1
Fractional Organic Carbon	0.7				%			01/25/17 17:08	1

Client Sample ID: SB129.5
Date Collected: 12/01/16 08:51
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-11
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.1				%			01/25/17 17:08	1
Moisture Content	27.1				%			01/25/17 17:08	1
Ash Content	99.9				%			01/25/17 17:08	1
Fractional Organic Carbon	0.06				%			01/25/17 17:08	1

Client Sample ID: SB0901
Date Collected: 12/01/16 09:58
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-12
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	1.5				%			01/25/17 17:08	1
Moisture Content	9.0				%			01/25/17 17:08	1
Ash Content	98.5				%			01/25/17 17:08	1
Fractional Organic Carbon	0.9				%			01/25/17 17:08	1

Client Sample ID: DUPLICATE
Date Collected: 12/01/16 00:00
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-13
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	2.3				%			01/25/17 17:08	1
Moisture Content	9.3				%			01/25/17 17:08	1
Ash Content	97.7				%			01/25/17 17:08	1
Fractional Organic Carbon	1.3				%			01/25/17 17:08	1

Client Sample ID: SB0916
Date Collected: 12/01/16 10:20
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-14
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.5				%			01/25/17 17:08	1
Moisture Content	25.6				%			01/25/17 17:08	1
Ash Content	99.5				%			01/25/17 17:08	1
Fractional Organic Carbon	0.3				%			01/25/17 17:08	1

TestAmerica Sacramento

Client Sample Results

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Client Sample ID: SB0801
Date Collected: 12/01/16 11:55
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-15
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.7				%			01/25/17 17:08	1
Moisture Content	8.8				%			01/25/17 17:08	1
Ash Content	99.3				%			01/25/17 17:08	1
Fractional Organic Carbon	0.4				%			01/25/17 17:08	1

Client Sample ID: SB0815
Date Collected: 12/01/16 12:20
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-16
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.03				%			01/25/17 17:08	1
Moisture Content	34.3				%			01/25/17 17:08	1
Ash Content	100				%			01/25/17 17:08	1
Fractional Organic Carbon	0.02				%			01/25/17 17:08	1

Client Sample ID: SB0701
Date Collected: 12/01/16 13:36
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-17
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	2.2				%			01/25/17 17:08	1
Moisture Content	23.1				%			01/25/17 17:08	1
Ash Content	97.8				%			01/25/17 17:08	1
Fractional Organic Carbon	1.3				%			01/25/17 17:08	1

Client Sample ID: SB0714
Date Collected: 12/01/16 13:49
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-18
Matrix: Solid

Method: D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	0.2				%			01/25/17 17:08	1
Moisture Content	29.3				%			01/25/17 17:08	1
Ash Content	99.8				%			01/25/17 17:08	1
Fractional Organic Carbon	0.1				%			01/25/17 17:08	1

QC Association Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Geotechnical

Analysis Batch: 113543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24020-10	SB1201	Total/NA	Solid	D2974	
320-24020-11	SB129.5	Total/NA	Solid	D2974	
320-24020-12	SB0901	Total/NA	Solid	D2974	
320-24020-13	DUPLICATE	Total/NA	Solid	D2974	
320-24020-14	SB0916	Total/NA	Solid	D2974	
320-24020-15	SB0801	Total/NA	Solid	D2974	
320-24020-16	SB0815	Total/NA	Solid	D2974	
320-24020-17	SB0701	Total/NA	Solid	D2974	
320-24020-18	SB0714	Total/NA	Solid	D2974	

Lab Chronicle

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Client Sample ID: SB1201

Date Collected: 12/01/16 08:38

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113543	01/25/17 17:08	MAP	TAL BUR

Client Sample ID: SB129.5

Date Collected: 12/01/16 08:51

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-11

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113543	01/25/17 17:08	MAP	TAL BUR

Client Sample ID: SB0901

Date Collected: 12/01/16 09:58

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-12

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113543	01/25/17 17:08	MAP	TAL BUR

Client Sample ID: DUPLICATE

Date Collected: 12/01/16 00:00

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-13

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113543	01/25/17 17:08	MAP	TAL BUR

Client Sample ID: SB0916

Date Collected: 12/01/16 10:20

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-14

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113543	01/25/17 17:08	MAP	TAL BUR

Client Sample ID: SB0801

Date Collected: 12/01/16 11:55

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-15

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113543	01/25/17 17:08	MAP	TAL BUR

TestAmerica Sacramento

Lab Chronicle

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Client Sample ID: SB0815

Date Collected: 12/01/16 12:20

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-16

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113543	01/25/17 17:08	MAP	TAL BUR

Client Sample ID: SB0701

Date Collected: 12/01/16 13:36

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-17

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113543	01/25/17 17:08	MAP	TAL BUR

Client Sample ID: SB0714

Date Collected: 12/01/16 13:49

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-18

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D2974		1			113543	01/25/17 17:08	MAP	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Certification Summary

Client: ATC Group Services LLC
 Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17 *
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	10-31-17
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-29-17 *

Laboratory: TestAmerica Burlington

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-17
Florida	NELAP	4	E87467	06-30-17
L-A-B	DoD ELAP		L2336	02-26-17 *
Maine	State Program	1	VT00008	04-17-17
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17
New York	NELAP	2	10391	04-01-17 *
Pennsylvania	NELAP	3	68-00489	04-30-17
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

* Certification renewal pending - certification considered valid.

TestAmerica Sacramento

Method Summary

Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Method	Method Description	Protocol	Laboratory
D2974	Moisture, Ash and Organic Matter	ASTM	TAL BUR

Protocol References:

ASTM = ASTM International

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990



Sample Summary


Client: ATC Group Services LLC
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-24020-10	SB1201	Solid	12/01/16 08:38	12/03/16 09:40
320-24020-11	SB129.5	Solid	12/01/16 08:51	12/03/16 09:40
320-24020-12	SB0901	Solid	12/01/16 09:58	12/03/16 09:40
320-24020-13	DUPLICATE	Solid	12/01/16 00:00	12/03/16 09:40
320-24020-14	SB0916	Solid	12/01/16 10:20	12/03/16 09:40
320-24020-15	SB0801	Solid	12/01/16 11:55	12/03/16 09:40
320-24020-16	SB0815	Solid	12/01/16 12:20	12/03/16 09:40
320-24020-17	SB0701	Solid	12/01/16 13:36	12/03/16 09:40
320-24020-18	SB0714	Solid	12/01/16 13:49	12/03/16 09:40



Chain of Custody Record

Client Information Client Contact: Chelsea Fellows-Stanley Company: Environmental Compliance Services, Inc. - ATC Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802.241.4131 Email: cstanley@ecsconsult.com Project Name: Champlain Cable Site: Colchester VT		Lab PM: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com Phone: 518 3668034 Carrier Tracking No(s): 320-13309-3061.3 Page 3 of 10 Job #: 0 of 2					
Due Date Requested: TAT Requested (days): Normal PO #: 256648 WO #: Project #: 32007936 SSO#: 108-203600-08		Analysis Requested  320-24020 Chain of Custody					
Sample Identification Sample ID: GW1205, GW12915, GW0916, GW0911, GW0811, GW0815, GW07815, GW0714, Deon water		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) PFC, IDA - (MOD) 537 Short List					
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Oil, etc.)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC, IDA - (MOD) 537 Short List
12/11	0902	G	Water		XX	XX	
12/11	0904	G	Water		XX	XX	
12/11	1028	G	Water		XX	XX	
12/11	1026	G	Water		XX	XX	
12/11	1135	G	Water		XX	XX	
12/11	1238	G	Water		XX	XX	
12/11	1240	G	Water		XX	XX	
12/11	1400	G	Water		XX	XX	
12/11	1404	G	Water		XX	XX	
12/11	1508	G	Water		XX	XX	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested: I, II, III, IV, Other (specify) Standard		Empty Kit Relinquished by:		Special Instructions/OC Requirements:	
Relinquished by: Katrina Mattice Relinquished by: Katrina Mattice Relinquished by:		Date: 12/11/16/1700 12/16/11500		Method of Shipment:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Received by: Katrina Mattice Received by: PEDEX Received by: Ali Zenghans		Date/Time: 12/11/16 1700 12/16/1530 12/16/0940		Company: ATC Company Company		Cooler Temperature(s) °C and Other Remarks:	
<input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		1886			



Chain of Custody Record

Client Information Client Contact: Cherylsea Fellows-Stanley Company: Environmental Compliance Services, Inc - ATC Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802.241.4131 Email: cstanley@ecsconsult.com Project Name: Champlain Cable Site: Colchester VT		Lab PM: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com Carrier Tracking No(s): COC No: 320-13309-3061.8 Page: 2 of 10 Job #: 2012									
Due Date Requested: TAT Requested (days): Normal PO #: 256648 WO #: Project #: 32007936 SSO# 108203606.08		Analysis Requested Total Number of Containers: 1									
Sample Identification SB1261 SB1291.5 SB0901 duplicate SB0976 SB0801 SB0815 SB0701 SB0714 Field blank 02		Field Filtered Sample (Yes or No) N Perform MS/MSD (Yes or No) N PFC, IDA - (MCD) 537 Short List N FA Loop Kahn Method									
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Inorganic, Organic, BTX-Toluene, AA/Al)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC, IDA - (MCD) 537 Short List	FA Loop Kahn Method	Analysis Requested	Carrier Tracking No(s)	COC No
12/11	0838	C	Soil		N	N	N				
12/11	0851	C	Soil		N	N	N				
12/11	0958	C	Soil		N	N	N				
12/11	1020	C	Soil		N	N	N				
12/11	1155	C	Soil		N	N	N				
12/11	1220	C	Soil		N	N	N				
12/11	1336	C	Soil		N	N	N				
12/11	1349	C	Soil		N	N	N				
12/11	1135	G	Water		N	N	N				
12/11	1135	G	Soil		N	N	N				

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify) Standard
 Empty Kit Relinquished by: Date: Time:
 Relinquished by: Kyrina Maitte Company: ATC
 Relinquished by: Kyrina Maitte Company: ATC
 Relinquished by: Kyrina Maitte Company: ATC
 Custody Seal No.:
 Δ Yes Δ No
 Custody Seals Intact:
 Relinquished by: Ali Zeng Company: AWS
 Date/Time: 12/11/16 1700
 Date/Time: 12/12/16 1530
 Date/Time: 12/13/16 09:40
 Received by: Kyrina Maitte
 Received by: KEOEX
 Received by: Ali Zeng
 Date/Time: 12/11/16 1700
 Date/Time: 12/12/16 1530
 Date/Time: 12/13/16 09:40
 Company: ATC
 Company: ATC
 Company: AWS
 Special Instructions/Note:
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:
 Method of Shipment:
 Order Temperature(s) °C/°F Other Remarks:



Chain of Custody Record



320-24020 Chain of Custody

Client Information (Sub Contract Lab) Client Contact: Kellmann, Jill Shipping/Receiving: jill.kellmann@testamericainc.com Company: TestAmerica Laboratories, Inc.		Lab PM: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com State of Origin: Vermont		No: J-83948.1 Page: Page 1 of 1 Job #: 320-24020-2	
Address: 30 Community Drive, Suite 11, City: South Burlington State, Zip: VT, 05403 Phone: 802-660-1990(Tel) 802-660-1919(Fax) Email:		Due Date Requested: 2/3/2017 TAT Requested (days):		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
PO #: 802-660-1990(Tel) 802-660-1919(Fax) WO #:		Project #: 32007936 SSOW#:		Analysis Requested:	
Sample Date Sample Time Sample Type (C=comp, G=grab) Matrix (W=water, S=solid, O=waste/soli) Preservation Code:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No)		Total Number of Containers	
Sample Identification - Client ID (Lab ID)		Special Instructions/Note:		Special Instructions/Note:	
SB1201 (320-24020-10)		12/11/16 08:38 Eastern Solid		X	
SB129.5 (320-24020-11)		12/11/16 08:51 Eastern Solid		X	
SB0901 (320-24020-12)		12/11/16 09:58 Eastern Solid		X	
DUPLICATE (320-24020-13)		12/11/16 Eastern Solid		X	
SB0916 (320-24020-14)		12/11/16 10:20 Eastern Solid		X	
SB0801 (320-24020-15)		12/11/16 11:55 Eastern Solid		X	
SB0815 (320-24020-16)		12/11/16 12:20 Eastern Solid		X	
SB0701 (320-24020-17)		12/11/16 13:36 Eastern Solid		X	
SB0714 (320-24020-18)		12/11/16 13:49 Eastern Solid		X	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: *Chabby* Date: 1-18-17 16:50
 Relinquished by: _____ Date: _____
 Relinquished by: _____ Date: _____

Relinquished by: _____ Date: _____
 Relinquished by: _____ Date: _____
 Relinquished by: _____ Date: _____

Custody Seals Intact: *NSA*
 Δ Yes Δ No

Cooler Temperature(s) °C and Other Remarks: *1.0°C intact*

Special Instructions/QC Requirements:
 Return To Client Disposal By Lab Archive For _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Received by: *[Signature]* Date/Time: 1/20/17 09:30
 Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____



Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 320-24020-2

Login Number: 24020

List Source: TestAmerica Sacramento

List Number: 1

Creator: Hytrek, Cheryl

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 320-24020-2

Login Number: 24020
List Number: 2
Creator: Hayden, Anita L

List Source: TestAmerica Burlington
List Creation: 01/20/17 04:31 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.0 C corrected
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-23914-1
Client Project/Site: Champlain Cable

For:
Environmental Compliance Services, Inc.
1 Elm Street, Suite 3
Waterbury, Vermont 05676

Attn: Chelsea Fellows-Stanley



Authorized for release by:
12/22/2016 8:35:05 AM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Job ID: 320-23914-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 12/1/2016 7:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.3° C.

LCMS

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-140687.

Method(s) 3535: Due to excessive amount of sediment the following samples were decanted into a new 250 poly bottle, prior to spiking and the extraction.

GW0408 (320-23914-1), GW0412 (320-23914-2), GW0514 (320-23914-3), GW0508 (320-23914-4), GW0613 (320-23914-5), GW0608 (320-23914-6), EQUIPMENT BLANK 02 (320-23914-7) and GW0304 (320-23914-8)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: GW0408

Lab Sample ID: 320-23914-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.5	J	2.0	0.91	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	22		2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	180		2.0	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	6.7		2.0	0.65	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW0412

Lab Sample ID: 320-23914-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.0	0.92	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	24		2.0	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	220		2.0	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.4		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	12		2.0	0.66	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW0514

Lab Sample ID: 320-23914-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	9.1		2.0	0.92	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	17		2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	100		2.0	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.9	J	2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	9.1		2.0	0.65	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW0508

Lab Sample ID: 320-23914-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	150		2.0	0.92	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	14		2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	190		2.0	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.1		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	13		2.0	0.65	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW0613

Lab Sample ID: 320-23914-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	39		2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	200		2.0	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.6		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	23		2.0	0.65	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW0608

Lab Sample ID: 320-23914-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.3	J	2.0	0.92	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.2		2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	62		2.0	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.7		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	12		2.0	0.65	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: EQUIPMENT BLANK 02

Lab Sample ID: 320-23914-7

No Detections.

Client Sample ID: GW0304

Lab Sample ID: 320-23914-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	9.1		2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	91		2.0	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.1		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	3.5		2.0	0.66	ng/L	1		537 (modified)	Total/NA

Client Sample ID: FIELD BLANK 01

Lab Sample ID: 320-23914-9

No Detections.

Client Sample ID: SB0401

Lab Sample ID: 320-23914-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.16	J	0.22	0.11	ug/Kg	1	*	537 (modified)	Total/NA

Client Sample ID: SB0412

Lab Sample ID: 320-23914-11

No Detections.

Client Sample ID: SB0501

Lab Sample ID: 320-23914-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.12	J	0.21	0.11	ug/Kg	1	*	537 (modified)	Total/NA

Client Sample ID: SB0514

Lab Sample ID: 320-23914-13

No Detections.

Client Sample ID: SB0601

Lab Sample ID: 320-23914-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.30		0.22	0.11	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.094	J	0.22	0.091	ug/Kg	1	*	537 (modified)	Total/NA

Client Sample ID: SB0613

Lab Sample ID: 320-23914-15

No Detections.

Client Sample ID: EQUIPMENT BLANK 01

Lab Sample ID: 320-23914-16

No Detections.

Client Sample ID: SB0301

Lab Sample ID: 320-23914-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid (PFNA)	0.15	J	0.22	0.092	ug/Kg	1	*	537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: SB0305

Lab Sample ID: 320-23914-18

No Detections.

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This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: GW0408

Date Collected: 11/29/16 10:40

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-1

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.5	J	2.0	0.91	ng/L		12/05/16 15:28	12/19/16 04:49	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/05/16 15:28	12/19/16 04:49	1
Perfluoroheptanoic acid (PFHpA)	22		2.0	0.80	ng/L		12/05/16 15:28	12/19/16 04:49	1
Perfluorooctanoic acid (PFOA)	180		2.0	0.74	ng/L		12/05/16 15:28	12/19/16 04:49	1
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	1.3	ng/L		12/05/16 15:28	12/19/16 04:49	1
Perfluorononanoic acid (PFNA)	6.7		2.0	0.65	ng/L		12/05/16 15:28	12/19/16 04:49	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		25 - 150				12/05/16 15:28	12/19/16 04:49	1
18O2 PFHxS	135		25 - 150				12/05/16 15:28	12/19/16 04:49	1
13C4-PFHpA	83		25 - 150				12/05/16 15:28	12/19/16 04:49	1
13C4 PFOA	70		25 - 150				12/05/16 15:28	12/19/16 04:49	1
13C4 PFOS	142		25 - 150				12/05/16 15:28	12/19/16 04:49	1
13C5 PFNA	60		25 - 150				12/05/16 15:28	12/19/16 04:49	1

Client Sample ID: GW0412

Date Collected: 11/29/16 10:51

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-2

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.0	0.92	ng/L		12/05/16 15:28	12/19/16 04:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/05/16 15:28	12/19/16 04:56	1
Perfluoroheptanoic acid (PFHpA)	24		2.0	0.81	ng/L		12/05/16 15:28	12/19/16 04:56	1
Perfluorooctanoic acid (PFOA)	220		2.0	0.75	ng/L		12/05/16 15:28	12/19/16 04:56	1
Perfluorooctanesulfonic acid (PFOS)	2.4		2.0	1.3	ng/L		12/05/16 15:28	12/19/16 04:56	1
Perfluorononanoic acid (PFNA)	12		2.0	0.66	ng/L		12/05/16 15:28	12/19/16 04:56	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	102		25 - 150				12/05/16 15:28	12/19/16 04:56	1
18O2 PFHxS	131		25 - 150				12/05/16 15:28	12/19/16 04:56	1
13C4-PFHpA	106		25 - 150				12/05/16 15:28	12/19/16 04:56	1
13C4 PFOA	95		25 - 150				12/05/16 15:28	12/19/16 04:56	1
13C4 PFOS	141		25 - 150				12/05/16 15:28	12/19/16 04:56	1
13C5 PFNA	102		25 - 150				12/05/16 15:28	12/19/16 04:56	1

Client Sample ID: GW0514

Date Collected: 11/29/16 12:19

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-3

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	9.1		2.0	0.92	ng/L		12/05/16 15:28	12/19/16 05:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/05/16 15:28	12/19/16 05:04	1
Perfluoroheptanoic acid (PFHpA)	17		2.0	0.80	ng/L		12/05/16 15:28	12/19/16 05:04	1
Perfluorooctanoic acid (PFOA)	100		2.0	0.75	ng/L		12/05/16 15:28	12/19/16 05:04	1
Perfluorooctanesulfonic acid (PFOS)	1.9	J	2.0	1.3	ng/L		12/05/16 15:28	12/19/16 05:04	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: GW0514

Lab Sample ID: 320-23914-3

Date Collected: 11/29/16 12:19

Matrix: Water

Date Received: 12/01/16 07:40

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	9.1		2.0	0.65	ng/L		12/05/16 15:28	12/19/16 05:04	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	88		25 - 150				12/05/16 15:28	12/19/16 05:04	1
18O2 PFHxS	119		25 - 150				12/05/16 15:28	12/19/16 05:04	1
13C4-PFHpA	73		25 - 150				12/05/16 15:28	12/19/16 05:04	1
13C4 PFOA	47		25 - 150				12/05/16 15:28	12/19/16 05:04	1
13C4 PFOS	128		25 - 150				12/05/16 15:28	12/19/16 05:04	1
13C5 PFNA	25		25 - 150				12/05/16 15:28	12/19/16 05:04	1

Client Sample ID: GW0508

Lab Sample ID: 320-23914-4

Date Collected: 11/29/16 12:30

Matrix: Water

Date Received: 12/01/16 07:40

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	150		2.0	0.92	ng/L		12/05/16 15:28	12/19/16 05:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/05/16 15:28	12/19/16 05:11	1
Perfluoroheptanoic acid (PFHpA)	14		2.0	0.80	ng/L		12/05/16 15:28	12/19/16 05:11	1
Perfluorooctanoic acid (PFOA)	190		2.0	0.75	ng/L		12/05/16 15:28	12/19/16 05:11	1
Perfluorooctanesulfonic acid (PFOS)	5.1		2.0	1.3	ng/L		12/05/16 15:28	12/19/16 05:11	1
Perfluorononanoic acid (PFNA)	13		2.0	0.65	ng/L		12/05/16 15:28	12/19/16 05:11	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	105		25 - 150				12/05/16 15:28	12/19/16 05:11	1
18O2 PFHxS	133		25 - 150				12/05/16 15:28	12/19/16 05:11	1
13C4-PFHpA	109		25 - 150				12/05/16 15:28	12/19/16 05:11	1
13C4 PFOA	98		25 - 150				12/05/16 15:28	12/19/16 05:11	1
13C4 PFOS	146		25 - 150				12/05/16 15:28	12/19/16 05:11	1
13C5 PFNA	99		25 - 150				12/05/16 15:28	12/19/16 05:11	1

Client Sample ID: GW0613

Lab Sample ID: 320-23914-5

Date Collected: 11/29/16 13:41

Matrix: Water

Date Received: 12/01/16 07:40

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/05/16 15:28	12/19/16 05:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/05/16 15:28	12/19/16 05:19	1
Perfluoroheptanoic acid (PFHpA)	39		2.0	0.80	ng/L		12/05/16 15:28	12/19/16 05:19	1
Perfluorooctanoic acid (PFOA)	200		2.0	0.75	ng/L		12/05/16 15:28	12/19/16 05:19	1
Perfluorooctanesulfonic acid (PFOS)	2.6		2.0	1.3	ng/L		12/05/16 15:28	12/19/16 05:19	1
Perfluorononanoic acid (PFNA)	23		2.0	0.65	ng/L		12/05/16 15:28	12/19/16 05:19	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		25 - 150				12/05/16 15:28	12/19/16 05:19	1
18O2 PFHxS	132		25 - 150				12/05/16 15:28	12/19/16 05:19	1
13C4-PFHpA	107		25 - 150				12/05/16 15:28	12/19/16 05:19	1
13C4 PFOA	94		25 - 150				12/05/16 15:28	12/19/16 05:19	1
13C4 PFOS	142		25 - 150				12/05/16 15:28	12/19/16 05:19	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: GW0613

Date Collected: 11/29/16 13:41

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-5

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	92		25 - 150	12/05/16 15:28	12/19/16 05:19	1

Client Sample ID: GW0608

Date Collected: 11/29/16 13:49

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-6

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.3	J	2.0	0.92	ng/L		12/05/16 15:28	12/19/16 05:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/05/16 15:28	12/19/16 05:26	1
Perfluoroheptanoic acid (PFHpA)	7.2		2.0	0.80	ng/L		12/05/16 15:28	12/19/16 05:26	1
Perfluorooctanoic acid (PFOA)	62		2.0	0.75	ng/L		12/05/16 15:28	12/19/16 05:26	1
Perfluorooctanesulfonic acid (PFOS)	4.7		2.0	1.3	ng/L		12/05/16 15:28	12/19/16 05:26	1
Perfluorononanoic acid (PFNA)	12		2.0	0.65	ng/L		12/05/16 15:28	12/19/16 05:26	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C2 PFHxA	94		25 - 150	12/05/16 15:28	12/19/16 05:26	1			
18O2 PFHxS	126		25 - 150	12/05/16 15:28	12/19/16 05:26	1			
13C4-PFHpA	99		25 - 150	12/05/16 15:28	12/19/16 05:26	1			
13C4 PFOA	89		25 - 150	12/05/16 15:28	12/19/16 05:26	1			
13C4 PFOS	135		25 - 150	12/05/16 15:28	12/19/16 05:26	1			
13C5 PFNA	90		25 - 150	12/05/16 15:28	12/19/16 05:26	1			

Client Sample ID: EQUIPMENT BLANK 02

Date Collected: 11/29/16 14:34

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-7

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/05/16 15:28	12/19/16 05:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/05/16 15:28	12/19/16 05:34	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		12/05/16 15:28	12/19/16 05:34	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.75	ng/L		12/05/16 15:28	12/19/16 05:34	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/05/16 15:28	12/19/16 05:34	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		12/05/16 15:28	12/19/16 05:34	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C2 PFHxA	130		25 - 150	12/05/16 15:28	12/19/16 05:34	1			
18O2 PFHxS	127		25 - 150	12/05/16 15:28	12/19/16 05:34	1			
13C4-PFHpA	137		25 - 150	12/05/16 15:28	12/19/16 05:34	1			
13C4 PFOA	145		25 - 150	12/05/16 15:28	12/19/16 05:34	1			
13C4 PFOS	137		25 - 150	12/05/16 15:28	12/19/16 05:34	1			
13C5 PFNA	145		25 - 150	12/05/16 15:28	12/19/16 05:34	1			

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: GW0304

Lab Sample ID: 320-23914-8

Date Collected: 11/29/16 15:40

Matrix: Water

Date Received: 12/01/16 07:40

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/05/16 15:28	12/19/16 06:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/05/16 15:28	12/19/16 06:11	1
Perfluoroheptanoic acid (PFHpA)	9.1		2.0	0.80	ng/L		12/05/16 15:28	12/19/16 06:11	1
Perfluorooctanoic acid (PFOA)	91		2.0	0.75	ng/L		12/05/16 15:28	12/19/16 06:11	1
Perfluorooctanesulfonic acid (PFOS)	3.1		2.0	1.3	ng/L		12/05/16 15:28	12/19/16 06:11	1
Perfluorononanoic acid (PFNA)	3.5		2.0	0.66	ng/L		12/05/16 15:28	12/19/16 06:11	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2 PFHxA	102		25 - 150				12/05/16 15:28	12/19/16 06:11	1
18O2 PFHxS	127		25 - 150				12/05/16 15:28	12/19/16 06:11	1
13C4-PFHpA	120		25 - 150				12/05/16 15:28	12/19/16 06:11	1
13C4 PFOA	111		25 - 150				12/05/16 15:28	12/19/16 06:11	1
13C4 PFOS	133		25 - 150				12/05/16 15:28	12/19/16 06:11	1
13C5 PFNA	112		25 - 150				12/05/16 15:28	12/19/16 06:11	1

Client Sample ID: FIELD BLANK 01

Lab Sample ID: 320-23914-9

Date Collected: 11/29/16 15:50

Matrix: Water

Date Received: 12/01/16 07:40

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.86	ng/L		12/05/16 15:28	12/19/16 06:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.82	ng/L		12/05/16 15:28	12/19/16 06:19	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.75	ng/L		12/05/16 15:28	12/19/16 06:19	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.70	ng/L		12/05/16 15:28	12/19/16 06:19	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.2	ng/L		12/05/16 15:28	12/19/16 06:19	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.61	ng/L		12/05/16 15:28	12/19/16 06:19	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2 PFHxA	129		25 - 150				12/05/16 15:28	12/19/16 06:19	1
18O2 PFHxS	127		25 - 150				12/05/16 15:28	12/19/16 06:19	1
13C4-PFHpA	129		25 - 150				12/05/16 15:28	12/19/16 06:19	1
13C4 PFOA	136		25 - 150				12/05/16 15:28	12/19/16 06:19	1
13C4 PFOS	131		25 - 150				12/05/16 15:28	12/19/16 06:19	1
13C5 PFNA	142		25 - 150				12/05/16 15:28	12/19/16 06:19	1

Client Sample ID: SB0401

Lab Sample ID: 320-23914-10

Date Collected: 11/29/16 09:02

Matrix: Solid

Date Received: 12/01/16 07:40

Percent Solids: 92.3

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 01:07	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.095	ug/Kg	☼	12/08/16 10:40	12/21/16 01:07	1
Perfluorooctanoic acid (PFOA)	0.16	J	0.22	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.22	0.14	ug/Kg	☼	12/08/16 10:40	12/21/16 01:07	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.090	ug/Kg	☼	12/08/16 10:40	12/21/16 01:07	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	96		25 - 150				12/08/16 10:40	12/21/16 01:07	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: SB0401

Date Collected: 11/29/16 09:02

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-10

Matrix: Solid

Percent Solids: 92.3

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4-PFHpA	108		25 - 150	12/08/16 10:40	12/21/16 01:07	1
13C4 PFOA	102		25 - 150	12/08/16 10:40	12/21/16 01:07	1
13C4 PFOS	63		25 - 150	12/08/16 10:40	12/21/16 01:07	1
13C5 PFNA	77		25 - 150	12/08/16 10:40	12/21/16 01:07	1

Client Sample ID: SB0412

Date Collected: 11/29/16 09:38

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-11

Matrix: Solid

Percent Solids: 76.4

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.26	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 01:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.26	0.15	ug/Kg	☼	12/08/16 10:40	12/21/16 01:29	1
Perfluoroheptanoic acid (PFHpA)	ND		0.26	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:29	1
Perfluorooctanoic acid (PFOA)	ND		0.26	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 01:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.26	0.16	ug/Kg	☼	12/08/16 10:40	12/21/16 01:29	1
Perfluorononanoic acid (PFNA)	ND		0.26	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:29	1

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	78		25 - 150	12/08/16 10:40	12/21/16 01:29	1
13C4-PFHpA	107		25 - 150	12/08/16 10:40	12/21/16 01:29	1
13C4 PFOA	103		25 - 150	12/08/16 10:40	12/21/16 01:29	1
13C4 PFOS	76		25 - 150	12/08/16 10:40	12/21/16 01:29	1
13C5 PFNA	104		25 - 150	12/08/16 10:40	12/21/16 01:29	1

Client Sample ID: SB0501

Date Collected: 11/29/16 11:36

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-12

Matrix: Solid

Percent Solids: 96.3

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.12	ug/Kg	☼	12/08/16 10:40	12/21/16 01:37	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.091	ug/Kg	☼	12/08/16 10:40	12/21/16 01:37	1
Perfluorooctanoic acid (PFOA)	0.12	J	0.21	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:37	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.21	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 01:37	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.086	ug/Kg	☼	12/08/16 10:40	12/21/16 01:37	1

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	103		25 - 150	12/08/16 10:40	12/21/16 01:37	1
13C4-PFHpA	117		25 - 150	12/08/16 10:40	12/21/16 01:37	1
13C4 PFOA	114		25 - 150	12/08/16 10:40	12/21/16 01:37	1
13C4 PFOS	105		25 - 150	12/08/16 10:40	12/21/16 01:37	1
13C5 PFNA	117		25 - 150	12/08/16 10:40	12/21/16 01:37	1

Client Sample ID: SB0514

Date Collected: 11/29/16 12:02

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-13

Matrix: Solid

Percent Solids: 75.4

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.26	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 01:44	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: SB0514

Date Collected: 11/29/16 12:02

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-13

Matrix: Solid

Percent Solids: 75.4

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	ND		0.26	0.15	ug/Kg	☼	12/08/16 10:40	12/21/16 01:44	1
Perfluoroheptanoic acid (PFHpA)	ND		0.26	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:44	1
Perfluorooctanoic acid (PFOA)	ND		0.26	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 01:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.26	0.16	ug/Kg	☼	12/08/16 10:40	12/21/16 01:44	1
Perfluorononanoic acid (PFNA)	ND		0.26	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:44	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	100		25 - 150				12/08/16 10:40	12/21/16 01:44	1
13C4-PFHpA	116		25 - 150				12/08/16 10:40	12/21/16 01:44	1
13C4 PFOA	112		25 - 150				12/08/16 10:40	12/21/16 01:44	1
13C4 PFOS	103		25 - 150				12/08/16 10:40	12/21/16 01:44	1
13C5 PFNA	112		25 - 150				12/08/16 10:40	12/21/16 01:44	1

Client Sample ID: SB0601

Date Collected: 11/29/16 13:05

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-14

Matrix: Solid

Percent Solids: 90.8

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:52	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 01:52	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.097	ug/Kg	☼	12/08/16 10:40	12/21/16 01:52	1
Perfluorooctanoic acid (PFOA)	0.30		0.22	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:52	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.22	0.14	ug/Kg	☼	12/08/16 10:40	12/21/16 01:52	1
Perfluorononanoic acid (PFNA)	0.094 J		0.22	0.091	ug/Kg	☼	12/08/16 10:40	12/21/16 01:52	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	96		25 - 150				12/08/16 10:40	12/21/16 01:52	1
13C4-PFHpA	106		25 - 150				12/08/16 10:40	12/21/16 01:52	1
13C4 PFOA	102		25 - 150				12/08/16 10:40	12/21/16 01:52	1
13C4 PFOS	71		25 - 150				12/08/16 10:40	12/21/16 01:52	1
13C5 PFNA	85		25 - 150				12/08/16 10:40	12/21/16 01:52	1

Client Sample ID: SB0613

Date Collected: 11/29/16 13:22

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-15

Matrix: Solid

Percent Solids: 78.9

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 01:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.15	ug/Kg	☼	12/08/16 10:40	12/21/16 01:59	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 01:59	1
Perfluorooctanoic acid (PFOA)	ND		0.25	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 01:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.25	0.16	ug/Kg	☼	12/08/16 10:40	12/21/16 01:59	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.10	ug/Kg	☼	12/08/16 10:40	12/21/16 01:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	96		25 - 150				12/08/16 10:40	12/21/16 01:59	1
13C4-PFHpA	109		25 - 150				12/08/16 10:40	12/21/16 01:59	1
13C4 PFOA	103		25 - 150				12/08/16 10:40	12/21/16 01:59	1
13C4 PFOS	97		25 - 150				12/08/16 10:40	12/21/16 01:59	1
13C5 PFNA	105		25 - 150				12/08/16 10:40	12/21/16 01:59	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: EQUIPMENT BLANK 01

Date Collected: 11/29/16 14:25

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-16

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.85	ng/L		12/05/16 15:28	12/19/16 06:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.81	ng/L		12/05/16 15:28	12/19/16 06:26	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.75	ng/L		12/05/16 15:28	12/19/16 06:26	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.70	ng/L		12/05/16 15:28	12/19/16 06:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.2	ng/L		12/05/16 15:28	12/19/16 06:26	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.61	ng/L		12/05/16 15:28	12/19/16 06:26	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	131		25 - 150				12/05/16 15:28	12/19/16 06:26	1
18O2 PFHxS	127		25 - 150				12/05/16 15:28	12/19/16 06:26	1
13C4-PFHpA	128		25 - 150				12/05/16 15:28	12/19/16 06:26	1
13C4 PFOA	139		25 - 150				12/05/16 15:28	12/19/16 06:26	1
13C4 PFOS	134		25 - 150				12/05/16 15:28	12/19/16 06:26	1
13C5 PFNA	137		25 - 150				12/05/16 15:28	12/19/16 06:26	1

Client Sample ID: SB0301

Date Collected: 11/29/16 14:55

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-17

Matrix: Solid

Percent Solids: 89.6

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 02:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 02:37	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.097	ug/Kg	☼	12/08/16 10:40	12/21/16 02:37	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 02:37	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.22	0.14	ug/Kg	☼	12/08/16 10:40	12/21/16 02:37	1
Perfluorononanoic acid (PFNA)	0.15	J	0.22	0.092	ug/Kg	☼	12/08/16 10:40	12/21/16 02:37	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	99		25 - 150				12/08/16 10:40	12/21/16 02:37	1
13C4-PFHpA	109		25 - 150				12/08/16 10:40	12/21/16 02:37	1
13C4 PFOA	108		25 - 150				12/08/16 10:40	12/21/16 02:37	1
13C4 PFOS	76		25 - 150				12/08/16 10:40	12/21/16 02:37	1
13C5 PFNA	94		25 - 150				12/08/16 10:40	12/21/16 02:37	1

Client Sample ID: SB0305

Date Collected: 11/29/16 15:10

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-18

Matrix: Solid

Percent Solids: 78.4

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 02:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.15	ug/Kg	☼	12/08/16 10:40	12/21/16 02:44	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 02:44	1
Perfluorooctanoic acid (PFOA)	ND		0.25	0.13	ug/Kg	☼	12/08/16 10:40	12/21/16 02:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.25	0.16	ug/Kg	☼	12/08/16 10:40	12/21/16 02:44	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.11	ug/Kg	☼	12/08/16 10:40	12/21/16 02:44	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	80		25 - 150				12/08/16 10:40	12/21/16 02:44	1
13C4-PFHpA	108		25 - 150				12/08/16 10:40	12/21/16 02:44	1
13C4 PFOA	102		25 - 150				12/08/16 10:40	12/21/16 02:44	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: SB0305
Date Collected: 11/29/16 15:10
Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-18
Matrix: Solid
Percent Solids: 78.4

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOS	79		25 - 150	12/08/16 10:40	12/21/16 02:44	1
13C5 PFNA	106		25 - 150	12/08/16 10:40	12/21/16 02:44	1

- 1
- 2
- 3
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- 7
- 8
- 9
- 10
- 11
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- 13
- 14
- 15

Isotope Dilution Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)				
		¹⁸ O2 PFHx (25-150)	¹³ C4-PFHp (25-150)	¹³ C4 PFO (25-150)	¹³ C4 PFO (25-150)	¹³ C5 PFNA (25-150)
320-23914-10	SB0401	96	108	102	63	77
320-23914-10 MS	SB0401	94	104	97	72	85
320-23914-10 MSD	SB0401	93	106	94	63	80
320-23914-11	SB0412	78	107	103	76	104
320-23914-12	SB0501	103	117	114	105	117
320-23914-13	SB0514	100	116	112	103	112
320-23914-14	SB0601	96	106	102	71	85
320-23914-15	SB0613	96	109	103	97	105
320-23914-17	SB0301	99	109	108	76	94
320-23914-18	SB0305	80	108	102	79	106
LCS 320-141161/2-A	Lab Control Sample	102	111	109	102	108
MB 320-141161/1-A	Method Blank	102	112	112	102	111

Surrogate Legend

- 18O2 PFHxS = 18O2 PFHxS
- 13C4-PFHpA = 13C4-PFHpA
- 13C4 PFOA = 13C4 PFOA
- 13C4 PFOS = 13C4 PFOS
- 13C5 PFNA = 13C5 PFNA

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)					
		¹³ C2 PFHx (25-150)	¹⁸ O2 PFHx (25-150)	¹³ C4-PFHp (25-150)	¹³ C4 PFO (25-150)	¹³ C4 PFO (25-150)	¹³ C5 PFNA (25-150)
320-23914-1	GW0408	87	135	83	70	142	60
320-23914-2	GW0412	102	131	106	95	141	102
320-23914-3	GW0514	88	119	73	47	128	25
320-23914-4	GW0508	105	133	109	98	146	99
320-23914-5	GW0613	103	132	107	94	142	92
320-23914-6	GW0608	94	126	99	89	135	90
320-23914-7	EQUIPMENT BLANK 02	130	127	137	145	137	145
320-23914-8	GW0304	102	127	120	111	133	112
320-23914-9	FIELD BLANK 01	129	127	129	136	131	142
320-23914-16	EQUIPMENT BLANK 01	131	127	128	139	134	137
LCS 320-140687/2-A	Lab Control Sample	122	127	127	134	131	134
LCSD 320-140687/3-A	Lab Control Sample Dup	125	130	129	134	137	135
MB 320-140687/1-A	Method Blank	131	132	134	143	138	138

Surrogate Legend

- 13C2 PFHxA = 13C2 PFHxA
- 18O2 PFHxS = 18O2 PFHxS
- 13C4-PFHpA = 13C4-PFHpA
- 13C4 PFOA = 13C4 PFOA
- 13C4 PFOS = 13C4 PFOS
- 13C5 PFNA = 13C5 PFNA

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-140687/1-A

Matrix: Water

Analysis Batch: 142825

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 140687

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/05/16 15:28	12/19/16 04:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/05/16 15:28	12/19/16 04:26	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		12/05/16 15:28	12/19/16 04:26	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.75	ng/L		12/05/16 15:28	12/19/16 04:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/05/16 15:28	12/19/16 04:26	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		12/05/16 15:28	12/19/16 04:26	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	131		25 - 150	12/05/16 15:28	12/19/16 04:26	1
18O2 PFHxS	132		25 - 150	12/05/16 15:28	12/19/16 04:26	1
13C4-PFHpA	134		25 - 150	12/05/16 15:28	12/19/16 04:26	1
13C4 PFOA	143		25 - 150	12/05/16 15:28	12/19/16 04:26	1
13C4 PFOS	138		25 - 150	12/05/16 15:28	12/19/16 04:26	1
13C5 PFNA	138		25 - 150	12/05/16 15:28	12/19/16 04:26	1

Lab Sample ID: LCS 320-140687/2-A

Matrix: Water

Analysis Batch: 142825

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 140687

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	44.4		ng/L		126	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.3		ng/L		100	58 - 138
Perfluoroheptanoic acid (PFHpA)	40.0	42.7		ng/L		107	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	39.7		ng/L		99	63 - 141
Perfluorooctanesulfonic acid (PFOS)	37.1	38.8		ng/L		105	47 - 162
Perfluorononanoic acid (PFNA)	40.0	40.3		ng/L		101	71 - 140

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	122		25 - 150
18O2 PFHxS	127		25 - 150
13C4-PFHpA	127		25 - 150
13C4 PFOA	134		25 - 150
13C4 PFOS	131		25 - 150
13C5 PFNA	134		25 - 150

Lab Sample ID: LCSD 320-140687/3-A

Matrix: Water

Analysis Batch: 142825

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 140687

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	35.4	47.0		ng/L		133	55 - 147	6	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	39.1		ng/L		108	58 - 138	8	30
Perfluoroheptanoic acid (PFHpA)	40.0	43.7		ng/L		109	63 - 135	2	30
Perfluorooctanoic acid (PFOA)	40.0	41.8		ng/L		104	63 - 141	5	30

TestAmerica Sacramento

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-140687/3-A

Matrix: Water

Analysis Batch: 142825

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 140687

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Perfluorooctanesulfonic acid (PFOS)	37.1	40.5		ng/L		109	47 - 162	4	30	
Perfluorononanoic acid (PFNA)	40.0	43.6		ng/L		109	71 - 140	8	30	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C2 PFHxA	125		25 - 150
18O2 PFHxS	130		25 - 150
13C4-PFHpA	129		25 - 150
13C4 PFOA	134		25 - 150
13C4 PFOS	137		25 - 150
13C5 PFNA	135		25 - 150

Lab Sample ID: MB 320-141161/1-A

Matrix: Solid

Analysis Batch: 143285

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 141161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.12	ug/Kg	12/08/16 10:40	12/21/16 00:52	1	
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.088	ug/Kg	12/08/16 10:40	12/21/16 00:52	1	
Perfluorooctanoic acid (PFOA)	ND		0.20	0.10	ug/Kg	12/08/16 10:40	12/21/16 00:52	1	
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.13	ug/Kg	12/08/16 10:40	12/21/16 00:52	1	
Perfluorononanoic acid (PFNA)	ND		0.20	0.083	ug/Kg	12/08/16 10:40	12/21/16 00:52	1	

Isotope Dilution	MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
18O2 PFHxS	102		25 - 150	12/08/16 10:40	12/21/16 00:52	1
13C4-PFHpA	112		25 - 150	12/08/16 10:40	12/21/16 00:52	1
13C4 PFOA	112		25 - 150	12/08/16 10:40	12/21/16 00:52	1
13C4 PFOS	102		25 - 150	12/08/16 10:40	12/21/16 00:52	1
13C5 PFNA	111		25 - 150	12/08/16 10:40	12/21/16 00:52	1

Lab Sample ID: LCS 320-141161/2-A

Matrix: Solid

Analysis Batch: 143285

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 141161

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	
							Limits	RPD
Perfluorobutanesulfonic acid (PFBS)	3.54	4.08		ug/Kg		115	69 - 139	
Perfluorohexanesulfonic acid (PFHxS)	3.64	3.42		ug/Kg		94	53 - 157	
Perfluoroheptanoic acid (PFHpA)	4.00	3.74		ug/Kg		93	69 - 148	
Perfluorooctanoic acid (PFOA)	4.00	3.63		ug/Kg		91	54 - 144	
Perfluorooctanesulfonic acid (PFOS)	3.71	3.64		ug/Kg		98	47 - 154	
Perfluorononanoic acid (PFNA)	4.00	3.54		ug/Kg		89	75 - 134	

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
18O2 PFHxS	102		25 - 150
13C4-PFHpA	111		25 - 150
13C4 PFOA	109		25 - 150

TestAmerica Sacramento

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-141161/2-A
Matrix: Solid
Analysis Batch: 143285

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 141161

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
13C4 PFOS	102		25 - 150
13C5 PFNA	108		25 - 150

Lab Sample ID: 320-23914-10 MS
Matrix: Solid
Analysis Batch: 143285

Client Sample ID: SB0401
Prep Type: Total/NA
Prep Batch: 141161

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>	
Perfluorobutanesulfonic acid (PFBS)	ND		3.83	4.71		ug/Kg	☼	123	69 - 139	
Perfluorohexanesulfonic acid (PFHxS)	ND		3.94	3.69		ug/Kg	☼	93	53 - 157	
Perfluoroheptanoic acid (PFHpA)	ND		4.33	4.16		ug/Kg	☼	96	69 - 148	
Perfluorooctanoic acid (PFOA)	0.16	J	4.33	4.12		ug/Kg	☼	91	54 - 144	
Perfluorooctanesulfonic acid (PFOS)	ND		4.02	4.10		ug/Kg	☼	102	47 - 154	
Perfluorononanoic acid (PFNA)	ND		4.33	4.00		ug/Kg	☼	92	75 - 134	
<i>Isotope Dilution</i>	<i>MS %Recovery</i>	<i>MS Qualifier</i>	<i>Limits</i>							
18O2 PFHxS	94		25 - 150							
13C4-PFHpa	104		25 - 150							
13C4 PFOA	97		25 - 150							
13C4 PFOS	72		25 - 150							
13C5 PFNA	85		25 - 150							

Lab Sample ID: 320-23914-10 MSD
Matrix: Solid
Analysis Batch: 143285

Client Sample ID: SB0401
Prep Type: Total/NA
Prep Batch: 141161

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>	<i>RPD</i>	<i>Limit</i>
Perfluorobutanesulfonic acid (PFBS)	ND		3.77	4.69		ug/Kg	☼	124	69 - 139	0	30
Perfluorohexanesulfonic acid (PFHxS)	ND		3.88	3.68		ug/Kg	☼	95	53 - 157	0	30
Perfluoroheptanoic acid (PFHpA)	ND		4.27	4.00		ug/Kg	☼	94	69 - 148	4	30
Perfluorooctanoic acid (PFOA)	0.16	J	4.27	4.25		ug/Kg	☼	96	54 - 144	3	30
Perfluorooctanesulfonic acid (PFOS)	ND		3.96	4.10		ug/Kg	☼	104	47 - 154	0	30
Perfluorononanoic acid (PFNA)	ND		4.27	3.76		ug/Kg	☼	88	75 - 134	6	30
<i>Isotope Dilution</i>	<i>MSD %Recovery</i>	<i>MSD Qualifier</i>	<i>Limits</i>								
18O2 PFHxS	93		25 - 150								
13C4-PFHpa	106		25 - 150								
13C4 PFOA	94		25 - 150								
13C4 PFOS	63		25 - 150								
13C5 PFNA	80		25 - 150								

QC Association Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

LCMS

Prep Batch: 140687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23914-1	GW0408	Total/NA	Water	3535	
320-23914-2	GW0412	Total/NA	Water	3535	
320-23914-3	GW0514	Total/NA	Water	3535	
320-23914-4	GW0508	Total/NA	Water	3535	
320-23914-5	GW0613	Total/NA	Water	3535	
320-23914-6	GW0608	Total/NA	Water	3535	
320-23914-7	EQUIPMENT BLANK 02	Total/NA	Water	3535	
320-23914-8	GW0304	Total/NA	Water	3535	
320-23914-9	FIELD BLANK 01	Total/NA	Water	3535	
320-23914-16	EQUIPMENT BLANK 01	Total/NA	Water	3535	
MB 320-140687/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-140687/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-140687/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 141161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23914-10	SB0401	Total/NA	Solid	SHAKE	
320-23914-11	SB0412	Total/NA	Solid	SHAKE	
320-23914-12	SB0501	Total/NA	Solid	SHAKE	
320-23914-13	SB0514	Total/NA	Solid	SHAKE	
320-23914-14	SB0601	Total/NA	Solid	SHAKE	
320-23914-15	SB0613	Total/NA	Solid	SHAKE	
320-23914-17	SB0301	Total/NA	Solid	SHAKE	
320-23914-18	SB0305	Total/NA	Solid	SHAKE	
MB 320-141161/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-141161/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-23914-10 MS	SB0401	Total/NA	Solid	SHAKE	
320-23914-10 MSD	SB0401	Total/NA	Solid	SHAKE	

Analysis Batch: 142825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23914-1	GW0408	Total/NA	Water	537 (modified)	140687
320-23914-2	GW0412	Total/NA	Water	537 (modified)	140687
320-23914-3	GW0514	Total/NA	Water	537 (modified)	140687
320-23914-4	GW0508	Total/NA	Water	537 (modified)	140687
320-23914-5	GW0613	Total/NA	Water	537 (modified)	140687
320-23914-6	GW0608	Total/NA	Water	537 (modified)	140687
320-23914-7	EQUIPMENT BLANK 02	Total/NA	Water	537 (modified)	140687
320-23914-8	GW0304	Total/NA	Water	537 (modified)	140687
320-23914-9	FIELD BLANK 01	Total/NA	Water	537 (modified)	140687
320-23914-16	EQUIPMENT BLANK 01	Total/NA	Water	537 (modified)	140687
MB 320-140687/1-A	Method Blank	Total/NA	Water	537 (modified)	140687
LCS 320-140687/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	140687
LCSD 320-140687/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	140687

Analysis Batch: 143285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23914-10	SB0401	Total/NA	Solid	537 (modified)	141161
320-23914-11	SB0412	Total/NA	Solid	537 (modified)	141161
320-23914-12	SB0501	Total/NA	Solid	537 (modified)	141161
320-23914-13	SB0514	Total/NA	Solid	537 (modified)	141161

TestAmerica Sacramento

QC Association Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

LCMS (Continued)

Analysis Batch: 143285 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23914-14	SB0601	Total/NA	Solid	537 (modified)	141161
320-23914-15	SB0613	Total/NA	Solid	537 (modified)	141161
320-23914-17	SB0301	Total/NA	Solid	537 (modified)	141161
320-23914-18	SB0305	Total/NA	Solid	537 (modified)	141161
MB 320-141161/1-A	Method Blank	Total/NA	Solid	537 (modified)	141161
LCS 320-141161/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	141161
320-23914-10 MS	SB0401	Total/NA	Solid	537 (modified)	141161
320-23914-10 MSD	SB0401	Total/NA	Solid	537 (modified)	141161

General Chemistry

Analysis Batch: 141981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23914-10	SB0401	Total/NA	Solid	D 2216	
320-23914-11	SB0412	Total/NA	Solid	D 2216	
320-23914-12	SB0501	Total/NA	Solid	D 2216	
320-23914-13	SB0514	Total/NA	Solid	D 2216	

Analysis Batch: 141987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23914-14	SB0601	Total/NA	Solid	D 2216	
320-23914-15	SB0613	Total/NA	Solid	D 2216	
320-23914-17	SB0301	Total/NA	Solid	D 2216	
320-23914-18	SB0305	Total/NA	Solid	D 2216	

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: GW0408

Date Collected: 11/29/16 10:40

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			251.1 mL	0.5 mL	140687	12/05/16 15:28	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1			142825	12/19/16 04:49	SBC	TAL SAC

Client Sample ID: GW0412

Date Collected: 11/29/16 10:51

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.8 mL	0.5 mL	140687	12/05/16 15:28	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1			142825	12/19/16 04:56	SBC	TAL SAC

Client Sample ID: GW0514

Date Collected: 11/29/16 12:19

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250.4 mL	0.5 mL	140687	12/05/16 15:28	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1			142825	12/19/16 05:04	SBC	TAL SAC

Client Sample ID: GW0508

Date Collected: 11/29/16 12:30

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250.6 mL	0.5 mL	140687	12/05/16 15:28	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1			142825	12/19/16 05:11	SBC	TAL SAC

Client Sample ID: GW0613

Date Collected: 11/29/16 13:41

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250.2 mL	0.5 mL	140687	12/05/16 15:28	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1			142825	12/19/16 05:19	SBC	TAL SAC

Client Sample ID: GW0608

Date Collected: 11/29/16 13:49

Date Received: 12/01/16 07:40

Lab Sample ID: 320-23914-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250.2 mL	0.5 mL	140687	12/05/16 15:28	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1			142825	12/19/16 05:26	SBC	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: EQUIPMENT BLANK 02

Lab Sample ID: 320-23914-7

Date Collected: 11/29/16 14:34

Matrix: Water

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			250.8 mL	0.5 mL	140687	12/05/16 15:28	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1			142825	12/19/16 05:34	SBC	TAL SAC

Client Sample ID: GW0304

Lab Sample ID: 320-23914-8

Date Collected: 11/29/16 15:40

Matrix: Water

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			249.1 mL	0.5 mL	140687	12/05/16 15:28	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1			142825	12/19/16 06:11	SBC	TAL SAC

Client Sample ID: FIELD BLANK 01

Lab Sample ID: 320-23914-9

Date Collected: 11/29/16 15:50

Matrix: Water

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			266.1 mL	0.5 mL	140687	12/05/16 15:28	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1			142825	12/19/16 06:19	SBC	TAL SAC

Client Sample ID: SB0401

Lab Sample ID: 320-23914-10

Date Collected: 11/29/16 09:02

Matrix: Solid

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB0401

Lab Sample ID: 320-23914-10

Date Collected: 11/29/16 09:02

Matrix: Solid

Date Received: 12/01/16 07:40

Percent Solids: 92.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	1.00 mL	141161	12/08/16 10:40	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143285	12/21/16 01:07	CBW	TAL SAC

Client Sample ID: SB0412

Lab Sample ID: 320-23914-11

Date Collected: 11/29/16 09:38

Matrix: Solid

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: SB0412

Lab Sample ID: 320-23914-11

Date Collected: 11/29/16 09:38

Matrix: Solid

Date Received: 12/01/16 07:40

Percent Solids: 76.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.07 g	1.00 mL	141161	12/08/16 10:40	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143285	12/21/16 01:29	CBW	TAL SAC

Client Sample ID: SB0501

Lab Sample ID: 320-23914-12

Date Collected: 11/29/16 11:36

Matrix: Solid

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB0501

Lab Sample ID: 320-23914-12

Date Collected: 11/29/16 11:36

Matrix: Solid

Date Received: 12/01/16 07:40

Percent Solids: 96.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.03 g	1.00 mL	141161	12/08/16 10:40	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143285	12/21/16 01:37	CBW	TAL SAC

Client Sample ID: SB0514

Lab Sample ID: 320-23914-13

Date Collected: 11/29/16 12:02

Matrix: Solid

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB0514

Lab Sample ID: 320-23914-13

Date Collected: 11/29/16 12:02

Matrix: Solid

Date Received: 12/01/16 07:40

Percent Solids: 75.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.10 g	1.00 mL	141161	12/08/16 10:40	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143285	12/21/16 01:44	CBW	TAL SAC

Client Sample ID: SB0601

Lab Sample ID: 320-23914-14

Date Collected: 11/29/16 13:05

Matrix: Solid

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141987	12/13/16 17:50	CFR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: SB0601

Lab Sample ID: 320-23914-14

Date Collected: 11/29/16 13:05

Matrix: Solid

Date Received: 12/01/16 07:40

Percent Solids: 90.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1.00 mL	141161	12/08/16 10:40	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143285	12/21/16 01:52	CBW	TAL SAC

Client Sample ID: SB0613

Lab Sample ID: 320-23914-15

Date Collected: 11/29/16 13:22

Matrix: Solid

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141987	12/13/16 17:50	CFR	TAL SAC

Client Sample ID: SB0613

Lab Sample ID: 320-23914-15

Date Collected: 11/29/16 13:22

Matrix: Solid

Date Received: 12/01/16 07:40

Percent Solids: 78.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1.00 mL	141161	12/08/16 10:40	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143285	12/21/16 01:59	CBW	TAL SAC

Client Sample ID: EQUIPMENT BLANK 01

Lab Sample ID: 320-23914-16

Date Collected: 11/29/16 14:25

Matrix: Water

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			268.5 mL	0.5 mL	140687	12/05/16 15:28	VPM	TAL SAC
Total/NA	Analysis	537 (modified)		1			142825	12/19/16 06:26	SBC	TAL SAC

Client Sample ID: SB0301

Lab Sample ID: 320-23914-17

Date Collected: 11/29/16 14:55

Matrix: Solid

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141987	12/13/16 17:50	CFR	TAL SAC

Client Sample ID: SB0301

Lab Sample ID: 320-23914-17

Date Collected: 11/29/16 14:55

Matrix: Solid

Date Received: 12/01/16 07:40

Percent Solids: 89.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.04 g	1.00 mL	141161	12/08/16 10:40	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143285	12/21/16 02:37	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Client Sample ID: SB0305

Lab Sample ID: 320-23914-18

Date Collected: 11/29/16 15:10

Matrix: Solid

Date Received: 12/01/16 07:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141987	12/13/16 17:50	CFR	TAL SAC

Client Sample ID: SB0305

Lab Sample ID: 320-23914-18

Date Collected: 11/29/16 15:10

Matrix: Solid

Date Received: 12/01/16 07:40

Percent Solids: 78.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1.00 mL	141161	12/08/16 10:40	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143285	12/21/16 02:44	CBW	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	10-31-17
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-16
Wyoming	State Program	8	8TMS-L	01-29-17

Method Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23914-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-23914-1	GW0408	Water	11/29/16 10:40	12/01/16 07:40
320-23914-2	GW0412	Water	11/29/16 10:51	12/01/16 07:40
320-23914-3	GW0514	Water	11/29/16 12:19	12/01/16 07:40
320-23914-4	GW0508	Water	11/29/16 12:30	12/01/16 07:40
320-23914-5	GW0613	Water	11/29/16 13:41	12/01/16 07:40
320-23914-6	GW0608	Water	11/29/16 13:49	12/01/16 07:40
320-23914-7	EQUIPMENT BLANK 02	Water	11/29/16 14:34	12/01/16 07:40
320-23914-8	GW0304	Water	11/29/16 15:40	12/01/16 07:40
320-23914-9	FIELD BLANK 01	Water	11/29/16 15:50	12/01/16 07:40
320-23914-10	SB0401	Solid	11/29/16 09:02	12/01/16 07:40
320-23914-11	SB0412	Solid	11/29/16 09:38	12/01/16 07:40
320-23914-12	SB0501	Solid	11/29/16 11:36	12/01/16 07:40
320-23914-13	SB0514	Solid	11/29/16 12:02	12/01/16 07:40
320-23914-14	SB0601	Solid	11/29/16 13:05	12/01/16 07:40
320-23914-15	SB0613	Solid	11/29/16 13:22	12/01/16 07:40
320-23914-16	EQUIPMENT BLANK 01	Water	11/29/16 14:25	12/01/16 07:40
320-23914-17	SB0301	Solid	11/29/16 14:55	12/01/16 07:40
320-23914-18	SB0305	Solid	11/29/16 15:10	12/01/16 07:40

Chain of Custody Record

Client Information Client Contact: Katrina Murtice Chelsea Fellows-Stanley Environmental Compliance Services, Inc. Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802 241 4131 Email: cstanley@ecsconsult.com Project Name: Champlain Cable Site: Champlain Cable		Lab PM: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com Carrier Tracking No(s): COC No: 320-13309-3061.5 Page: 5 of 40 Job #: 1072	
Due Date Requested: TAT Requested (days): Normal PO #: 256648 WO #: 32007936 / 08-203006.08 Project #: 32007936 / 08-203006.08 SSOV#:		Analysis Requested PFC_IDA - (MOD) 537 Short List Perform MS/MSD (Yes or No) Field Filtered Sample (Yes or No)	
Sample Identification GW0408 GW0412 GW051A GW0508 GW0613 GW0608 GW06 equipment blank02 GW0304 Field Blank01		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Sample Date 2016 11/29 11/29 11/29 11/29 11/29 11/29 11/29 11/29		Sample Time 1040 1051 1219 1230 1341 1349 1434 1540 1556	
Sample Type (C=comp, G=grab) G G G G G G G G G		Matrix (W=water, S=solid, O=oil, T=tissue, A=air) Water Water Water Water Water Water Water Water Water	
Preservation Code: N X X X X X X X X X		Total Number of Containers X X X X X X X X X	
Special Instructions/Note: 320-23914 Chain of Custody			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) standard			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/OC Requirements:			
Empty Kit Relinquished by: Relinquished by: Katrina Murtice Relinquished by: Chelsea Fellows-Stanley Relinquished by:		Date: 11/29/16 11/30/16 11/30/16 12-1-16	
Relinquished by: Chelsea Fellows-Stanley Relinquished by:		Date/Time: 11/29/16/1710 11/30/16 12-1-16 740	
Company: ATC Company: ATC Company: ATC		Company: ATC Company: ATC Company: ATC	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:	



Client Information Client Contact: Katrina Matherle Chelsea Fellows-Stanley Company: Environmental Compliance Services, Inc. Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802 241 4131 Email: cstanley@ecsconsult.com Project Name: Champlain Cable Site: Champlain Cable			Lab PM: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com Phone: 518 366 5034 Job #: 2012			COC No: 320-13309-3061.7 Page: Page 7 of 10 Center Tracking No(s):		
Due Date Requested: TAT Requested (days): Normal FO #: 256648 MO #: 32007936 / 08-203606.08 Project #: 32007936 SSOVW#			Analysis Requested			Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)		
Sample Identification Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=oil, G=grab, M=metal, A=air) Preservation Code: 2016 11/29 0902 C Soil 11/29 0938 C Soil 11/29 1136 C Soil 11/29 1202 C Soil 11/29 1305 C Soil 11/29 1322 C Soil 11/29 1425 G WASTE 11/29 1455 G Soil 11/29 1510 C Soil 11/29 1510 C Soil 11/29 1510 C Soil			Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) PFC, IDA - (MOD) 537 Short List FOC Lloyd Kahn Method			Total Number of Containers Special Instructions/Note:		
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) Standard			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			Special Instructions/QC Requirements:		
Empty Kit Relinquished by:			Date:			Method of Shipment:		
Relinquished by: Katrina Matherle Date/Time: 11/29/10/1710 Company: ATC			Received by: Chelsea Fellows-Stanley Date/Time: 11/29/10 1710 Company: ATC			Company: ATC		
Relinquished by: Chelsea Fellows-Stanley Date/Time: 11/30/10 Company: ATC			Received by: Fed Ex Date/Time: 12/11/10 740 Company: Fed Ex			Company: Fed Ex		
Relinquished by:			Date/Time:			Company:		
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks:		



Login Sample Receipt Checklist

Client: Environmental Compliance Services, Inc.

Job Number: 320-23914-1

Login Number: 23914
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	False	Refer to Job Narrative for details.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-23992-1
Client Project/Site: Champlain Cable

For:
Environmental Compliance Services, Inc.
1 Elm Street, Suite 3
Waterbury, Vermont 05676

Attn: Chelsea Fellows-Stanley



Authorized for release by:
12/29/2016 1:55:29 PM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Job ID: 320-23992-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 12/2/2016 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0° C.

LCMS

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-140876.

Method(s) 3535: Due to the excessive amount of sediment present in the sample bottles, the aqueous portion of the following samples were decanted to new bottles prior to spiking and extraction:

GW018.5 (320-23992-1), GW1408 (320-23992-2), DUPLICATE (320-23992-3), GW1312 (320-23992-6), GW1012 (320-23992-7), GW1007 (320-23992-8), GW1111.5 (320-23992-9) and GW1118 (320-23992-10)

Method(s) 3535: During the solid phase extraction process, the following sample clogged the cartridge; therefore, a second cartridge was used to complete the extraction: GW018.5 (320-23992-1). Both cartridges were eluted, and the two extracts were combined and concentrated to the appropriate volume. As such, reporting limits (RLs) are not impacted.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: GW018.5

Lab Sample ID: 320-23992-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	4.5		2.0	0.93	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	28		2.0	0.88	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	51		2.0	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	310		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	3.2		2.0	0.66	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	1700		20	7.5	ng/L	10		537 (modified)	Total/NA

Client Sample ID: GW1408

Lab Sample ID: 320-23992-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.96	J	2.0	0.86	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	49		2.0	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	240		2.0	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	7.0		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	25		2.0	0.64	ng/L	1		537 (modified)	Total/NA

Client Sample ID: DUPLICATE

Lab Sample ID: 320-23992-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.89	J	1.9	0.89	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.0	J	1.9	0.85	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	50		1.9	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	250		1.9	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	7.1		1.9	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	25		1.9	0.64	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW1406

Lab Sample ID: 320-23992-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.2	J	2.0	0.90	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.96	J	2.0	0.85	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	33		2.0	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	130		2.0	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.3		2.0	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	18		2.0	0.64	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW1306

Lab Sample ID: 320-23992-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.0	0.90	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.0		2.0	0.86	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	180		2.0	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	9.2		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	23		2.0	0.64	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	650		20	7.4	ng/L	10		537 (modified)	Total/NA

Client Sample ID: GW1312

Lab Sample ID: 320-23992-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	2.1		2.0	0.92	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: GW1312 (Continued)

Lab Sample ID: 320-23992-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.3		2.0	0.87	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	59		2.0	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.1		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	9.8		2.0	0.66	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	1100		20	7.5	ng/L	10		537 (modified)	Total/NA

Client Sample ID: GW1012

Lab Sample ID: 320-23992-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.3	J	2.0	0.92	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.1		2.0	0.87	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	57		2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.0		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.1		2.0	0.66	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	2000		20	7.5	ng/L	10		537 (modified)	Total/NA

Client Sample ID: GW1007

Lab Sample ID: 320-23992-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.3	J	2.0	0.91	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	2.0	0.86	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	36		2.0	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	370		2.0	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.2		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	12		2.0	0.65	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW1111.5

Lab Sample ID: 320-23992-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	2.0	0.88	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	21		2.0	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	220		2.0	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.0	J	2.0	0.66	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW1118

Lab Sample ID: 320-23992-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	1.3	J	2.0	0.86	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	23		2.0	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	230		2.0	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.6	J	2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.3	J	2.0	0.64	ng/L	1		537 (modified)	Total/NA

Client Sample ID: SB0101

Lab Sample ID: 320-23992-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.31		0.22	0.11	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.16	J	0.22	0.14	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB019.5

Lab Sample ID: 320-23992-12

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB019.5 (Continued)

Lab Sample ID: 320-23992-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.2		0.26	0.13	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.20	J	0.26	0.16	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB0201

Lab Sample ID: 320-23992-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.19	J	0.23	0.12	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB0205

Lab Sample ID: 320-23992-14

No Detections.

Client Sample ID: SB1401

Lab Sample ID: 320-23992-15

No Detections.

Client Sample ID: SB1409

Lab Sample ID: 320-23992-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.17	J	0.28	0.14	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB1301

Lab Sample ID: 320-23992-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.49		0.24	0.12	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.11	J	0.24	0.098	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB1312

Lab Sample ID: 320-23992-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.54		0.27	0.14	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB1001

Lab Sample ID: 320-23992-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.98		0.22	0.11	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5		0.22	0.14	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB1012

Lab Sample ID: 320-23992-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.61		0.26	0.13	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB1101

Lab Sample ID: 320-23992-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.69		0.21	0.11	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB1118

Lab Sample ID: 320-23992-22

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB1118 (Continued)

Lab Sample ID: 320-23992-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.17	J	0.25	0.13	ug/Kg	1	☼	537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

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Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: GW018.5

Date Collected: 11/30/16 08:44

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-1

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	4.5		2.0	0.93	ng/L		12/06/16 15:48	12/22/16 20:27	1
Perfluorohexanesulfonic acid (PFHxS)	28		2.0	0.88	ng/L		12/06/16 15:48	12/22/16 20:27	1
Perfluoroheptanoic acid (PFHpA)	51		2.0	0.81	ng/L		12/06/16 15:48	12/22/16 20:27	1
Perfluorooctanesulfonic acid (PFOS)	310		2.0	1.3	ng/L		12/06/16 15:48	12/22/16 20:27	1
Perfluorononanoic acid (PFNA)	3.2		2.0	0.66	ng/L		12/06/16 15:48	12/22/16 20:27	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	126		25 - 150				12/06/16 15:48	12/22/16 20:27	1
13C4-PFHxS	111		25 - 150				12/06/16 15:48	12/22/16 20:27	1
13C4 PFOS	119		25 - 150				12/06/16 15:48	12/22/16 20:27	1
13C5 PFNA	100		25 - 150				12/06/16 15:48	12/22/16 20:27	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1700		20	7.5	ng/L		12/06/16 15:48	12/23/16 20:14	10
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	83		25 - 150				12/06/16 15:48	12/23/16 20:14	10

Client Sample ID: GW1408

Date Collected: 11/30/16 11:50

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-2

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.90	ng/L		12/06/16 15:48	12/22/16 20:35	1
Perfluorohexanesulfonic acid (PFHxS)	0.96	J	2.0	0.86	ng/L		12/06/16 15:48	12/22/16 20:35	1
Perfluoroheptanoic acid (PFHpA)	49		2.0	0.79	ng/L		12/06/16 15:48	12/22/16 20:35	1
Perfluorooctanoic acid (PFOA)	240		2.0	0.74	ng/L		12/06/16 15:48	12/22/16 20:35	1
Perfluorooctanesulfonic acid (PFOS)	7.0		2.0	1.3	ng/L		12/06/16 15:48	12/22/16 20:35	1
Perfluorononanoic acid (PFNA)	25		2.0	0.64	ng/L		12/06/16 15:48	12/22/16 20:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	116		25 - 150				12/06/16 15:48	12/22/16 20:35	1
13C4-PFHxS	90		25 - 150				12/06/16 15:48	12/22/16 20:35	1
13C4 PFOA	78		25 - 150				12/06/16 15:48	12/22/16 20:35	1
13C4 PFOS	120		25 - 150				12/06/16 15:48	12/22/16 20:35	1
13C5 PFNA	86		25 - 150				12/06/16 15:48	12/22/16 20:35	1

Client Sample ID: DUPLICATE

Date Collected: 11/30/16 00:00

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-3

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	0.89	J	1.9	0.89	ng/L		12/06/16 15:48	12/22/16 20:42	1
Perfluorohexanesulfonic acid (PFHxS)	1.0	J	1.9	0.85	ng/L		12/06/16 15:48	12/22/16 20:42	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: DUPLICATE

Date Collected: 11/30/16 00:00

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-3

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	50		1.9	0.78	ng/L		12/06/16 15:48	12/22/16 20:42	1
Perfluorooctanoic acid (PFOA)	250		1.9	0.73	ng/L		12/06/16 15:48	12/22/16 20:42	1
Perfluorooctanesulfonic acid (PFOS)	7.1		1.9	1.2	ng/L		12/06/16 15:48	12/22/16 20:42	1
Perfluorononanoic acid (PFNA)	25		1.9	0.64	ng/L		12/06/16 15:48	12/22/16 20:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	114		25 - 150				12/06/16 15:48	12/22/16 20:42	1
13C4-PFHpA	92		25 - 150				12/06/16 15:48	12/22/16 20:42	1
13C4 PFOA	78		25 - 150				12/06/16 15:48	12/22/16 20:42	1
13C4 PFOS	120		25 - 150				12/06/16 15:48	12/22/16 20:42	1
13C5 PFNA	81		25 - 150				12/06/16 15:48	12/22/16 20:42	1

Client Sample ID: GW1406

Date Collected: 11/30/16 11:54

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-4

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.2	J	2.0	0.90	ng/L		12/06/16 15:48	12/22/16 20:50	1
Perfluorohexanesulfonic acid (PFHxS)	0.96	J	2.0	0.85	ng/L		12/06/16 15:48	12/22/16 20:50	1
Perfluoroheptanoic acid (PFHpA)	33		2.0	0.78	ng/L		12/06/16 15:48	12/22/16 20:50	1
Perfluorooctanoic acid (PFOA)	130		2.0	0.73	ng/L		12/06/16 15:48	12/22/16 20:50	1
Perfluorooctanesulfonic acid (PFOS)	6.3		2.0	1.2	ng/L		12/06/16 15:48	12/22/16 20:50	1
Perfluorononanoic acid (PFNA)	18		2.0	0.64	ng/L		12/06/16 15:48	12/22/16 20:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	122		25 - 150				12/06/16 15:48	12/22/16 20:50	1
13C4-PFHpA	98		25 - 150				12/06/16 15:48	12/22/16 20:50	1
13C4 PFOA	79		25 - 150				12/06/16 15:48	12/22/16 20:50	1
13C4 PFOS	130		25 - 150				12/06/16 15:48	12/22/16 20:50	1
13C5 PFNA	66		25 - 150				12/06/16 15:48	12/22/16 20:50	1

Client Sample ID: GW1306

Date Collected: 11/30/16 13:06

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-5

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.0	0.90	ng/L		12/06/16 15:48	12/22/16 20:57	1
Perfluorohexanesulfonic acid (PFHxS)	2.0		2.0	0.86	ng/L		12/06/16 15:48	12/22/16 20:57	1
Perfluoroheptanoic acid (PFHpA)	180		2.0	0.79	ng/L		12/06/16 15:48	12/22/16 20:57	1
Perfluorooctanesulfonic acid (PFOS)	9.2		2.0	1.3	ng/L		12/06/16 15:48	12/22/16 20:57	1
Perfluorononanoic acid (PFNA)	23		2.0	0.64	ng/L		12/06/16 15:48	12/22/16 20:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	115		25 - 150				12/06/16 15:48	12/22/16 20:57	1
13C4-PFHpA	101		25 - 150				12/06/16 15:48	12/22/16 20:57	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: GW1306

Date Collected: 11/30/16 13:06

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-5

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	128		25 - 150	12/06/16 15:48	12/22/16 20:57	1
13C5 PFNA	92		25 - 150	12/06/16 15:48	12/22/16 20:57	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	650		20	7.4	ng/L		12/06/16 15:48	12/23/16 20:22	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	89		25 - 150	12/06/16 15:48	12/23/16 20:22	10

Client Sample ID: GW1312

Date Collected: 11/30/16 13:08

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-6

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	2.1		2.0	0.92	ng/L		12/06/16 15:48	12/22/16 21:05	1
Perfluorohexanesulfonic acid (PFHxS)	2.3		2.0	0.87	ng/L		12/06/16 15:48	12/22/16 21:05	1
Perfluoroheptanoic acid (PFHpA)	59		2.0	0.81	ng/L		12/06/16 15:48	12/22/16 21:05	1
Perfluorooctanesulfonic acid (PFOS)	6.1		2.0	1.3	ng/L		12/06/16 15:48	12/22/16 21:05	1
Perfluorononanoic acid (PFNA)	9.8		2.0	0.66	ng/L		12/06/16 15:48	12/22/16 21:05	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	123		25 - 150	12/06/16 15:48	12/22/16 21:05	1
13C4-PFHpA	115		25 - 150	12/06/16 15:48	12/22/16 21:05	1
13C4 PFOS	136		25 - 150	12/06/16 15:48	12/22/16 21:05	1
13C5 PFNA	115		25 - 150	12/06/16 15:48	12/22/16 21:05	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1100		20	7.5	ng/L		12/06/16 15:48	12/23/16 20:29	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	95		25 - 150	12/06/16 15:48	12/23/16 20:29	10

Client Sample ID: GW1012

Date Collected: 11/30/16 13:58

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-7

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.3	J	2.0	0.92	ng/L		12/06/16 15:48	12/22/16 21:13	1
Perfluorohexanesulfonic acid (PFHxS)	2.1		2.0	0.87	ng/L		12/06/16 15:48	12/22/16 21:13	1
Perfluoroheptanoic acid (PFHpA)	57		2.0	0.80	ng/L		12/06/16 15:48	12/22/16 21:13	1
Perfluorooctanesulfonic acid (PFOS)	2.0		2.0	1.3	ng/L		12/06/16 15:48	12/22/16 21:13	1
Perfluorononanoic acid (PFNA)	2.1		2.0	0.66	ng/L		12/06/16 15:48	12/22/16 21:13	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	112		25 - 150	12/06/16 15:48	12/22/16 21:13	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: GW1012

Lab Sample ID: 320-23992-7

Date Collected: 11/30/16 13:58

Matrix: Water

Date Received: 12/02/16 09:40

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4-PFHpA	105		25 - 150	12/06/16 15:48	12/22/16 21:13	1
13C4 PFOS	118		25 - 150	12/06/16 15:48	12/22/16 21:13	1
13C5 PFNA	121		25 - 150	12/06/16 15:48	12/22/16 21:13	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	2000		20	7.5	ng/L		12/06/16 15:48	12/23/16 20:37	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	97		25 - 150	12/06/16 15:48	12/23/16 20:37	10

Client Sample ID: GW1007

Lab Sample ID: 320-23992-8

Date Collected: 11/30/16 14:00

Matrix: Water

Date Received: 12/02/16 09:40

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.3	J	2.0	0.91	ng/L		12/06/16 15:48	12/22/16 21:50	1
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	2.0	0.86	ng/L		12/06/16 15:48	12/22/16 21:50	1
Perfluoroheptanoic acid (PFHpA)	36		2.0	0.79	ng/L		12/06/16 15:48	12/22/16 21:50	1
Perfluorooctanoic acid (PFOA)	370		2.0	0.74	ng/L		12/06/16 15:48	12/22/16 21:50	1
Perfluorooctanesulfonic acid (PFOS)	8.2		2.0	1.3	ng/L		12/06/16 15:48	12/22/16 21:50	1
Perfluorononanoic acid (PFNA)	12		2.0	0.65	ng/L		12/06/16 15:48	12/22/16 21:50	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	120		25 - 150	12/06/16 15:48	12/22/16 21:50	1
13C4-PFHpA	109		25 - 150	12/06/16 15:48	12/22/16 21:50	1
13C4 PFOA	89		25 - 150	12/06/16 15:48	12/22/16 21:50	1
13C4 PFOS	132		25 - 150	12/06/16 15:48	12/22/16 21:50	1
13C5 PFNA	107		25 - 150	12/06/16 15:48	12/22/16 21:50	1

Client Sample ID: GW1111.5

Lab Sample ID: 320-23992-9

Date Collected: 11/30/16 15:18

Matrix: Water

Date Received: 12/02/16 09:40

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/06/16 15:48	12/22/16 21:58	1
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	2.0	0.88	ng/L		12/06/16 15:48	12/22/16 21:58	1
Perfluoroheptanoic acid (PFHpA)	21		2.0	0.81	ng/L		12/06/16 15:48	12/22/16 21:58	1
Perfluorooctanoic acid (PFOA)	220		2.0	0.75	ng/L		12/06/16 15:48	12/22/16 21:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/06/16 15:48	12/22/16 21:58	1
Perfluorononanoic acid (PFNA)	1.0	J	2.0	0.66	ng/L		12/06/16 15:48	12/22/16 21:58	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	122		25 - 150	12/06/16 15:48	12/22/16 21:58	1
13C4-PFHpA	110		25 - 150	12/06/16 15:48	12/22/16 21:58	1
13C4 PFOA	96		25 - 150	12/06/16 15:48	12/22/16 21:58	1
13C4 PFOS	129		25 - 150	12/06/16 15:48	12/22/16 21:58	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: GW1111.5

Date Collected: 11/30/16 15:18

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-9

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	108		25 - 150	12/06/16 15:48	12/22/16 21:58	1

Client Sample ID: GW1118

Date Collected: 11/30/16 15:21

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-10

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.90	ng/L		12/06/16 15:48	12/22/16 22:05	1
Perfluorohexanesulfonic acid (PFHxS)	1.3	J	2.0	0.86	ng/L		12/06/16 15:48	12/22/16 22:05	1
Perfluoroheptanoic acid (PFHpA)	23		2.0	0.79	ng/L		12/06/16 15:48	12/22/16 22:05	1
Perfluorooctanoic acid (PFOA)	230		2.0	0.74	ng/L		12/06/16 15:48	12/22/16 22:05	1
Perfluorooctanesulfonic acid (PFOS)	1.6	J	2.0	1.3	ng/L		12/06/16 15:48	12/22/16 22:05	1
Perfluorononanoic acid (PFNA)	1.3	J	2.0	0.64	ng/L		12/06/16 15:48	12/22/16 22:05	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
18O2 PFHxS	119		25 - 150	12/06/16 15:48	12/22/16 22:05	1			
13C4-PFHpA	108		25 - 150	12/06/16 15:48	12/22/16 22:05	1			
13C4 PFOA	93		25 - 150	12/06/16 15:48	12/22/16 22:05	1			
13C4 PFOS	124		25 - 150	12/06/16 15:48	12/22/16 22:05	1			
13C5 PFNA	100		25 - 150	12/06/16 15:48	12/22/16 22:05	1			

Client Sample ID: SB0101

Date Collected: 11/30/16 08:15

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-11

Matrix: Solid
Percent Solids: 89.2

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.12	ug/Kg	☼	12/09/16 12:21	12/22/16 22:28	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.13	ug/Kg	☼	12/09/16 12:21	12/22/16 22:28	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.098	ug/Kg	☼	12/09/16 12:21	12/22/16 22:28	1
Perfluorooctanoic acid (PFOA)	0.31		0.22	0.11	ug/Kg	☼	12/09/16 12:21	12/22/16 22:28	1
Perfluorooctanesulfonic acid (PFOS)	0.16	J	0.22	0.14	ug/Kg	☼	12/09/16 12:21	12/22/16 22:28	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.093	ug/Kg	☼	12/09/16 12:21	12/22/16 22:28	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
18O2 PFHxS	115		25 - 150	12/09/16 12:21	12/22/16 22:28	1			
13C4-PFHpA	124		25 - 150	12/09/16 12:21	12/22/16 22:28	1			
13C4 PFOA	127		25 - 150	12/09/16 12:21	12/22/16 22:28	1			
13C4 PFOS	108		25 - 150	12/09/16 12:21	12/22/16 22:28	1			
13C5 PFNA	126		25 - 150	12/09/16 12:21	12/22/16 22:28	1			

Client Sample ID: SB019.5

Date Collected: 11/30/16 08:28

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-12

Matrix: Solid
Percent Solids: 75.8

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.26	0.13	ug/Kg	☼	12/09/16 12:21	12/22/16 22:50	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB019.5

Date Collected: 11/30/16 08:28

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-12

Matrix: Solid

Percent Solids: 75.8

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	ND		0.26	0.15	ug/Kg	☼	12/09/16 12:21	12/22/16 22:50	1
Perfluoroheptanoic acid (PFHpA)	ND		0.26	0.11	ug/Kg	☼	12/09/16 12:21	12/22/16 22:50	1
Perfluorooctanoic acid (PFOA)	1.2		0.26	0.13	ug/Kg	☼	12/09/16 12:21	12/22/16 22:50	1
Perfluorooctanesulfonic acid (PFOS)	0.20	J	0.26	0.16	ug/Kg	☼	12/09/16 12:21	12/22/16 22:50	1
Perfluorononanoic acid (PFNA)	ND		0.26	0.11	ug/Kg	☼	12/09/16 12:21	12/22/16 22:50	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	85		25 - 150				12/09/16 12:21	12/22/16 22:50	1
13C4-PFHpA	113		25 - 150				12/09/16 12:21	12/22/16 22:50	1
13C4 PFOA	104		25 - 150				12/09/16 12:21	12/22/16 22:50	1
13C4 PFOS	81		25 - 150				12/09/16 12:21	12/22/16 22:50	1
13C5 PFNA	104		25 - 150				12/09/16 12:21	12/22/16 22:50	1

Client Sample ID: SB0201

Date Collected: 11/30/16 10:27

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-13

Matrix: Solid

Percent Solids: 89.2

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.12	ug/Kg	☼	12/09/16 12:21	12/22/16 22:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.13	ug/Kg	☼	12/09/16 12:21	12/22/16 22:58	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.10	ug/Kg	☼	12/09/16 12:21	12/22/16 22:58	1
Perfluorooctanoic acid (PFOA)	0.19	J	0.23	0.12	ug/Kg	☼	12/09/16 12:21	12/22/16 22:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.23	0.14	ug/Kg	☼	12/09/16 12:21	12/22/16 22:58	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.094	ug/Kg	☼	12/09/16 12:21	12/22/16 22:58	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	114		25 - 150				12/09/16 12:21	12/22/16 22:58	1
13C4-PFHpA	122		25 - 150				12/09/16 12:21	12/22/16 22:58	1
13C4 PFOA	128		25 - 150				12/09/16 12:21	12/22/16 22:58	1
13C4 PFOS	115		25 - 150				12/09/16 12:21	12/22/16 22:58	1
13C5 PFNA	125		25 - 150				12/09/16 12:21	12/22/16 22:58	1

Client Sample ID: SB0205

Date Collected: 11/30/16 10:42

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-14

Matrix: Solid

Percent Solids: 77.3

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.26	0.13	ug/Kg	☼	12/09/16 12:21	12/22/16 23:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.26	0.15	ug/Kg	☼	12/09/16 12:21	12/22/16 23:35	1
Perfluoroheptanoic acid (PFHpA)	ND		0.26	0.11	ug/Kg	☼	12/09/16 12:21	12/22/16 23:35	1
Perfluorooctanoic acid (PFOA)	ND		0.26	0.13	ug/Kg	☼	12/09/16 12:21	12/22/16 23:35	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.26	0.16	ug/Kg	☼	12/09/16 12:21	12/22/16 23:35	1
Perfluorononanoic acid (PFNA)	ND		0.26	0.11	ug/Kg	☼	12/09/16 12:21	12/22/16 23:35	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	93		25 - 150				12/09/16 12:21	12/22/16 23:35	1
13C4-PFHpA	128		25 - 150				12/09/16 12:21	12/22/16 23:35	1
13C4 PFOA	117		25 - 150				12/09/16 12:21	12/22/16 23:35	1
13C4 PFOS	86		25 - 150				12/09/16 12:21	12/22/16 23:35	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB0205

Date Collected: 11/30/16 10:42

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-14

Matrix: Solid

Percent Solids: 77.3

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C5 PFNA	116		25 - 150	12/09/16 12:21	12/22/16 23:35	1

Client Sample ID: SB1401

Date Collected: 11/30/16 11:20

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-15

Matrix: Solid

Percent Solids: 95.3

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.11	ug/Kg	☼	12/09/16 12:21	12/22/16 23:43	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.12	ug/Kg	☼	12/09/16 12:21	12/22/16 23:43	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.091	ug/Kg	☼	12/09/16 12:21	12/22/16 23:43	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.11	ug/Kg	☼	12/09/16 12:21	12/22/16 23:43	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.21	0.13	ug/Kg	☼	12/09/16 12:21	12/22/16 23:43	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.086	ug/Kg	☼	12/09/16 12:21	12/22/16 23:43	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	127		25 - 150				12/09/16 12:21	12/22/16 23:43	1
13C4-PFHpA	142		25 - 150				12/09/16 12:21	12/22/16 23:43	1
13C4 PFOA	132		25 - 150				12/09/16 12:21	12/22/16 23:43	1
13C4 PFOS	120		25 - 150				12/09/16 12:21	12/22/16 23:43	1
13C5 PFNA	124		25 - 150				12/09/16 12:21	12/22/16 23:43	1

Client Sample ID: SB1409

Date Collected: 11/30/16 11:45

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-16

Matrix: Solid

Percent Solids: 72.9

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.28	0.14	ug/Kg	☼	12/09/16 12:21	12/22/16 23:50	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.28	0.16	ug/Kg	☼	12/09/16 12:21	12/22/16 23:50	1
Perfluoroheptanoic acid (PFHpA)	ND		0.28	0.12	ug/Kg	☼	12/09/16 12:21	12/22/16 23:50	1
Perfluorooctanoic acid (PFOA)	0.17	J	0.28	0.14	ug/Kg	☼	12/09/16 12:21	12/22/16 23:50	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.28	0.18	ug/Kg	☼	12/09/16 12:21	12/22/16 23:50	1
Perfluorononanoic acid (PFNA)	ND		0.28	0.12	ug/Kg	☼	12/09/16 12:21	12/22/16 23:50	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	109		25 - 150				12/09/16 12:21	12/22/16 23:50	1
13C4-PFHpA	135		25 - 150				12/09/16 12:21	12/22/16 23:50	1
13C4 PFOA	126		25 - 150				12/09/16 12:21	12/22/16 23:50	1
13C4 PFOS	108		25 - 150				12/09/16 12:21	12/22/16 23:50	1
13C5 PFNA	123		25 - 150				12/09/16 12:21	12/22/16 23:50	1

Client Sample ID: SB1301

Date Collected: 11/30/16 12:42

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-17

Matrix: Solid

Percent Solids: 84.5

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.12	ug/Kg	☼	12/09/16 12:21	12/22/16 23:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.14	ug/Kg	☼	12/09/16 12:21	12/22/16 23:58	1
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.10	ug/Kg	☼	12/09/16 12:21	12/22/16 23:58	1
Perfluorooctanoic acid (PFOA)	0.49		0.24	0.12	ug/Kg	☼	12/09/16 12:21	12/22/16 23:58	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB1301

Date Collected: 11/30/16 12:42

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-17

Matrix: Solid

Percent Solids: 84.5

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		0.24	0.15	ug/Kg	☼	12/09/16 12:21	12/22/16 23:58	1
Perfluorononanoic acid (PFNA)	0.11	J	0.24	0.098	ug/Kg	☼	12/09/16 12:21	12/22/16 23:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	101		25 - 150				12/09/16 12:21	12/22/16 23:58	1
13C4-PFHpA	116		25 - 150				12/09/16 12:21	12/22/16 23:58	1
13C4 PFOA	88		25 - 150				12/09/16 12:21	12/22/16 23:58	1
13C4 PFOS	47		25 - 150				12/09/16 12:21	12/22/16 23:58	1
13C5 PFNA	57		25 - 150				12/09/16 12:21	12/22/16 23:58	1

Client Sample ID: SB1312

Date Collected: 11/30/16 12:58

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-18

Matrix: Solid

Percent Solids: 73.6

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.27	0.14	ug/Kg	☼	12/09/16 12:21	12/23/16 00:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.27	0.16	ug/Kg	☼	12/09/16 12:21	12/23/16 00:05	1
Perfluoroheptanoic acid (PFHpA)	ND		0.27	0.12	ug/Kg	☼	12/09/16 12:21	12/23/16 00:05	1
Perfluorooctanoic acid (PFOA)	0.54		0.27	0.14	ug/Kg	☼	12/09/16 12:21	12/23/16 00:05	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.27	0.17	ug/Kg	☼	12/09/16 12:21	12/23/16 00:05	1
Perfluorononanoic acid (PFNA)	ND		0.27	0.11	ug/Kg	☼	12/09/16 12:21	12/23/16 00:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	95		25 - 150				12/09/16 12:21	12/23/16 00:05	1
13C4-PFHpA	110		25 - 150				12/09/16 12:21	12/23/16 00:05	1
13C4 PFOA	97		25 - 150				12/09/16 12:21	12/23/16 00:05	1
13C4 PFOS	93		25 - 150				12/09/16 12:21	12/23/16 00:05	1
13C5 PFNA	98		25 - 150				12/09/16 12:21	12/23/16 00:05	1

Client Sample ID: SB1001

Date Collected: 11/30/16 13:40

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-19

Matrix: Solid

Percent Solids: 94.0

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.11	ug/Kg	☼	12/09/16 12:21	12/23/16 00:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.13	ug/Kg	☼	12/09/16 12:21	12/23/16 00:13	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.095	ug/Kg	☼	12/09/16 12:21	12/23/16 00:13	1
Perfluorooctanoic acid (PFOA)	0.98		0.22	0.11	ug/Kg	☼	12/09/16 12:21	12/23/16 00:13	1
Perfluorooctanesulfonic acid (PFOS)	2.5		0.22	0.14	ug/Kg	☼	12/09/16 12:21	12/23/16 00:13	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.089	ug/Kg	☼	12/09/16 12:21	12/23/16 00:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	120		25 - 150				12/09/16 12:21	12/23/16 00:13	1
13C4-PFHpA	133		25 - 150				12/09/16 12:21	12/23/16 00:13	1
13C4 PFOA	123		25 - 150				12/09/16 12:21	12/23/16 00:13	1
13C4 PFOS	92		25 - 150				12/09/16 12:21	12/23/16 00:13	1
13C5 PFNA	101		25 - 150				12/09/16 12:21	12/23/16 00:13	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB1012

Date Collected: 11/30/16 13:51

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-20

Matrix: Solid

Percent Solids: 77.3

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.26	0.14	ug/Kg	☼	12/09/16 12:21	12/23/16 00:20	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.26	0.15	ug/Kg	☼	12/09/16 12:21	12/23/16 00:20	1
Perfluoroheptanoic acid (PFHpA)	ND		0.26	0.12	ug/Kg	☼	12/09/16 12:21	12/23/16 00:20	1
Perfluorooctanoic acid (PFOA)	0.61		0.26	0.13	ug/Kg	☼	12/09/16 12:21	12/23/16 00:20	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.26	0.17	ug/Kg	☼	12/09/16 12:21	12/23/16 00:20	1
Perfluorononanoic acid (PFNA)	ND		0.26	0.11	ug/Kg	☼	12/09/16 12:21	12/23/16 00:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	121		25 - 150				12/09/16 12:21	12/23/16 00:20	1
13C4-PFHpA	130		25 - 150				12/09/16 12:21	12/23/16 00:20	1
13C4 PFOA	120		25 - 150				12/09/16 12:21	12/23/16 00:20	1
13C4 PFOS	120		25 - 150				12/09/16 12:21	12/23/16 00:20	1
13C5 PFNA	115		25 - 150				12/09/16 12:21	12/23/16 00:20	1

Client Sample ID: SB1101

Date Collected: 11/30/16 14:55

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-21

Matrix: Solid

Percent Solids: 93.7

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.11	ug/Kg	☼	12/09/16 12:21	12/23/16 00:28	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.13	ug/Kg	☼	12/09/16 12:21	12/23/16 00:28	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.094	ug/Kg	☼	12/09/16 12:21	12/23/16 00:28	1
Perfluorooctanoic acid (PFOA)	0.69		0.21	0.11	ug/Kg	☼	12/09/16 12:21	12/23/16 00:28	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.21	0.13	ug/Kg	☼	12/09/16 12:21	12/23/16 00:28	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.088	ug/Kg	☼	12/09/16 12:21	12/23/16 00:28	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	123		25 - 150				12/09/16 12:21	12/23/16 00:28	1
13C4-PFHpA	136		25 - 150				12/09/16 12:21	12/23/16 00:28	1
13C4 PFOA	136		25 - 150				12/09/16 12:21	12/23/16 00:28	1
13C4 PFOS	113		25 - 150				12/09/16 12:21	12/23/16 00:28	1
13C5 PFNA	130		25 - 150				12/09/16 12:21	12/23/16 00:28	1

Client Sample ID: SB1118

Date Collected: 11/30/16 15:10

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-22

Matrix: Solid

Percent Solids: 79.4

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.13	ug/Kg	☼	12/09/16 12:23	12/23/16 00:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.15	ug/Kg	☼	12/09/16 12:23	12/23/16 00:35	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.11	ug/Kg	☼	12/09/16 12:23	12/23/16 00:35	1
Perfluorooctanoic acid (PFOA)	0.17	J	0.25	0.13	ug/Kg	☼	12/09/16 12:23	12/23/16 00:35	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.25	0.16	ug/Kg	☼	12/09/16 12:23	12/23/16 00:35	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.10	ug/Kg	☼	12/09/16 12:23	12/23/16 00:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	97		25 - 150				12/09/16 12:23	12/23/16 00:35	1
13C4-PFHpA	134		25 - 150				12/09/16 12:23	12/23/16 00:35	1
13C4 PFOA	124		25 - 150				12/09/16 12:23	12/23/16 00:35	1
13C4 PFOS	95		25 - 150				12/09/16 12:23	12/23/16 00:35	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB1118
Date Collected: 11/30/16 15:10
Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-22
Matrix: Solid
Percent Solids: 79.4

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C5 PFNA	121		25 - 150

<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
12/09/16 12:23	12/23/16 00:35	1

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Isotope Dilution Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)				
		¹⁸ O2 PFHx (25-150)	¹³ C4-PFHp (25-150)	¹³ C4 PFO (25-150)	¹³ C4 PFO (25-150)	¹³ C5 PFNA (25-150)
320-23992-11	SB0101	115	124	127	108	126
320-23992-11 MS	SB0101	100	110	90	51	59
320-23992-11 MSD	SB0101	95	104	86	50	60
320-23992-12	SB019.5	85	113	104	81	104
320-23992-13	SB0201	114	122	128	115	125
320-23992-14	SB0205	93	128	117	86	116
320-23992-15	SB1401	127	142	132	120	124
320-23992-16	SB1409	109	135	126	108	123
320-23992-17	SB1301	101	116	88	47	57
320-23992-18	SB1312	95	110	97	93	98
320-23992-19	SB1001	120	133	123	92	101
320-23992-20	SB1012	121	130	120	120	115
320-23992-21	SB1101	123	136	136	113	130
320-23992-22	SB1118	97	134	124	95	121
LCS 320-141456/2-A	Lab Control Sample	105	107	94	105	94
MB 320-141456/1-A	Method Blank	116	130	120	111	115

Surrogate Legend

- ¹⁸O2 PFHxS = ¹⁸O2 PFHxS
- ¹³C4-PFHpA = ¹³C4-PFHpA
- ¹³C4 PFOA = ¹³C4 PFOA
- ¹³C4 PFOS = ¹³C4 PFOS
- ¹³C5 PFNA = ¹³C5 PFNA

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)				
		¹⁸ O2 PFHx (25-150)	¹³ C4-PFHp (25-150)	¹³ C4 PFO (25-150)	¹³ C4 PFO (25-150)	¹³ C5 PFNA (25-150)
320-23992-1	GW018.5	126	111		119	100
320-23992-1 - DL	GW018.5			83		
320-23992-2	GW1408	116	90	78	120	86
320-23992-3	DUPLICATE	114	92	78	120	81
320-23992-4	GW1406	122	98	79	130	66
320-23992-5	GW1306	115	101		128	92
320-23992-5 - DL	GW1306			89		
320-23992-6	GW1312	123	115		136	115
320-23992-6 - DL	GW1312			95		
320-23992-7	GW1012	112	105		118	121
320-23992-7 - DL	GW1012			97		
320-23992-8	GW1007	120	109	89	132	107
320-23992-9	GW1111.5	122	110	96	129	108
320-23992-10	GW1118	119	108	93	124	100
LCS 320-140876/2-A	Lab Control Sample	126	135	134	130	125
LCSD 320-140876/3-A	Lab Control Sample Dup	125	129	127	128	123
MB 320-140876/1-A	Method Blank	123	129	132	124	124

Surrogate Legend

- ¹⁸O2 PFHxS = ¹⁸O2 PFHxS

TestAmerica Sacramento

Isotope Dilution Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

13C4-PFHpA = 13C4-PFHpA
13C4 PFOA = 13C4 PFOA
13C4 PFOS = 13C4 PFOS
13C5 PFNA = 13C5 PFNA

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QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-140876/1-A

Matrix: Water

Analysis Batch: 143678

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 140876

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/06/16 15:48	12/22/16 20:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/06/16 15:48	12/22/16 20:05	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		12/06/16 15:48	12/22/16 20:05	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.75	ng/L		12/06/16 15:48	12/22/16 20:05	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/06/16 15:48	12/22/16 20:05	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		12/06/16 15:48	12/22/16 20:05	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	123		25 - 150	12/06/16 15:48	12/22/16 20:05	1
13C4-PFHpA	129		25 - 150	12/06/16 15:48	12/22/16 20:05	1
13C4 PFOA	132		25 - 150	12/06/16 15:48	12/22/16 20:05	1
13C4 PFOS	124		25 - 150	12/06/16 15:48	12/22/16 20:05	1
13C5 PFNA	124		25 - 150	12/06/16 15:48	12/22/16 20:05	1

Lab Sample ID: LCS 320-140876/2-A

Matrix: Water

Analysis Batch: 143678

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 140876

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	38.4		ng/L		108	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.1		ng/L		88	58 - 138
Perfluoroheptanoic acid (PFHpA)	40.0	36.1		ng/L		90	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	33.4		ng/L		83	63 - 141
Perfluorooctanesulfonic acid (PFOS)	37.1	33.3		ng/L		90	47 - 162
Perfluorononanoic acid (PFNA)	40.0	36.2		ng/L		91	71 - 140

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
18O2 PFHxS	126		25 - 150
13C4-PFHpA	135		25 - 150
13C4 PFOA	134		25 - 150
13C4 PFOS	130		25 - 150
13C5 PFNA	125		25 - 150

Lab Sample ID: LCSD 320-140876/3-A

Matrix: Water

Analysis Batch: 143678

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 140876

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	35.4	44.0		ng/L		125	55 - 147	14	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	37.2		ng/L		102	58 - 138	15	30
Perfluoroheptanoic acid (PFHpA)	40.0	42.1		ng/L		105	63 - 135	15	30
Perfluorooctanoic acid (PFOA)	40.0	41.2		ng/L		103	63 - 141	21	30
Perfluorooctanesulfonic acid (PFOS)	37.1	38.9		ng/L		105	47 - 162	15	30
Perfluorononanoic acid (PFNA)	40.0	41.3		ng/L		103	71 - 140	13	30

TestAmerica Sacramento

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

	LCSD	LCSD	
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
18O2 PFHxS	125		25 - 150
13C4-PFHpA	129		25 - 150
13C4 PFOA	127		25 - 150
13C4 PFOS	128		25 - 150
13C5 PFNA	123		25 - 150

Lab Sample ID: MB 320-141456/1-A
Matrix: Solid
Analysis Batch: 143678

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 141456

<i>Analyte</i>	MB	MB	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>Result</i>	<i>Qualifier</i>							
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.10	ug/Kg		12/09/16 12:21	12/22/16 22:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.12	ug/Kg		12/09/16 12:21	12/22/16 22:13	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.088	ug/Kg		12/09/16 12:21	12/22/16 22:13	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.10	ug/Kg		12/09/16 12:21	12/22/16 22:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.13	ug/Kg		12/09/16 12:21	12/22/16 22:13	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.083	ug/Kg		12/09/16 12:21	12/22/16 22:13	1

	MB	MB							
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	116		25 - 150				12/09/16 12:21	12/22/16 22:13	1
13C4-PFHpA	130		25 - 150				12/09/16 12:21	12/22/16 22:13	1
13C4 PFOA	120		25 - 150				12/09/16 12:21	12/22/16 22:13	1
13C4 PFOS	111		25 - 150				12/09/16 12:21	12/22/16 22:13	1
13C5 PFNA	115		25 - 150				12/09/16 12:21	12/22/16 22:13	1

Lab Sample ID: LCS 320-141456/2-A
Matrix: Solid
Analysis Batch: 143678

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 141456

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>
Perfluorobutanesulfonic acid (PFBS)	3.54	3.51		ug/Kg		99	69 - 139
Perfluorohexanesulfonic acid (PFHxS)	3.64	3.36		ug/Kg		92	53 - 157
Perfluoroheptanoic acid (PFHpA)	4.00	3.61		ug/Kg		90	69 - 148
Perfluorooctanoic acid (PFOA)	4.00	3.48		ug/Kg		87	54 - 144
Perfluorooctanesulfonic acid (PFOS)	3.71	3.53		ug/Kg		95	47 - 154
Perfluorononanoic acid (PFNA)	4.00	3.37		ug/Kg		84	75 - 134

	LCS	LCS	
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
18O2 PFHxS	105		25 - 150
13C4-PFHpA	107		25 - 150
13C4 PFOA	94		25 - 150
13C4 PFOS	105		25 - 150
13C5 PFNA	94		25 - 150

Lab Sample ID: 320-23992-11 MS
Matrix: Solid
Analysis Batch: 143678

Client Sample ID: SB0101
Prep Type: Total/NA
Prep Batch: 141456

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>Limits</i>
Perfluorobutanesulfonic acid (PFBS)	ND		3.99	4.99		ug/Kg	☼	125	69 - 139
Perfluorohexanesulfonic acid (PFHxS)	ND		4.11	3.79		ug/Kg	☼	92	53 - 157

TestAmerica Sacramento

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: 320-23992-11 MS

Matrix: Solid

Analysis Batch: 143678

Client Sample ID: SB0101

Prep Type: Total/NA

Prep Batch: 141456

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Perfluoroheptanoic acid (PFHpA)	ND		4.51	4.10		ug/Kg	☼	91	69 - 148
Perfluorooctanoic acid (PFOA)	0.31		4.51	4.17		ug/Kg	☼	85	54 - 144
Perfluorooctanesulfonic acid (PFOS)	0.16	J	4.19	4.29		ug/Kg	☼	99	47 - 154
Perfluorononanoic acid (PFNA)	ND		4.51	3.91		ug/Kg	☼	87	75 - 134
MS MS									
Isotope Dilution	%Recovery	Qualifier	Limits						
18O2 PFHxS	100		25 - 150						
13C4-PFHpA	110		25 - 150						
13C4 PFOA	90		25 - 150						
13C4 PFOS	51		25 - 150						
13C5 PFNA	59		25 - 150						

Lab Sample ID: 320-23992-11 MSD

Matrix: Solid

Analysis Batch: 143678

Client Sample ID: SB0101

Prep Type: Total/NA

Prep Batch: 141456

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	
	Result	Qualifier	Added	Result	Qualifier					RPD	Limit
Perfluorobutanesulfonic acid (PFBS)	ND		3.94	4.97		ug/Kg	☼	126	69 - 139	0	30
Perfluorohexanesulfonic acid (PFHxS)	ND		4.06	3.64		ug/Kg	☼	90	53 - 157	4	30
Perfluoroheptanoic acid (PFHpA)	ND		4.46	4.00		ug/Kg	☼	90	69 - 148	2	30
Perfluorooctanoic acid (PFOA)	0.31		4.46	4.15		ug/Kg	☼	86	54 - 144	0	30
Perfluorooctanesulfonic acid (PFOS)	0.16	J	4.14	4.19		ug/Kg	☼	97	47 - 154	2	30
Perfluorononanoic acid (PFNA)	ND		4.46	3.79		ug/Kg	☼	85	75 - 134	3	30
MSD MSD											
Isotope Dilution	%Recovery	Qualifier	Limits								
18O2 PFHxS	95		25 - 150								
13C4-PFHpA	104		25 - 150								
13C4 PFOA	86		25 - 150								
13C4 PFOS	50		25 - 150								
13C5 PFNA	60		25 - 150								

TestAmerica Sacramento

QC Association Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

LCMS

Prep Batch: 140876

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23992-1 - DL	GW018.5	Total/NA	Water	3535	
320-23992-1	GW018.5	Total/NA	Water	3535	
320-23992-2	GW1408	Total/NA	Water	3535	
320-23992-3	DUPLICATE	Total/NA	Water	3535	
320-23992-4	GW1406	Total/NA	Water	3535	
320-23992-5 - DL	GW1306	Total/NA	Water	3535	
320-23992-5	GW1306	Total/NA	Water	3535	
320-23992-6	GW1312	Total/NA	Water	3535	
320-23992-6 - DL	GW1312	Total/NA	Water	3535	
320-23992-7 - DL	GW1012	Total/NA	Water	3535	
320-23992-7	GW1012	Total/NA	Water	3535	
320-23992-8	GW1007	Total/NA	Water	3535	
320-23992-9	GW1111.5	Total/NA	Water	3535	
320-23992-10	GW1118	Total/NA	Water	3535	
MB 320-140876/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-140876/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-140876/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 141456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23992-11	SB0101	Total/NA	Solid	SHAKE	
320-23992-12	SB019.5	Total/NA	Solid	SHAKE	
320-23992-13	SB0201	Total/NA	Solid	SHAKE	
320-23992-14	SB0205	Total/NA	Solid	SHAKE	
320-23992-15	SB1401	Total/NA	Solid	SHAKE	
320-23992-16	SB1409	Total/NA	Solid	SHAKE	
320-23992-17	SB1301	Total/NA	Solid	SHAKE	
320-23992-18	SB1312	Total/NA	Solid	SHAKE	
320-23992-19	SB1001	Total/NA	Solid	SHAKE	
320-23992-20	SB1012	Total/NA	Solid	SHAKE	
320-23992-21	SB1101	Total/NA	Solid	SHAKE	
320-23992-22	SB1118	Total/NA	Solid	SHAKE	
MB 320-141456/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-141456/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-23992-11 MS	SB0101	Total/NA	Solid	SHAKE	
320-23992-11 MSD	SB0101	Total/NA	Solid	SHAKE	

Analysis Batch: 143678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23992-1	GW018.5	Total/NA	Water	537 (modified)	140876
320-23992-2	GW1408	Total/NA	Water	537 (modified)	140876
320-23992-3	DUPLICATE	Total/NA	Water	537 (modified)	140876
320-23992-4	GW1406	Total/NA	Water	537 (modified)	140876
320-23992-5	GW1306	Total/NA	Water	537 (modified)	140876
320-23992-6	GW1312	Total/NA	Water	537 (modified)	140876
320-23992-7	GW1012	Total/NA	Water	537 (modified)	140876
320-23992-8	GW1007	Total/NA	Water	537 (modified)	140876
320-23992-9	GW1111.5	Total/NA	Water	537 (modified)	140876
320-23992-10	GW1118	Total/NA	Water	537 (modified)	140876
320-23992-11	SB0101	Total/NA	Solid	537 (modified)	141456
320-23992-12	SB019.5	Total/NA	Solid	537 (modified)	141456

TestAmerica Sacramento

QC Association Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

LCMS (Continued)

Analysis Batch: 143678 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23992-13	SB0201	Total/NA	Solid	537 (modified)	141456
320-23992-14	SB0205	Total/NA	Solid	537 (modified)	141456
320-23992-15	SB1401	Total/NA	Solid	537 (modified)	141456
320-23992-16	SB1409	Total/NA	Solid	537 (modified)	141456
320-23992-17	SB1301	Total/NA	Solid	537 (modified)	141456
320-23992-18	SB1312	Total/NA	Solid	537 (modified)	141456
320-23992-19	SB1001	Total/NA	Solid	537 (modified)	141456
320-23992-20	SB1012	Total/NA	Solid	537 (modified)	141456
320-23992-21	SB1101	Total/NA	Solid	537 (modified)	141456
320-23992-22	SB1118	Total/NA	Solid	537 (modified)	141456
MB 320-140876/1-A	Method Blank	Total/NA	Water	537 (modified)	140876
MB 320-141456/1-A	Method Blank	Total/NA	Solid	537 (modified)	141456
LCS 320-140876/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	140876
LCS 320-141456/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	141456
LCS D 320-140876/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	140876
320-23992-11 MS	SB0101	Total/NA	Solid	537 (modified)	141456
320-23992-11 MSD	SB0101	Total/NA	Solid	537 (modified)	141456

Analysis Batch: 144061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23992-1 - DL	GW018.5	Total/NA	Water	537 (modified)	140876
320-23992-5 - DL	GW1306	Total/NA	Water	537 (modified)	140876
320-23992-6 - DL	GW1312	Total/NA	Water	537 (modified)	140876
320-23992-7 - DL	GW1012	Total/NA	Water	537 (modified)	140876

General Chemistry

Analysis Batch: 141981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-23992-11	SB0101	Total/NA	Solid	D 2216	
320-23992-12	SB019.5	Total/NA	Solid	D 2216	
320-23992-13	SB0201	Total/NA	Solid	D 2216	
320-23992-14	SB0205	Total/NA	Solid	D 2216	
320-23992-15	SB1401	Total/NA	Solid	D 2216	
320-23992-16	SB1409	Total/NA	Solid	D 2216	
320-23992-17	SB1301	Total/NA	Solid	D 2216	
320-23992-18	SB1312	Total/NA	Solid	D 2216	
320-23992-19	SB1001	Total/NA	Solid	D 2216	
320-23992-20	SB1012	Total/NA	Solid	D 2216	
320-23992-21	SB1101	Total/NA	Solid	D 2216	
320-23992-22	SB1118	Total/NA	Solid	D 2216	

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: GW018.5

Date Collected: 11/30/16 08:44

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			247.7 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 20:27	CBW	TAL SAC
Total/NA	Prep	3535	DL		247.7 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10			144061	12/23/16 20:14	CBW	TAL SAC

Client Sample ID: GW1408

Date Collected: 11/30/16 11:50

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			253.9 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 20:35	CBW	TAL SAC

Client Sample ID: DUPLICATE

Date Collected: 11/30/16 00:00

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			256.8 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 20:42	CBW	TAL SAC

Client Sample ID: GW1406

Date Collected: 11/30/16 11:54

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.8 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 20:50	CBW	TAL SAC

Client Sample ID: GW1306

Date Collected: 11/30/16 13:06

Date Received: 12/02/16 09:40

Lab Sample ID: 320-23992-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			253.6 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 20:57	CBW	TAL SAC
Total/NA	Prep	3535	DL		253.6 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10			144061	12/23/16 20:22	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: GW1312

Lab Sample ID: 320-23992-6

Date Collected: 11/30/16 13:08

Matrix: Water

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.8 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 21:05	CBW	TAL SAC
Total/NA	Prep	3535	DL		248.8 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10			144061	12/23/16 20:29	CBW	TAL SAC

Client Sample ID: GW1012

Lab Sample ID: 320-23992-7

Date Collected: 11/30/16 13:58

Matrix: Water

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			249.6 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 21:13	CBW	TAL SAC
Total/NA	Prep	3535	DL		249.6 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10			144061	12/23/16 20:37	CBW	TAL SAC

Client Sample ID: GW1007

Lab Sample ID: 320-23992-8

Date Collected: 11/30/16 14:00

Matrix: Water

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			253.2 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 21:50	CBW	TAL SAC

Client Sample ID: GW1111.5

Lab Sample ID: 320-23992-9

Date Collected: 11/30/16 15:18

Matrix: Water

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.4 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 21:58	CBW	TAL SAC

Client Sample ID: GW1118

Lab Sample ID: 320-23992-10

Date Collected: 11/30/16 15:21

Matrix: Water

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			254.2 mL	0.5 mL	140876	12/06/16 15:48	KMK	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 22:05	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB0101

Lab Sample ID: 320-23992-11

Date Collected: 11/30/16 08:15

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB0101

Lab Sample ID: 320-23992-11

Date Collected: 11/30/16 08:15

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 89.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 22:28	CBW	TAL SAC

Client Sample ID: SB019.5

Lab Sample ID: 320-23992-12

Date Collected: 11/30/16 08:28

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB019.5

Lab Sample ID: 320-23992-12

Date Collected: 11/30/16 08:28

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 75.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.05 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 22:50	CBW	TAL SAC

Client Sample ID: SB0201

Lab Sample ID: 320-23992-13

Date Collected: 11/30/16 10:27

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB0201

Lab Sample ID: 320-23992-13

Date Collected: 11/30/16 10:27

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 89.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.95 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 22:58	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB0205

Lab Sample ID: 320-23992-14

Date Collected: 11/30/16 10:42

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB0205

Lab Sample ID: 320-23992-14

Date Collected: 11/30/16 10:42

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 77.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.04 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 23:35	CBW	TAL SAC

Client Sample ID: SB1401

Lab Sample ID: 320-23992-15

Date Collected: 11/30/16 11:20

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB1401

Lab Sample ID: 320-23992-15

Date Collected: 11/30/16 11:20

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.09 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 23:43	CBW	TAL SAC

Client Sample ID: SB1409

Lab Sample ID: 320-23992-16

Date Collected: 11/30/16 11:45

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB1409

Lab Sample ID: 320-23992-16

Date Collected: 11/30/16 11:45

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 72.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.92 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 23:50	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB1301

Lab Sample ID: 320-23992-17

Date Collected: 11/30/16 12:42

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB1301

Lab Sample ID: 320-23992-17

Date Collected: 11/30/16 12:42

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/22/16 23:58	CBW	TAL SAC

Client Sample ID: SB1312

Lab Sample ID: 320-23992-18

Date Collected: 11/30/16 12:58

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB1312

Lab Sample ID: 320-23992-18

Date Collected: 11/30/16 12:58

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 73.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.01 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/23/16 00:05	CBW	TAL SAC

Client Sample ID: SB1001

Lab Sample ID: 320-23992-19

Date Collected: 11/30/16 13:40

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB1001

Lab Sample ID: 320-23992-19

Date Collected: 11/30/16 13:40

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 94.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.94 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/23/16 00:13	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Client Sample ID: SB1012

Lab Sample ID: 320-23992-20

Date Collected: 11/30/16 13:51

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB1012

Lab Sample ID: 320-23992-20

Date Collected: 11/30/16 13:51

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 77.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.93 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/23/16 00:20	CBW	TAL SAC

Client Sample ID: SB1101

Lab Sample ID: 320-23992-21

Date Collected: 11/30/16 14:55

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB1101

Lab Sample ID: 320-23992-21

Date Collected: 11/30/16 14:55

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 93.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	1.00 mL	141456	12/09/16 12:21	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/23/16 00:28	CBW	TAL SAC

Client Sample ID: SB1118

Lab Sample ID: 320-23992-22

Date Collected: 11/30/16 15:10

Matrix: Solid

Date Received: 12/02/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			141981	12/13/16 17:15	CFR	TAL SAC

Client Sample ID: SB1118

Lab Sample ID: 320-23992-22

Date Collected: 11/30/16 15:10

Matrix: Solid

Date Received: 12/02/16 09:40

Percent Solids: 79.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.09 g	1.00 mL	141456	12/09/16 12:23	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143678	12/23/16 00:35	CBW	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

TestAmerica Sacramento

Certification Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	10-31-17
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-16 *
Wyoming	State Program	8	8TMS-L	01-29-17

* Certification renewal pending - certification considered valid.

Method Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600




Sample Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-23992-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-23992-1	GW018.5	Water	11/30/16 08:44	12/02/16 09:40
320-23992-2	GW1408	Water	11/30/16 11:50	12/02/16 09:40
320-23992-3	DUPLICATE	Water	11/30/16 00:00	12/02/16 09:40
320-23992-4	GW1406	Water	11/30/16 11:54	12/02/16 09:40
320-23992-5	GW1306	Water	11/30/16 13:06	12/02/16 09:40
320-23992-6	GW1312	Water	11/30/16 13:08	12/02/16 09:40
320-23992-7	GW1012	Water	11/30/16 13:58	12/02/16 09:40
320-23992-8	GW1007	Water	11/30/16 14:00	12/02/16 09:40
320-23992-9	GW1111.5	Water	11/30/16 15:18	12/02/16 09:40
320-23992-10	GW1118	Water	11/30/16 15:21	12/02/16 09:40
320-23992-11	SB0101	Solid	11/30/16 08:15	12/02/16 09:40
320-23992-12	SB019.5	Solid	11/30/16 08:28	12/02/16 09:40
320-23992-13	SB0201	Solid	11/30/16 10:27	12/02/16 09:40
320-23992-14	SB0205	Solid	11/30/16 10:42	12/02/16 09:40
320-23992-15	SB1401	Solid	11/30/16 11:20	12/02/16 09:40
320-23992-16	SB1409	Solid	11/30/16 11:45	12/02/16 09:40
320-23992-17	SB1301	Solid	11/30/16 12:42	12/02/16 09:40
320-23992-18	SB1312	Solid	11/30/16 12:58	12/02/16 09:40
320-23992-19	SB1001	Solid	11/30/16 13:40	12/02/16 09:40
320-23992-20	SB1012	Solid	11/30/16 13:51	12/02/16 09:40
320-23992-21	SB1101	Solid	11/30/16 14:55	12/02/16 09:40
320-23992-22	SB1118	Solid	11/30/16 15:10	12/02/16 09:40

Chain of Custody Record

Client Information Client Contact: Chelsea Fellows-Stanley Company: Environmental Compliance Services, Inc. Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802 241 4131 Email: cstanley@ecconsult.com Project Name: Champlain Cable Site: Champlain Cable Colchester VT		Sampler: Kathryn Mettice Lab PM: Kellmann, Jill Phone: 508 366 5034 E-Mail: jill.kellmann@testamericainc.com		Carrier Tracking No(s): COC No: 320-13309-3061.6 Page: 1 of 10 Page # of 10 Job #: 1 of 3						
Due Date Requested: TAT Requested (days): Normal PO #: 256648 WO #: 2016 Project #: 32007936 SSO#: /08-203600.08		Analysis Requested Total Number of Containers: <input checked="" type="checkbox"/>								
Sample Identification GW 018.5 GW 1406 Duplicate GW 1406 GW 1306 GW 1312 GW 1012 GW 1007 GW 1118.5 GW 1118		Sample Date 11/30 11/30 11/30 11/30 11/30 11/30 11/30 11/30 11/30 11/30	Sample Time 0844 1150 - 1154 1306 1308 1358 1400 1518 1521	Sample Type (C=Comp, G=grab) G G G G G G G G G G	Matrix (Water, Soil, Chwast, Oil, etc) Water Water Water Water Water Water Water Water Water Water	Field Filtered Sample (Yes or No) N X X X X X X X X X X	Perform MS/MSD (Yes or No) N X X X X X X X X X X	PFC_IDA - (MOD) 537 Short List N X X X X X X X X X X	Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - other (specify)	Special Instructions/Note: 320-23992 Chain of Custody 
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Deliverable Requested: I, II, III, IV, Other (specify) Standard		Special Instructions/QC Requirements:								
Empty Kit Relinquished by: Kathryn Mettice Relinquished by: Kathryn Mettice Relinquished by: Kathryn Mettice		Method of Shipment:								
Date: 11/30/16/1730 Date/Time: 11/30/16/1730 Date/Time: 12/11/16/1450 Date/Time: 12/21/16 0940		Received by: Kathryn Mettice Received by: FEDEX Received by: Kate Z. G.								
Company: ATC Company: ATC Company: ATC		Company: ATC Company: ATC Company: JAWWS								
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 4.0								



Chain of Custody Record

Client Information Client Contact: Katrina Methley Chelsea Fellows-Stanley Company: Environmental Compliance Services, Inc. Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802-241-4131 Email: cstanley@ecsconsult.com Project Name: Champlain Cable Site: Champlain Cable Coolestment		Lab PM: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com Phone: 583-366-5034 Sample: Katrina Methley		COC No: 320-13309-3061.10 Page: 2 of 3 Job #: 2 of 3	
Due Date Requested: TAT Requested (days): Normal PO #: 256648 WO #: 108-203606.08 Project #: 32007936 SSSOW#:		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> N Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> N PFC, IDA - (MOD) 537 Short List <input checked="" type="checkbox"/> N Total Number of Containers:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - other (specify)	
Sample Identification Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (Water, Solid, Over-satd, Other) Preservation Code:		Special Instructions/Note: For Logo Kahn Method		Special Instructions/Note: Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested: 1, II, III, IV, Other (specify) STANDARD		Empty Kit Relinquished by:	
Relinquished by: Katrina Methley Relinquished by: Katrina Woodard Relinquished by:		Date/Time: 11/30/10/1430 Date/Time: 12/11/16/1450 Date/Time:		Date/Time: 11/30/16/1730 Date/Time: Date/Time: 12/21/16 0940	
Company: ATC Company: ATC Company:		Company: ATC Company: FEDEX Company:		Company: ATC Company: Company: FAWs	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 4.0	



Chain of Custody Record

Client Information Client Contact: <i>Kathrina Muthie</i> Chelsea Fellows-Stanley Environmental Compliance Services, Inc. Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802 241 4131 Email: cstanley@ecscsconsult.com Project Name: Champlain Cable Site: <i>Champlain Cable Colchester</i>		Sampler: <i>Kathrina Muthie</i> Lab PM: Kellmann, Jill Phone: 518 366 5034 E-Mail: jill.kellmann@testamericainc.com		Carner Tracking No(s): COC No: 320-13309-3061.8 Page: 3 of 10 Job #: 3043	
Due Date Requested: TAT Requested (days): <i>Normal</i> PO #: 256648 WO #: Project #: 32007936 SSOW#: 108-203606.08		Analysis Requested			
Sample Identification 50118		Sample Date 2016	Sample Time 1130	Sample Type (C=Comp, G=grab) C	Matrix (W=Water, S=Soil, O=Other, I=Ice, A=Air) Soil
Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> N		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> N		PFC, IDA - (MOD) 537 Short List <input checked="" type="checkbox"/> N	
Total Number of Containers		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AshaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Z - other (specify)			
Special Instructions/Note: For Loyd Kahn Method		Special Instructions/Note: For Loyd Kahn Method			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: 1, II, III, IV, Other (specify) <i>STANDARD</i>		Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Method of Shipment:			
Relinquished by: <i>Kathrina Muthie</i> Date/Time: 11/30/16/1730 Company: ATC		Relinquished by: <i>Louisa Woodward</i> Date/Time: 11/30/16/1730 Company: ATC			
Relinquished by: <i>Louisa Woodward</i> Date/Time: 12/1/16/1450 Company: ATC		Relinquished by: <i>FEDEX</i> Date/Time: 12/2/16 0940 Company: TAAS			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 4.0			



Login Sample Receipt Checklist

Client: Environmental Compliance Services, Inc.

Job Number: 320-23992-1

Login Number: 23992

List Source: TestAmerica Sacramento

List Number: 1

Creator: Edman, Connor M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-24022-1
Client Project/Site: Champlain Cable

For:
Environmental Compliance Services, Inc.
1 Elm Street, Suite 3
Waterbury, Vermont 05676

Attn: Chelsea Fellows-Stanley



Authorized for release by:
12/30/2016 11:49:45 AM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	Isotope Dilution analyte is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Job ID: 320-24022-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 12/3/2016 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

LCMS

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: MW-AG-6D (320-24022-9). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-03 (320-24022-3), MW-EG-15 (320-24022-4) and MW-EG-2D (320-24022-7). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-141050.

Method(s) 3535: Due to the excessive amount of sediment in the sample bottles, the aqueous portion of these samples was decanted to new bottles to spiking and the extraction.

MW-03 (320-24022-3), MW-EG-15 (320-24022-4), MW-AG-8D (320-24022-5), MW-89-6 (320-24022-6), MW-EG-2D (320-24022-7), MW-AG-5S (320-24022-8) and MW-AG-6D (320-24022-9)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Client Sample ID: MW-1

Lab Sample ID: 320-24022-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.92	J	1.9	0.83	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	18		1.9	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	180		1.9	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.0		1.9	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.9		1.9	0.63	ng/L	1		537 (modified)	Total/NA

Client Sample ID: ECS-1

Lab Sample ID: 320-24022-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	14		1.9	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	220		1.9	0.71	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-03

Lab Sample ID: 320-24022-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.98	J	2.0	0.93	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.7		2.0	0.88	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	67		2.0	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	14		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	19		2.0	0.66	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	500		10	3.8	ng/L	5		537 (modified)	Total/NA

Client Sample ID: MW-EG-15

Lab Sample ID: 320-24022-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.5	J	2.0	0.92	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.8	J	2.0	0.87	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	60		2.0	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.2		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	6.0		2.0	0.66	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	780		10	3.8	ng/L	5		537 (modified)	Total/NA

Client Sample ID: MW-AG-8D

Lab Sample ID: 320-24022-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.9		1.9	0.89	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	12		1.9	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	160		1.9	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5		1.9	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.6		1.9	0.63	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-89-6

Lab Sample ID: 320-24022-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.3		2.0	0.87	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	43		2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	180		2.0	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	16		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	17		2.0	0.66	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Client Sample ID: MW-EG-2D

Lab Sample ID: 320-24022-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.2	J	2.0	0.91	ng/L	1			537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.0		2.0	0.86	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	87		2.0	0.79	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.7		2.0	1.3	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	6.8		2.0	0.64	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	4000		39	15	ng/L	20			537 (modified)	Total/NA

Client Sample ID: MW-AG-5S

Lab Sample ID: 320-24022-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.98	J	1.9	0.89	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.7		1.9	0.78	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	43		1.9	0.73	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.4	J	1.9	0.64	ng/L	1			537 (modified)	Total/NA

Client Sample ID: MW-AG-6D

Lab Sample ID: 320-24022-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.88	J	2.0	0.85	ng/L	1			537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	20		2.0	0.78	ng/L	1			537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	180		2.0	0.73	ng/L	1			537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.1		2.0	1.2	ng/L	1			537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	11		2.0	0.64	ng/L	1			537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Client Sample ID: MW-1
Date Collected: 12/01/16 11:24
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-1
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.88	ng/L		12/07/16 12:37	12/23/16 18:07	1
Perfluorohexanesulfonic acid (PFHxS)	0.92	J	1.9	0.83	ng/L		12/07/16 12:37	12/23/16 18:07	1
Perfluoroheptanoic acid (PFHpA)	18		1.9	0.77	ng/L		12/07/16 12:37	12/23/16 18:07	1
Perfluorooctanoic acid (PFOA)	180		1.9	0.72	ng/L		12/07/16 12:37	12/23/16 18:07	1
Perfluorooctanesulfonic acid (PFOS)	2.0		1.9	1.2	ng/L		12/07/16 12:37	12/23/16 18:07	1
Perfluorononanoic acid (PFNA)	2.9		1.9	0.63	ng/L		12/07/16 12:37	12/23/16 18:07	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2 PFHxA	103		25 - 150				12/07/16 12:37	12/23/16 18:07	1
18O2 PFHxS	136		25 - 150				12/07/16 12:37	12/23/16 18:07	1
13C4-PFHpA	104		25 - 150				12/07/16 12:37	12/23/16 18:07	1
13C4 PFOA	91		25 - 150				12/07/16 12:37	12/23/16 18:07	1
13C4 PFOS	147		25 - 150				12/07/16 12:37	12/23/16 18:07	1
13C5 PFNA	84		25 - 150				12/07/16 12:37	12/23/16 18:07	1

Client Sample ID: ECS-1
Date Collected: 12/01/16 11:30
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-2
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.87	ng/L		12/07/16 12:37	12/23/16 18:14	1
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	1.9	0.82	ng/L		12/07/16 12:37	12/23/16 18:14	1
Perfluoroheptanoic acid (PFHpA)	14		1.9	0.76	ng/L		12/07/16 12:37	12/23/16 18:14	1
Perfluorooctanoic acid (PFOA)	220		1.9	0.71	ng/L		12/07/16 12:37	12/23/16 18:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.2	ng/L		12/07/16 12:37	12/23/16 18:14	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.62	ng/L		12/07/16 12:37	12/23/16 18:14	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2 PFHxA	93		25 - 150				12/07/16 12:37	12/23/16 18:14	1
18O2 PFHxS	116		25 - 150				12/07/16 12:37	12/23/16 18:14	1
13C4-PFHpA	93		25 - 150				12/07/16 12:37	12/23/16 18:14	1
13C4 PFOA	77		25 - 150				12/07/16 12:37	12/23/16 18:14	1
13C4 PFOS	123		25 - 150				12/07/16 12:37	12/23/16 18:14	1
13C5 PFNA	68		25 - 150				12/07/16 12:37	12/23/16 18:14	1

Client Sample ID: MW-03
Date Collected: 12/01/16 12:56
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-3
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	0.98	J	2.0	0.93	ng/L		12/07/16 12:37	12/23/16 18:22	1
Perfluorohexanesulfonic acid (PFHxS)	2.7		2.0	0.88	ng/L		12/07/16 12:37	12/23/16 18:22	1
Perfluoroheptanoic acid (PFHpA)	67		2.0	0.82	ng/L		12/07/16 12:37	12/23/16 18:22	1
Perfluorooctanesulfonic acid (PFOS)	14		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 18:22	1
Perfluorononanoic acid (PFNA)	19		2.0	0.66	ng/L		12/07/16 12:37	12/23/16 18:22	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		25 - 150	12/07/16 12:37	12/23/16 18:22	1
18O2 PFHxS	123		25 - 150	12/07/16 12:37	12/23/16 18:22	1
13C4-PFHpA	101		25 - 150	12/07/16 12:37	12/23/16 18:22	1
13C4 PFOA	79		25 - 150	12/07/16 12:37	12/23/16 18:22	1
13C4 PFOS	136		25 - 150	12/07/16 12:37	12/23/16 18:22	1
13C5 PFNA	88		25 - 150	12/07/16 12:37	12/23/16 18:22	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	500		10	3.8	ng/L		12/07/16 12:37	12/29/16 08:47	5

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	83		25 - 150	12/07/16 12:37	12/29/16 08:47	5

Client Sample ID: MW-EG-15

Date Collected: 12/01/16 13:20

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-4

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.5	J	2.0	0.92	ng/L		12/07/16 12:37	12/23/16 18:29	1
Perfluorohexanesulfonic acid (PFHxS)	1.8	J	2.0	0.87	ng/L		12/07/16 12:37	12/23/16 18:29	1
Perfluoroheptanoic acid (PFHpA)	60		2.0	0.81	ng/L		12/07/16 12:37	12/23/16 18:29	1
Perfluorooctanesulfonic acid (PFOS)	4.2		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 18:29	1
Perfluorononanoic acid (PFNA)	6.0		2.0	0.66	ng/L		12/07/16 12:37	12/23/16 18:29	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		25 - 150	12/07/16 12:37	12/23/16 18:29	1
18O2 PFHxS	124		25 - 150	12/07/16 12:37	12/23/16 18:29	1
13C4-PFHpA	106		25 - 150	12/07/16 12:37	12/23/16 18:29	1
13C4 PFOA	76		25 - 150	12/07/16 12:37	12/23/16 18:29	1
13C4 PFOS	136		25 - 150	12/07/16 12:37	12/23/16 18:29	1
13C5 PFNA	87		25 - 150	12/07/16 12:37	12/23/16 18:29	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	780		10	3.8	ng/L		12/07/16 12:37	12/28/16 17:59	5

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	109		25 - 150	12/07/16 12:37	12/28/16 17:59	5

Client Sample ID: MW-AG-8D

Date Collected: 12/01/16 13:50

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-5

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.9		1.9	0.89	ng/L		12/07/16 12:37	12/23/16 18:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.84	ng/L		12/07/16 12:37	12/23/16 18:37	1
Perfluoroheptanoic acid (PFHpA)	12		1.9	0.77	ng/L		12/07/16 12:37	12/23/16 18:37	1
Perfluorooctanoic acid (PFOA)	160		1.9	0.72	ng/L		12/07/16 12:37	12/23/16 18:37	1
Perfluorooctanesulfonic acid (PFOS)	2.5		1.9	1.2	ng/L		12/07/16 12:37	12/23/16 18:37	1
Perfluorononanoic acid (PFNA)	2.6		1.9	0.63	ng/L		12/07/16 12:37	12/23/16 18:37	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Client Sample ID: MW-AG-8D

Date Collected: 12/01/16 13:50

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-5

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		25 - 150	12/07/16 12:37	12/23/16 18:37	1
18O2 PFHxS	126		25 - 150	12/07/16 12:37	12/23/16 18:37	1
13C4-PFHpA	109		25 - 150	12/07/16 12:37	12/23/16 18:37	1
13C4 PFOA	100		25 - 150	12/07/16 12:37	12/23/16 18:37	1
13C4 PFOS	131		25 - 150	12/07/16 12:37	12/23/16 18:37	1
13C5 PFNA	107		25 - 150	12/07/16 12:37	12/23/16 18:37	1

Client Sample ID: MW-89-6

Date Collected: 12/01/16 14:00

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-6

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/07/16 12:37	12/23/16 18:44	1
Perfluorohexanesulfonic acid (PFHxS)	2.3		2.0	0.87	ng/L		12/07/16 12:37	12/23/16 18:44	1
Perfluoroheptanoic acid (PFHpA)	43		2.0	0.80	ng/L		12/07/16 12:37	12/23/16 18:44	1
Perfluorooctanoic acid (PFOA)	180		2.0	0.75	ng/L		12/07/16 12:37	12/23/16 18:44	1
Perfluorooctanesulfonic acid (PFOS)	16		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 18:44	1
Perfluorononanoic acid (PFNA)	17		2.0	0.66	ng/L		12/07/16 12:37	12/23/16 18:44	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		25 - 150	12/07/16 12:37	12/23/16 18:44	1
18O2 PFHxS	114		25 - 150	12/07/16 12:37	12/23/16 18:44	1
13C4-PFHpA	93		25 - 150	12/07/16 12:37	12/23/16 18:44	1
13C4 PFOA	81		25 - 150	12/07/16 12:37	12/23/16 18:44	1
13C4 PFOS	123		25 - 150	12/07/16 12:37	12/23/16 18:44	1
13C5 PFNA	76		25 - 150	12/07/16 12:37	12/23/16 18:44	1

Client Sample ID: MW-EG-2D

Date Collected: 12/01/16 14:30

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-7

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.2	J	2.0	0.91	ng/L		12/07/16 12:37	12/23/16 18:52	1
Perfluorohexanesulfonic acid (PFHxS)	2.0		2.0	0.86	ng/L		12/07/16 12:37	12/23/16 18:52	1
Perfluoroheptanoic acid (PFHpA)	87		2.0	0.79	ng/L		12/07/16 12:37	12/23/16 18:52	1
Perfluorooctanesulfonic acid (PFOS)	3.7		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 18:52	1
Perfluorononanoic acid (PFNA)	6.8		2.0	0.64	ng/L		12/07/16 12:37	12/23/16 18:52	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		25 - 150	12/07/16 12:37	12/23/16 18:52	1
18O2 PFHxS	121		25 - 150	12/07/16 12:37	12/23/16 18:52	1
13C4-PFHpA	109		25 - 150	12/07/16 12:37	12/23/16 18:52	1
13C4 PFOA	49		25 - 150	12/07/16 12:37	12/23/16 18:52	1
13C4 PFOS	139		25 - 150	12/07/16 12:37	12/23/16 18:52	1
13C5 PFNA	133		25 - 150	12/07/16 12:37	12/23/16 18:52	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Client Sample ID: MW-EG-2D

Date Collected: 12/01/16 14:30

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-7

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	4000		39	15	ng/L		12/07/16 12:37	12/28/16 18:06	20
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	120		25 - 150				12/07/16 12:37	12/28/16 18:06	20

Client Sample ID: MW-AG-5S

Date Collected: 12/01/16 14:57

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-8

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	0.98	J	1.9	0.89	ng/L		12/07/16 12:37	12/23/16 18:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.85	ng/L		12/07/16 12:37	12/23/16 18:59	1
Perfluoroheptanoic acid (PFHpA)	3.7		1.9	0.78	ng/L		12/07/16 12:37	12/23/16 18:59	1
Perfluorooctanoic acid (PFOA)	43		1.9	0.73	ng/L		12/07/16 12:37	12/28/16 18:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.2	ng/L		12/07/16 12:37	12/23/16 18:59	1
Perfluorononanoic acid (PFNA)	1.4	J	1.9	0.64	ng/L		12/07/16 12:37	12/23/16 18:59	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2 PFHxA	100		25 - 150				12/07/16 12:37	12/23/16 18:59	1
18O2 PFHxS	122		25 - 150				12/07/16 12:37	12/23/16 18:59	1
13C4-PFHpA	106		25 - 150				12/07/16 12:37	12/23/16 18:59	1
13C4 PFOA	91		25 - 150				12/07/16 12:37	12/23/16 18:59	1
13C4 PFOA	100		25 - 150				12/07/16 12:37	12/28/16 18:14	1
13C4 PFOS	134		25 - 150				12/07/16 12:37	12/23/16 18:59	1
13C5 PFNA	76		25 - 150				12/07/16 12:37	12/23/16 18:59	1

Client Sample ID: MW-AG-6D

Date Collected: 12/01/16 15:50

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-9

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.90	ng/L		12/07/16 12:37	12/23/16 19:07	1
Perfluorohexanesulfonic acid (PFHxS)	0.88	J	2.0	0.85	ng/L		12/07/16 12:37	12/23/16 19:07	1
Perfluoroheptanoic acid (PFHpA)	20		2.0	0.78	ng/L		12/07/16 12:37	12/23/16 19:07	1
Perfluorooctanoic acid (PFOA)	180		2.0	0.73	ng/L		12/07/16 12:37	12/23/16 19:07	1
Perfluorooctanesulfonic acid (PFOS)	5.1		2.0	1.2	ng/L		12/07/16 12:37	12/23/16 19:07	1
Perfluorononanoic acid (PFNA)	11		2.0	0.64	ng/L		12/07/16 12:37	12/23/16 19:07	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2 PFHxA	112		25 - 150				12/07/16 12:37	12/23/16 19:07	1
18O2 PFHxS	142		25 - 150				12/07/16 12:37	12/23/16 19:07	1
13C4-PFHpA	109		25 - 150				12/07/16 12:37	12/23/16 19:07	1
13C4 PFOA	87		25 - 150				12/07/16 12:37	12/23/16 19:07	1
13C4 PFOS	155	*	25 - 150				12/07/16 12:37	12/23/16 19:07	1
13C5 PFNA	75		25 - 150				12/07/16 12:37	12/23/16 19:07	1

TestAmerica Sacramento

Isotope Dilution Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)					
		¹³ C2 PFHx (25-150)	¹⁸ O2 PFHx (25-150)	¹³ C4-PFHp (25-150)	¹³ C4 PFOA (25-150)	¹³ C4 PFOS (25-150)	¹³ C5 PFNA (25-150)
320-24022-1	MW-1	103	136	104	91	147	84
320-24022-2	ECS-1	93	116	93	77	123	68
320-24022-3	MW-03	94	123	101	79	136	88
320-24022-3 - DL	MW-03				83		
320-24022-4	MW-EG-15	93	124	106	76	136	87
320-24022-4 - DL	MW-EG-15				109		
320-24022-5	MW-AG-8D	103	126	109	100	131	107
320-24022-6	MW-89-6	91	114	93	81	123	76
320-24022-7	MW-EG-2D	95	121	109	49	139	133
320-24022-7 - DL	MW-EG-2D				120		
320-24022-8	MW-AG-5S	100	122	106	91	134	76
320-24022-8	MW-AG-5S				100		
320-24022-9	MW-AG-6D	112	142	109	87	155 *	75
LCS 320-141050/2-A	Lab Control Sample	137	136	138	143	141	132
LCSD 320-141050/3-A	Lab Control Sample Dup	130	129	133	135	135	127
MB 320-141050/1-A	Method Blank	119	122	126	136	124	118

Surrogate Legend

- ¹³C2 PFHxA = ¹³C2 PFHxA
- ¹⁸O2 PFHxS = ¹⁸O2 PFHxS
- ¹³C4-PFHpA = ¹³C4-PFHpA
- ¹³C4 PFOA = ¹³C4 PFOA
- ¹³C4 PFOS = ¹³C4 PFOS
- ¹³C5 PFNA = ¹³C5 PFNA

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-141050/1-A

Matrix: Water

Analysis Batch: 144058

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 141050

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/07/16 12:37	12/23/16 16:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/07/16 12:37	12/23/16 16:22	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		12/07/16 12:37	12/23/16 16:22	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.75	ng/L		12/07/16 12:37	12/23/16 16:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 16:22	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		12/07/16 12:37	12/23/16 16:22	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	119		25 - 150	12/07/16 12:37	12/23/16 16:22	1
18O2 PFHxS	122		25 - 150	12/07/16 12:37	12/23/16 16:22	1
13C4-PFHpA	126		25 - 150	12/07/16 12:37	12/23/16 16:22	1
13C4 PFOA	136		25 - 150	12/07/16 12:37	12/23/16 16:22	1
13C4 PFOS	124		25 - 150	12/07/16 12:37	12/23/16 16:22	1
13C5 PFNA	118		25 - 150	12/07/16 12:37	12/23/16 16:22	1

Lab Sample ID: LCS 320-141050/2-A

Matrix: Water

Analysis Batch: 144058

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 141050

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	36.0		ng/L		102	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	30.7		ng/L		84	58 - 138
Perfluoroheptanoic acid (PFHpA)	40.0	33.6		ng/L		84	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	32.3		ng/L		81	63 - 141
Perfluorooctanesulfonic acid (PFOS)	37.1	31.2		ng/L		84	47 - 162
Perfluorononanoic acid (PFNA)	40.0	32.0		ng/L		80	71 - 140

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	137		25 - 150
18O2 PFHxS	136		25 - 150
13C4-PFHpA	138		25 - 150
13C4 PFOA	143		25 - 150
13C4 PFOS	141		25 - 150
13C5 PFNA	132		25 - 150

Lab Sample ID: LCSD 320-141050/3-A

Matrix: Water

Analysis Batch: 144058

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 141050

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	35.4	43.5		ng/L		123	55 - 147	19	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	37.5		ng/L		103	58 - 138	20	30
Perfluoroheptanoic acid (PFHpA)	40.0	41.2		ng/L		103	63 - 135	20	30
Perfluorooctanoic acid (PFOA)	40.0	40.4		ng/L		101	63 - 141	22	30

TestAmerica Sacramento

QC Sample Results

Client: Environmental Compliance Services, Inc.
 Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-141050/3-A

Matrix: Water

Analysis Batch: 144058

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 141050

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	37.1	38.3		ng/L		103	47 - 162	20	30
Perfluorononanoic acid (PFNA)	40.0	39.3		ng/L		98	71 - 140	20	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C2 PFHxA	130		25 - 150
18O2 PFHxS	129		25 - 150
13C4-PFHpA	133		25 - 150
13C4 PFOA	135		25 - 150
13C4 PFOS	135		25 - 150
13C5 PFNA	127		25 - 150

QC Association Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

LCMS

Prep Batch: 141050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24022-1	MW-1	Total/NA	Water	3535	
320-24022-2	ECS-1	Total/NA	Water	3535	
320-24022-3	MW-03	Total/NA	Water	3535	
320-24022-3 - DL	MW-03	Total/NA	Water	3535	
320-24022-4 - DL	MW-EG-15	Total/NA	Water	3535	
320-24022-4	MW-EG-15	Total/NA	Water	3535	
320-24022-5	MW-AG-8D	Total/NA	Water	3535	
320-24022-6	MW-89-6	Total/NA	Water	3535	
320-24022-7	MW-EG-2D	Total/NA	Water	3535	
320-24022-7 - DL	MW-EG-2D	Total/NA	Water	3535	
320-24022-8	MW-AG-5S	Total/NA	Water	3535	
320-24022-9	MW-AG-6D	Total/NA	Water	3535	
MB 320-141050/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-141050/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-141050/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 144058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24022-1	MW-1	Total/NA	Water	537 (modified)	141050
320-24022-2	ECS-1	Total/NA	Water	537 (modified)	141050
320-24022-3	MW-03	Total/NA	Water	537 (modified)	141050
320-24022-4	MW-EG-15	Total/NA	Water	537 (modified)	141050
320-24022-5	MW-AG-8D	Total/NA	Water	537 (modified)	141050
320-24022-6	MW-89-6	Total/NA	Water	537 (modified)	141050
320-24022-7	MW-EG-2D	Total/NA	Water	537 (modified)	141050
320-24022-8	MW-AG-5S	Total/NA	Water	537 (modified)	141050
320-24022-9	MW-AG-6D	Total/NA	Water	537 (modified)	141050
MB 320-141050/1-A	Method Blank	Total/NA	Water	537 (modified)	141050
LCS 320-141050/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	141050
LCSD 320-141050/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	141050

Analysis Batch: 144214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24022-4 - DL	MW-EG-15	Total/NA	Water	537 (modified)	141050
320-24022-7 - DL	MW-EG-2D	Total/NA	Water	537 (modified)	141050
320-24022-8	MW-AG-5S	Total/NA	Water	537 (modified)	141050

Analysis Batch: 144279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24022-3 - DL	MW-03	Total/NA	Water	537 (modified)	141050

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Client Sample ID: MW-1

Date Collected: 12/01/16 11:24

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			260.6 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 18:07	TTP	TAL SAC

Client Sample ID: ECS-1

Date Collected: 12/01/16 11:30

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			264.4 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 18:14	TTP	TAL SAC

Client Sample ID: MW-03

Date Collected: 12/01/16 12:56

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			246 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 18:22	TTP	TAL SAC
Total/NA	Prep	3535	DL		246 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)	DL	5			144279	12/29/16 08:47	TTP	TAL SAC

Client Sample ID: MW-EG-15

Date Collected: 12/01/16 13:20

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.7 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 18:29	TTP	TAL SAC
Total/NA	Prep	3535	DL		248.7 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)	DL	5			144214	12/28/16 17:59	TTP	TAL SAC

Client Sample ID: MW-AG-8D

Date Collected: 12/01/16 13:50

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			258.9 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 18:37	TTP	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Client Sample ID: MW-89-6

Date Collected: 12/01/16 14:00

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			249.5 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 18:44	TTP	TAL SAC

Client Sample ID: MW-EG-2D

Date Collected: 12/01/16 14:30

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			253.5 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 18:52	TTP	TAL SAC
Total/NA	Prep	3535	DL		253.5 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)	DL	20			144214	12/28/16 18:06	TTP	TAL SAC

Client Sample ID: MW-AG-5S

Date Collected: 12/01/16 14:57

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			256.8 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 18:59	TTP	TAL SAC
Total/NA	Prep	3535			256.8 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144214	12/28/16 18:14	TTP	TAL SAC

Client Sample ID: MW-AG-6D

Date Collected: 12/01/16 15:50

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24022-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.9 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 19:07	TTP	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Environmental Compliance Services, Inc.
 Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	10-31-17
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-16 *
Wyoming	State Program	8	8TMS-L	01-29-17

* Certification renewal pending - certification considered valid.

Method Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24022-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-24022-1	MW-1	Water	12/01/16 11:24	12/03/16 09:40
320-24022-2	ECS-1	Water	12/01/16 11:30	12/03/16 09:40
320-24022-3	MW-03	Water	12/01/16 12:56	12/03/16 09:40
320-24022-4	MW-EG-15	Water	12/01/16 13:20	12/03/16 09:40
320-24022-5	MW-AG-8D	Water	12/01/16 13:50	12/03/16 09:40
320-24022-6	MW-89-6	Water	12/01/16 14:00	12/03/16 09:40
320-24022-7	MW-EG-2D	Water	12/01/16 14:30	12/03/16 09:40
320-24022-8	MW-AG-5S	Water	12/01/16 14:57	12/03/16 09:40
320-24022-9	MW-AG-6D	Water	12/01/16 15:50	12/03/16 09:40

TestAmerica Sacramento
 880 Riverside Parkway
 West Sacramento, CA 95605
 Phone (916) 373-5600 Fax (916) 372-1059

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

Client Information Client Contact: Chelsea Fellows-Stanley Company: Environmental Compliance Services, Inc. - ATC Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802-241-4131 Email: cstanley@ecsconsult.com Project Name: Champlain Cable Site: Champlain Cable - PFC Investigation		Sampler: C. Fellows-Stanley Phone: 802-241-4131 Lab PM: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com		Carrier Tracking No(s): 320-13309-3061.3 Page: Page 3 of 10 Job #:	
Due Date Requested: TAT Requested (days): Standard.		Analysis Requested 320-24022 Chain of Custody Barcode: [Barcode] Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, Other: M - Hexane, N - None, O - AsNaO2, P - Na2OAS, Q - Na2SO3, R - Na2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)		Total Number of Containers: 2	
PO #: 256648 WCO #: 108-203006.0R Project #: 32007936 SSONW:		FFC IDA - (MOD) 537 Short List Perform MS/MSD (Yes or No)		Special Instructions/Note:	
Sample Identification MW-1 ECS-1 MW-03 MW-EG-15 MW-AG-8D MW-8A-6 MW-EG-2D MW-AG-5S MW-AG-6D		Sample Date (2016) 12/1/16 12/1/16 12/1/16 12/1/16 12/1/16 12/1/16 12/1/16 12/1/16		Sample Time 1124 1130 1256 1320 1350 1400 1430 1457 1550	
Matrix (W=water, S=solid, O=washoil, I=Intrinsic, A=Air)		Sample Type (C=Comp, G=grab)		Preservation Code	
MW-1: Water ECS-1: Water MW-03: Water MW-EG-15: Water MW-AG-8D: Water MW-8A-6: Water MW-EG-2D: Water MW-AG-5S: Water MW-AG-6D: Water		G G G G G G G G		N N N N N N N N	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Date/Time: 12/1/16 1730 12/1/16 1500		Date/Time: 12/1/16 1730 12/1/16 1530 12/1/16 09:40	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Company: ATC Company: ATC Company: ATC	



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Login Sample Receipt Checklist

Client: Environmental Compliance Services, Inc.

Job Number: 320-24022-1

Login Number: 24022

List Source: TestAmerica Sacramento

List Number: 1

Creator: Hytrek, Cheryl

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-24020-1
Client Project/Site: Champlain Cable

For:
Environmental Compliance Services, Inc.
1 Elm Street, Suite 3
Waterbury, Vermont 05676

Attn: Chelsea Fellows-Stanley



Authorized for release by:
1/4/2017 4:30:42 PM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	Isotope Dilution analyte is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Job ID: 320-24020-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 12/3/2016 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8° C.

LCMS

The Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: GW0811 (320-24020-5), GW078.5 (320-24020-7), GW0714 (320-24020-8) and FIELD BLANK 02 (320-24020-19). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

The following sample was diluted to bring the concentration of target analytes within the calibration range: GW129.5 (320-24020-2) and GW0815 (320-24020-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 320-141115.

Method(s) 3535: Due to the excessive amount of sediment in sample bottles the aqueous portion of samples were decanted to new bottles prior to spiking and extraction.

GW129.5 (320-24020-2), GW0916 (320-24020-3), GW0911 (320-24020-4), GW0811 (320-24020-5), GW0815 (320-24020-6) and GW0714 (320-24020-8)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: GW1205

Lab Sample ID: 320-24020-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.84	J	1.7	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.99	J	1.7	0.74	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	120		1.7	0.68	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	330		1.7	0.64	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	17		1.7	1.1	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	34		1.7	0.56	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW129.5

Lab Sample ID: 320-24020-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	1.8	J	2.0	0.86	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	170		2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	16		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	26		2.0	0.65	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	1900		20	7.4	ng/L	10		537 (modified)	Total/NA

Client Sample ID: GW0916

Lab Sample ID: 320-24020-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	1.2	J	2.2	0.98	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	36		2.2	0.90	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	430		2.2	0.84	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.9		2.2	1.4	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	5.3		2.2	0.73	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW0911

Lab Sample ID: 320-24020-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.2	0.99	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.2	J	2.2	0.94	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	31		2.2	0.87	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	400		2.2	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.7		2.2	1.4	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	4.5		2.2	0.71	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW0811

Lab Sample ID: 320-24020-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.1	0.95	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.99	J	2.1	0.90	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	190		2.1	0.83	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	370		2.1	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	11		2.1	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	39		2.1	0.67	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW0815

Lab Sample ID: 320-24020-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	2.1	0.89	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	34		2.1	0.82	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: GW0815 (Continued)

Lab Sample ID: 320-24020-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid (PFNA)	4.9		2.1	0.67	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	600		10	3.8	ng/L	5		537 (modified)	Total/NA

Client Sample ID: GW078.5

Lab Sample ID: 320-24020-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.98	J	1.8	0.84	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.86	J	1.8	0.80	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	25		1.8	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	130		1.8	0.69	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.4		1.8	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	13		1.8	0.60	ng/L	1		537 (modified)	Total/NA

Client Sample ID: GW0714

Lab Sample ID: 320-24020-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	2.0	0.87	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	15		2.0	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	240		2.0	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.7	J	2.0	0.66	ng/L	1		537 (modified)	Total/NA

Client Sample ID: DECON WATER

Lab Sample ID: 320-24020-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.1	J	1.7	0.64	ng/L	1		537 (modified)	Total/NA

Client Sample ID: SB1201

Lab Sample ID: 320-24020-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.11	J	0.22	0.11	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB129.5

Lab Sample ID: 320-24020-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	1.0		0.26	0.13	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB0901

Lab Sample ID: 320-24020-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.41		0.21	0.11	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: DUPLICATE

Lab Sample ID: 320-24020-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.36		0.21	0.11	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB0916

Lab Sample ID: 320-24020-14

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: SB0801

Lab Sample ID: 320-24020-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.37		0.22	0.11	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB0815

Lab Sample ID: 320-24020-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.20	J	0.25	0.13	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB0701

Lab Sample ID: 320-24020-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	2.4		0.21	0.11	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.10	J	0.21	0.089	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: SB0714

Lab Sample ID: 320-24020-18

No Detections.

Client Sample ID: FIELD BLANK 02

Lab Sample ID: 320-24020-19

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: GW1205

Date Collected: 12/01/16 09:02

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-1

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	0.84	J	1.7	0.78	ng/L		12/07/16 17:54	12/23/16 12:05	1
Perfluorohexanesulfonic acid (PFHxS)	0.99	J	1.7	0.74	ng/L		12/07/16 17:54	12/23/16 12:05	1
Perfluoroheptanoic acid (PFHpA)	120		1.7	0.68	ng/L		12/07/16 17:54	12/23/16 12:05	1
Perfluorooctanoic acid (PFOA)	330		1.7	0.64	ng/L		12/07/16 17:54	12/23/16 12:05	1
Perfluorooctanesulfonic acid (PFOS)	17		1.7	1.1	ng/L		12/07/16 17:54	12/23/16 12:05	1
Perfluorononanoic acid (PFNA)	34		1.7	0.56	ng/L		12/07/16 17:54	12/23/16 12:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		25 - 150				12/07/16 17:54	12/23/16 12:05	1
18O2 PFHxS	138		25 - 150				12/07/16 17:54	12/23/16 12:05	1
13C4-PFHpA	98		25 - 150				12/07/16 17:54	12/23/16 12:05	1
13C4 PFOA	69		25 - 150				12/07/16 17:54	12/23/16 12:05	1
13C4 PFOS	145		25 - 150				12/07/16 17:54	12/23/16 12:05	1
13C5 PFNA	56		25 - 150				12/07/16 17:54	12/23/16 12:05	1

Client Sample ID: GW129.5

Date Collected: 12/01/16 09:04

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-2

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.91	ng/L		12/07/16 17:54	12/23/16 12:12	1
Perfluorohexanesulfonic acid (PFHxS)	1.8	J	2.0	0.86	ng/L		12/07/16 17:54	12/23/16 12:12	1
Perfluoroheptanoic acid (PFHpA)	170		2.0	0.80	ng/L		12/07/16 17:54	12/23/16 12:12	1
Perfluorooctanesulfonic acid (PFOS)	16		2.0	1.3	ng/L		12/07/16 17:54	12/23/16 12:12	1
Perfluorononanoic acid (PFNA)	26		2.0	0.65	ng/L		12/07/16 17:54	12/23/16 12:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		25 - 150				12/07/16 17:54	12/23/16 12:12	1
18O2 PFHxS	133		25 - 150				12/07/16 17:54	12/23/16 12:12	1
13C4-PFHpA	112		25 - 150				12/07/16 17:54	12/23/16 12:12	1
13C4 PFOA	60		25 - 150				12/07/16 17:54	12/23/16 12:12	1
13C4 PFOS	135		25 - 150				12/07/16 17:54	12/23/16 12:12	1
13C5 PFNA	104		25 - 150				12/07/16 17:54	12/23/16 12:12	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	1900		20	7.4	ng/L		12/07/16 17:54	12/28/16 17:21	10
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	121		25 - 150				12/07/16 17:54	12/28/16 17:21	10

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: GW0916

Date Collected: 12/01/16 10:28

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-3

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.2	1.0	ng/L		12/07/16 17:54	12/23/16 12:20	1
Perfluorohexanesulfonic acid (PFHxS)	1.2	J	2.2	0.98	ng/L		12/07/16 17:54	12/23/16 12:20	1
Perfluoroheptanoic acid (PFHpA)	36		2.2	0.90	ng/L		12/07/16 17:54	12/23/16 12:20	1
Perfluorooctanoic acid (PFOA)	430		2.2	0.84	ng/L		12/07/16 17:54	12/23/16 12:20	1
Perfluorooctanesulfonic acid (PFOS)	4.9		2.2	1.4	ng/L		12/07/16 17:54	12/23/16 12:20	1
Perfluorononanoic acid (PFNA)	5.3		2.2	0.73	ng/L		12/07/16 17:54	12/23/16 12:20	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>13C2 PFHxA</i>	116		25 - 150				12/07/16 17:54	12/23/16 12:20	1
<i>18O2 PFHxS</i>	137		25 - 150				12/07/16 17:54	12/23/16 12:20	1
<i>13C4-PFHpA</i>	120		25 - 150				12/07/16 17:54	12/23/16 12:20	1
<i>13C4 PFOA</i>	96		25 - 150				12/07/16 17:54	12/23/16 12:20	1
<i>13C4 PFOS</i>	147		25 - 150				12/07/16 17:54	12/23/16 12:20	1
<i>13C5 PFNA</i>	119		25 - 150				12/07/16 17:54	12/23/16 12:20	1

Client Sample ID: GW0911

Date Collected: 12/01/16 10:26

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-4

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.2	0.99	ng/L		12/07/16 17:54	12/23/16 12:27	1
Perfluorohexanesulfonic acid (PFHxS)	1.2	J	2.2	0.94	ng/L		12/07/16 17:54	12/23/16 12:27	1
Perfluoroheptanoic acid (PFHpA)	31		2.2	0.87	ng/L		12/07/16 17:54	12/23/16 12:27	1
Perfluorooctanoic acid (PFOA)	400		2.2	0.81	ng/L		12/07/16 17:54	12/23/16 12:27	1
Perfluorooctanesulfonic acid (PFOS)	3.7		2.2	1.4	ng/L		12/07/16 17:54	12/23/16 12:27	1
Perfluorononanoic acid (PFNA)	4.5		2.2	0.71	ng/L		12/07/16 17:54	12/23/16 12:27	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>13C2 PFHxA</i>	115		25 - 150				12/07/16 17:54	12/23/16 12:27	1
<i>18O2 PFHxS</i>	135		25 - 150				12/07/16 17:54	12/23/16 12:27	1
<i>13C4-PFHpA</i>	115		25 - 150				12/07/16 17:54	12/23/16 12:27	1
<i>13C4 PFOA</i>	96		25 - 150				12/07/16 17:54	12/23/16 12:27	1
<i>13C4 PFOS</i>	142		25 - 150				12/07/16 17:54	12/23/16 12:27	1
<i>13C5 PFNA</i>	118		25 - 150				12/07/16 17:54	12/23/16 12:27	1

Client Sample ID: GW0811

Date Collected: 12/01/16 12:38

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-5

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.1	J	2.1	0.95	ng/L		12/07/16 17:54	12/23/16 12:35	1
Perfluorohexanesulfonic acid (PFHxS)	0.99	J	2.1	0.90	ng/L		12/07/16 17:54	12/23/16 12:35	1
Perfluoroheptanoic acid (PFHpA)	190		2.1	0.83	ng/L		12/07/16 17:54	12/23/16 12:35	1
Perfluorooctanoic acid (PFOA)	370		2.1	0.77	ng/L		12/07/16 17:54	12/23/16 12:35	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: GW0811

Lab Sample ID: 320-24020-5

Date Collected: 12/01/16 12:38

Matrix: Water

Date Received: 12/03/16 09:40

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	11		2.1	1.3	ng/L		12/07/16 17:54	12/23/16 12:35	1
Perfluorononanoic acid (PFNA)	39		2.1	0.67	ng/L		12/07/16 17:54	12/23/16 12:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		25 - 150				12/07/16 17:54	12/23/16 12:35	1
18O2 PFHxS	135		25 - 150				12/07/16 17:54	12/23/16 12:35	1
13C4-PFHpA	104		25 - 150				12/07/16 17:54	12/23/16 12:35	1
13C4 PFOA	93		25 - 150				12/07/16 17:54	12/23/16 12:35	1
13C4 PFOS	152 *		25 - 150				12/07/16 17:54	12/23/16 12:35	1
13C5 PFNA	103		25 - 150				12/07/16 17:54	12/23/16 12:35	1

Client Sample ID: GW0815

Lab Sample ID: 320-24020-6

Date Collected: 12/01/16 12:40

Matrix: Water

Date Received: 12/03/16 09:40

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.1	0.94	ng/L		12/07/16 17:54	12/23/16 12:42	1
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	2.1	0.89	ng/L		12/07/16 17:54	12/23/16 12:42	1
Perfluoroheptanoic acid (PFHpA)	34		2.1	0.82	ng/L		12/07/16 17:54	12/23/16 12:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.1	1.3	ng/L		12/07/16 17:54	12/23/16 12:42	1
Perfluorononanoic acid (PFNA)	4.9		2.1	0.67	ng/L		12/07/16 17:54	12/23/16 12:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	109		25 - 150				12/07/16 17:54	12/23/16 12:42	1
18O2 PFHxS	134		25 - 150				12/07/16 17:54	12/23/16 12:42	1
13C4-PFHpA	122		25 - 150				12/07/16 17:54	12/23/16 12:42	1
13C4 PFOA	93		25 - 150				12/07/16 17:54	12/23/16 12:42	1
13C4 PFOS	145		25 - 150				12/07/16 17:54	12/23/16 12:42	1
13C5 PFNA	127		25 - 150				12/07/16 17:54	12/23/16 12:42	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	600		10	3.8	ng/L		12/07/16 17:54	12/28/16 17:29	5
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA	148		25 - 150				12/07/16 17:54	12/28/16 17:29	5

Client Sample ID: GW078.5

Lab Sample ID: 320-24020-7

Date Collected: 12/01/16 14:00

Matrix: Water

Date Received: 12/03/16 09:40

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	0.98	J	1.8	0.84	ng/L		12/07/16 17:54	12/23/16 12:50	1
Perfluorohexanesulfonic acid (PFHxS)	0.86	J	1.8	0.80	ng/L		12/07/16 17:54	12/23/16 12:50	1
Perfluoroheptanoic acid (PFHpA)	25		1.8	0.73	ng/L		12/07/16 17:54	12/23/16 12:50	1
Perfluorooctanoic acid (PFOA)	130		1.8	0.69	ng/L		12/07/16 17:54	12/23/16 12:50	1
Perfluorooctanesulfonic acid (PFOS)	6.4		1.8	1.2	ng/L		12/07/16 17:54	12/23/16 12:50	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: GW078.5

Date Collected: 12/01/16 14:00

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-7

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	13		1.8	0.60	ng/L		12/07/16 17:54	12/23/16 12:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	107		25 - 150				12/07/16 17:54	12/23/16 12:50	1
18O2 PFHxS	142		25 - 150				12/07/16 17:54	12/23/16 12:50	1
13C4-PFHpA	115		25 - 150				12/07/16 17:54	12/23/16 12:50	1
13C4 PFOA	110		25 - 150				12/07/16 17:54	12/23/16 12:50	1
13C4 PFOS	157 *		25 - 150				12/07/16 17:54	12/23/16 12:50	1
13C5 PFNA	111		25 - 150				12/07/16 17:54	12/23/16 12:50	1

Client Sample ID: GW0714

Date Collected: 12/01/16 14:04

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-8

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/07/16 17:54	12/23/16 13:27	1
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	2.0	0.87	ng/L		12/07/16 17:54	12/23/16 13:27	1
Perfluoroheptanoic acid (PFHpA)	15		2.0	0.81	ng/L		12/07/16 17:54	12/23/16 13:27	1
Perfluorooctanoic acid (PFOA)	240		2.0	0.75	ng/L		12/07/16 17:54	12/23/16 13:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/07/16 17:54	12/23/16 13:27	1
Perfluorononanoic acid (PFNA)	1.7	J	2.0	0.66	ng/L		12/07/16 17:54	12/23/16 13:27	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	119		25 - 150				12/07/16 17:54	12/23/16 13:27	1
18O2 PFHxS	142		25 - 150				12/07/16 17:54	12/23/16 13:27	1
13C4-PFHpA	125		25 - 150				12/07/16 17:54	12/23/16 13:27	1
13C4 PFOA	112		25 - 150				12/07/16 17:54	12/23/16 13:27	1
13C4 PFOS	153 *		25 - 150				12/07/16 17:54	12/23/16 13:27	1
13C5 PFNA	120		25 - 150				12/07/16 17:54	12/23/16 13:27	1

Client Sample ID: DECON WATER

Date Collected: 12/01/16 15:08

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-9

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.79	ng/L		12/07/16 17:54	12/23/16 13:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.75	ng/L		12/07/16 17:54	12/23/16 13:35	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.69	ng/L		12/07/16 17:54	12/23/16 13:35	1
Perfluorooctanoic acid (PFOA)	1.1	J	1.7	0.64	ng/L		12/07/16 17:54	12/23/16 13:35	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	1.1	ng/L		12/07/16 17:54	12/23/16 13:35	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.56	ng/L		12/07/16 17:54	12/23/16 13:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		25 - 150				12/07/16 17:54	12/23/16 13:35	1
18O2 PFHxS	129		25 - 150				12/07/16 17:54	12/23/16 13:35	1
13C4-PFHpA	105		25 - 150				12/07/16 17:54	12/23/16 13:35	1
13C4 PFOA	91		25 - 150				12/07/16 17:54	12/23/16 13:35	1
13C4 PFOS	139		25 - 150				12/07/16 17:54	12/23/16 13:35	1
13C5 PFNA	77		25 - 150				12/07/16 17:54	12/23/16 13:35	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: SB1201

Date Collected: 12/01/16 08:38

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-10

Matrix: Solid

Percent Solids: 91.4

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 22:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 22:07	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.095	ug/Kg	☼	12/09/16 12:56	12/20/16 22:07	1
Perfluorooctanoic acid (PFOA)	0.11	J	0.22	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 22:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.22	0.14	ug/Kg	☼	12/09/16 12:56	12/20/16 22:07	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.090	ug/Kg	☼	12/09/16 12:56	12/20/16 22:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	126		25 - 150				12/09/16 12:56	12/20/16 22:07	1
13C4-PFHpA	145		25 - 150				12/09/16 12:56	12/20/16 22:07	1
13C4 PFOA	145		25 - 150				12/09/16 12:56	12/20/16 22:07	1
13C4 PFOS	130		25 - 150				12/09/16 12:56	12/20/16 22:07	1
13C5 PFNA	146		25 - 150				12/09/16 12:56	12/20/16 22:07	1

Client Sample ID: SB129.5

Date Collected: 12/01/16 08:51

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-11

Matrix: Solid

Percent Solids: 78.0

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.26	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 22:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.26	0.15	ug/Kg	☼	12/09/16 12:56	12/20/16 22:14	1
Perfluoroheptanoic acid (PFHpA)	ND		0.26	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 22:14	1
Perfluorooctanoic acid (PFOA)	1.0		0.26	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 22:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.26	0.16	ug/Kg	☼	12/09/16 12:56	12/20/16 22:14	1
Perfluorononanoic acid (PFNA)	ND		0.26	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 22:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	127		25 - 150				12/09/16 12:56	12/20/16 22:14	1
13C4-PFHpA	143		25 - 150				12/09/16 12:56	12/20/16 22:14	1
13C4 PFOA	141		25 - 150				12/09/16 12:56	12/20/16 22:14	1
13C4 PFOS	131		25 - 150				12/09/16 12:56	12/20/16 22:14	1
13C5 PFNA	145		25 - 150				12/09/16 12:56	12/20/16 22:14	1

Client Sample ID: SB0901

Date Collected: 12/01/16 09:58

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-12

Matrix: Solid

Percent Solids: 96.0

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 22:52	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.12	ug/Kg	☼	12/09/16 12:56	12/20/16 22:52	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.092	ug/Kg	☼	12/09/16 12:56	12/20/16 22:52	1
Perfluorooctanoic acid (PFOA)	0.41		0.21	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 22:52	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.21	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 22:52	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.087	ug/Kg	☼	12/09/16 12:56	12/20/16 22:52	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	118		25 - 150				12/09/16 12:56	12/20/16 22:52	1
13C4-PFHpA	132		25 - 150				12/09/16 12:56	12/20/16 22:52	1
13C4 PFOA	134		25 - 150				12/09/16 12:56	12/20/16 22:52	1
13C4 PFOS	113		25 - 150				12/09/16 12:56	12/20/16 22:52	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: SB0901
Date Collected: 12/01/16 09:58
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-12
Matrix: Solid
Percent Solids: 96.0

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C5 PFNA	129		25 - 150	12/09/16 12:56	12/20/16 22:52	1

Client Sample ID: DUPLICATE
Date Collected: 12/01/16 00:00
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-13
Matrix: Solid
Percent Solids: 96.7

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 22:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.12	ug/Kg	☼	12/09/16 12:56	12/20/16 22:59	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.091	ug/Kg	☼	12/09/16 12:56	12/20/16 22:59	1
Perfluorooctanoic acid (PFOA)	0.36		0.21	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 22:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.21	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 22:59	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.086	ug/Kg	☼	12/09/16 12:56	12/20/16 22:59	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	109		25 - 150				12/09/16 12:56	12/20/16 22:59	1
13C4-PFHpA	115		25 - 150				12/09/16 12:56	12/20/16 22:59	1
13C4 PFOA	129		25 - 150				12/09/16 12:56	12/20/16 22:59	1
13C4 PFOS	107		25 - 150				12/09/16 12:56	12/20/16 22:59	1
13C5 PFNA	122		25 - 150				12/09/16 12:56	12/20/16 22:59	1

Client Sample ID: SB0916
Date Collected: 12/01/16 10:20
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-14
Matrix: Solid
Percent Solids: 72.5

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.28	0.14	ug/Kg	☼	12/09/16 12:56	12/20/16 23:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.28	0.16	ug/Kg	☼	12/09/16 12:56	12/20/16 23:07	1
Perfluoroheptanoic acid (PFHpA)	ND		0.28	0.12	ug/Kg	☼	12/09/16 12:56	12/20/16 23:07	1
Perfluorooctanoic acid (PFOA)	ND		0.28	0.14	ug/Kg	☼	12/09/16 12:56	12/20/16 23:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.28	0.18	ug/Kg	☼	12/09/16 12:56	12/20/16 23:07	1
Perfluorononanoic acid (PFNA)	ND		0.28	0.12	ug/Kg	☼	12/09/16 12:56	12/20/16 23:07	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	108		25 - 150				12/09/16 12:56	12/20/16 23:07	1
13C4-PFHpA	131		25 - 150				12/09/16 12:56	12/20/16 23:07	1
13C4 PFOA	133		25 - 150				12/09/16 12:56	12/20/16 23:07	1
13C4 PFOS	111		25 - 150				12/09/16 12:56	12/20/16 23:07	1
13C5 PFNA	138		25 - 150				12/09/16 12:56	12/20/16 23:07	1

Client Sample ID: SB0801
Date Collected: 12/01/16 11:55
Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-15
Matrix: Solid
Percent Solids: 92.7

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 23:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 23:14	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.095	ug/Kg	☼	12/09/16 12:56	12/20/16 23:14	1
Perfluorooctanoic acid (PFOA)	0.37		0.22	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 23:14	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: SB0801

Date Collected: 12/01/16 11:55

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-15

Matrix: Solid

Percent Solids: 92.7

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		0.22	0.14	ug/Kg	☼	12/09/16 12:56	12/20/16 23:14	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.090	ug/Kg	☼	12/09/16 12:56	12/20/16 23:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	122		25 - 150				12/09/16 12:56	12/20/16 23:14	1
13C4-PFHpA	135		25 - 150				12/09/16 12:56	12/20/16 23:14	1
13C4 PFOA	141		25 - 150				12/09/16 12:56	12/20/16 23:14	1
13C4 PFOS	120		25 - 150				12/09/16 12:56	12/20/16 23:14	1
13C5 PFNA	136		25 - 150				12/09/16 12:56	12/20/16 23:14	1

Client Sample ID: SB0815

Date Collected: 12/01/16 12:20

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-16

Matrix: Solid

Percent Solids: 78.7

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 23:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.15	ug/Kg	☼	12/09/16 12:56	12/20/16 23:22	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 23:22	1
Perfluorooctanoic acid (PFOA)	0.20	J	0.25	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 23:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.25	0.16	ug/Kg	☼	12/09/16 12:56	12/20/16 23:22	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.10	ug/Kg	☼	12/09/16 12:56	12/20/16 23:22	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	118		25 - 150				12/09/16 12:56	12/20/16 23:22	1
13C4-PFHpA	134		25 - 150				12/09/16 12:56	12/20/16 23:22	1
13C4 PFOA	131		25 - 150				12/09/16 12:56	12/20/16 23:22	1
13C4 PFOS	122		25 - 150				12/09/16 12:56	12/20/16 23:22	1
13C5 PFNA	134		25 - 150				12/09/16 12:56	12/20/16 23:22	1

Client Sample ID: SB0701

Date Collected: 12/01/16 13:36

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-17

Matrix: Solid

Percent Solids: 92.1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 23:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 23:29	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.094	ug/Kg	☼	12/09/16 12:56	12/20/16 23:29	1
Perfluorooctanoic acid (PFOA)	2.4		0.21	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 23:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.21	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 23:29	1
Perfluorononanoic acid (PFNA)	0.10	J	0.21	0.089	ug/Kg	☼	12/09/16 12:56	12/20/16 23:29	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	111		25 - 150				12/09/16 12:56	12/20/16 23:29	1
13C4-PFHpA	126		25 - 150				12/09/16 12:56	12/20/16 23:29	1
13C4 PFOA	118		25 - 150				12/09/16 12:56	12/20/16 23:29	1
13C4 PFOS	81		25 - 150				12/09/16 12:56	12/20/16 23:29	1
13C5 PFNA	104		25 - 150				12/09/16 12:56	12/20/16 23:29	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: SB0714

Date Collected: 12/01/16 13:49

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-18

Matrix: Solid

Percent Solids: 80.5

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 23:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.15	ug/Kg	☼	12/09/16 12:56	12/20/16 23:37	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.11	ug/Kg	☼	12/09/16 12:56	12/20/16 23:37	1
Perfluorooctanoic acid (PFOA)	ND		0.25	0.13	ug/Kg	☼	12/09/16 12:56	12/20/16 23:37	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.25	0.16	ug/Kg	☼	12/09/16 12:56	12/20/16 23:37	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.10	ug/Kg	☼	12/09/16 12:56	12/20/16 23:37	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	128		25 - 150				12/09/16 12:56	12/20/16 23:37	1
13C4-PFHpA	135		25 - 150				12/09/16 12:56	12/20/16 23:37	1
13C4 PFOA	138		25 - 150				12/09/16 12:56	12/20/16 23:37	1
13C4 PFOS	137		25 - 150				12/09/16 12:56	12/20/16 23:37	1
13C5 PFNA	140		25 - 150				12/09/16 12:56	12/20/16 23:37	1

Client Sample ID: FIELD BLANK 02

Date Collected: 12/01/16 11:35

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-19

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.81	ng/L		12/07/16 17:54	12/23/16 13:42	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.77	ng/L		12/07/16 17:54	12/23/16 13:42	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.71	ng/L		12/07/16 17:54	12/23/16 13:42	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.66	ng/L		12/07/16 17:54	12/23/16 13:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	1.1	ng/L		12/07/16 17:54	12/23/16 13:42	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.58	ng/L		12/07/16 17:54	12/23/16 13:42	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	158	*	25 - 150				12/07/16 17:54	12/23/16 13:42	1
18O2 PFHxS	140		25 - 150				12/07/16 17:54	12/23/16 13:42	1
13C4-PFHpA	144		25 - 150				12/07/16 17:54	12/23/16 13:42	1
13C4 PFOA	151	*	25 - 150				12/07/16 17:54	12/23/16 13:42	1
13C4 PFOS	147		25 - 150				12/07/16 17:54	12/23/16 13:42	1
13C5 PFNA	144		25 - 150				12/07/16 17:54	12/23/16 13:42	1

Isotope Dilution Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)				
		8O2 PFHx (25-150)	13C4-PFHp (25-150)	13C4 PFO (25-150)	13C4 PFO (25-150)	13C5 PFNA (25-150)
320-24020-10	SB1201	126	145	145	130	146
320-24020-11	SB129.5	127	143	141	131	145
320-24020-12	SB0901	118	132	134	113	129
320-24020-13	DUPLICATE	109	115	129	107	122
320-24020-14	SB0916	108	131	133	111	138
320-24020-15	SB0801	122	135	141	120	136
320-24020-16	SB0815	118	134	131	122	134
320-24020-17	SB0701	111	126	118	81	104
320-24020-18	SB0714	128	135	138	137	140
LCS 320-141462/2-A	Lab Control Sample	122	127	121	116	117
MB 320-141462/1-A	Method Blank	130	143	146	125	140

Surrogate Legend

18O2 PFHxS = 18O2 PFHxS
13C4-PFHpA = 13C4-PFHpA
13C4 PFOA = 13C4 PFOA
13C4 PFOS = 13C4 PFOS
13C5 PFNA = 13C5 PFNA

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)					
		13C2 PFHx (25-150)	18O2 PFHx (25-150)	13C4-PFHp (25-150)	13C4 PFO (25-150)	13C4 PFO (25-150)	13C5 PFNA (25-150)
320-24020-1	GW1205	99	138	98	69	145	56
320-24020-2	GW129.5	90	133	112	60	135	104
320-24020-2 - DL	GW129.5				121		
320-24020-3	GW0916	116	137	120	96	147	119
320-24020-4	GW0911	115	135	115	96	142	118
320-24020-5	GW0811	104	135	104	93	152 *	103
320-24020-6	GW0815	109	134	122	93	145	127
320-24020-6 - DL	GW0815				148		
320-24020-7	GW078.5	107	142	115	110	157 *	111
320-24020-8	GW0714	119	142	125	112	153 *	120
320-24020-9	DECON WATER	108	129	105	91	139	77
320-24020-19	FIELD BLANK 02	158 *	140	144	151 *	147	144
LCS 320-141115/2-A	Lab Control Sample	123	126	124	124	132	114
LCSD 320-141115/3-A	Lab Control Sample Dup	138	137	135	135	143	125
MB 320-141115/1-A	Method Blank	144	145	144	146	150	136

Surrogate Legend

13C2 PFHxA = 13C2 PFHxA
18O2 PFHxS = 18O2 PFHxS
13C4-PFHpA = 13C4-PFHpA
13C4 PFOA = 13C4 PFOA
13C4 PFOS = 13C4 PFOS
13C5 PFNA = 13C5 PFNA

TestAmerica Sacramento

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-141115/1-A

Matrix: Water

Analysis Batch: 143758

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 141115

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/07/16 17:54	12/23/16 11:42	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/07/16 17:54	12/23/16 11:42	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		12/07/16 17:54	12/23/16 11:42	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.75	ng/L		12/07/16 17:54	12/23/16 11:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/07/16 17:54	12/23/16 11:42	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		12/07/16 17:54	12/23/16 11:42	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	144		25 - 150	12/07/16 17:54	12/23/16 11:42	1
18O2 PFHxS	145		25 - 150	12/07/16 17:54	12/23/16 11:42	1
13C4-PFHpA	144		25 - 150	12/07/16 17:54	12/23/16 11:42	1
13C4 PFOA	146		25 - 150	12/07/16 17:54	12/23/16 11:42	1
13C4 PFOS	150		25 - 150	12/07/16 17:54	12/23/16 11:42	1
13C5 PFNA	136		25 - 150	12/07/16 17:54	12/23/16 11:42	1

Lab Sample ID: LCS 320-141115/2-A

Matrix: Water

Analysis Batch: 143758

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 141115

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	43.1		ng/L		122	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.9		ng/L		99	58 - 138
Perfluoroheptanoic acid (PFHpA)	40.0	40.5		ng/L		101	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	40.7		ng/L		102	63 - 141
Perfluorooctanesulfonic acid (PFOS)	37.1	37.1		ng/L		100	47 - 162
Perfluorononanoic acid (PFNA)	40.0	39.8		ng/L		100	71 - 140

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	123		25 - 150
18O2 PFHxS	126		25 - 150
13C4-PFHpA	124		25 - 150
13C4 PFOA	124		25 - 150
13C4 PFOS	132		25 - 150
13C5 PFNA	114		25 - 150

Lab Sample ID: LCSD 320-141115/3-A

Matrix: Water

Analysis Batch: 143758

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 141115

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	35.4	45.2		ng/L		128	55 - 147	5	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	37.5		ng/L		103	58 - 138	4	30
Perfluoroheptanoic acid (PFHpA)	40.0	41.9		ng/L		105	63 - 135	3	30
Perfluorooctanoic acid (PFOA)	40.0	39.6		ng/L		99	63 - 141	3	30

TestAmerica Sacramento

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-141115/3-A

Matrix: Water

Analysis Batch: 143758

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 141115

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Perfluorooctanesulfonic acid (PFOS)	37.1	38.3		ng/L		103	47 - 162	3	30	
Perfluorononanoic acid (PFNA)	40.0	40.3		ng/L		101	71 - 140	1	30	
LCSD LCSD										
Isotope Dilution	%Recovery	Qualifier	Limits							
13C2 PFHxA	138		25 - 150							
18O2 PFHxS	137		25 - 150							
13C4-PFHpA	135		25 - 150							
13C4 PFOA	135		25 - 150							
13C4 PFOS	143		25 - 150							
13C5 PFNA	125		25 - 150							

Lab Sample ID: MB 320-141462/1-A

Matrix: Solid

Analysis Batch: 143281

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 141462

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
										Perfluorobutanesulfonic acid (PFBS)
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.12	ug/Kg		12/09/16 12:56	12/20/16 21:07	1	
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.088	ug/Kg		12/09/16 12:56	12/20/16 21:07	1	
Perfluorooctanoic acid (PFOA)	ND		0.20	0.10	ug/Kg		12/09/16 12:56	12/20/16 21:07	1	
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.13	ug/Kg		12/09/16 12:56	12/20/16 21:07	1	
Perfluorononanoic acid (PFNA)	ND		0.20	0.083	ug/Kg		12/09/16 12:56	12/20/16 21:07	1	
MB MB										
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac				
18O2 PFHxS	130		25 - 150	12/09/16 12:56	12/20/16 21:07	1				
13C4-PFHpA	143		25 - 150	12/09/16 12:56	12/20/16 21:07	1				
13C4 PFOA	146		25 - 150	12/09/16 12:56	12/20/16 21:07	1				
13C4 PFOS	125		25 - 150	12/09/16 12:56	12/20/16 21:07	1				
13C5 PFNA	140		25 - 150	12/09/16 12:56	12/20/16 21:07	1				

Lab Sample ID: LCS 320-141462/2-A

Matrix: Solid

Analysis Batch: 143281

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 141462

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Perfluorobutanesulfonic acid (PFBS)	3.54	3.99		ug/Kg		113	69 - 139			
Perfluorohexanesulfonic acid (PFHxS)	3.64	3.53		ug/Kg		97	53 - 157			
Perfluoroheptanoic acid (PFHpA)	4.00	3.78		ug/Kg		94	69 - 148			
Perfluorooctanoic acid (PFOA)	4.00	3.55		ug/Kg		89	54 - 144			
Perfluorooctanesulfonic acid (PFOS)	3.71	3.66		ug/Kg		99	47 - 154			
Perfluorononanoic acid (PFNA)	4.00	3.56		ug/Kg		89	75 - 134			
LCS LCS										
Isotope Dilution	%Recovery	Qualifier	Limits							
18O2 PFHxS	122		25 - 150							
13C4-PFHpA	127		25 - 150							
13C4 PFOA	121		25 - 150							

TestAmerica Sacramento

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-141462/2-A
Matrix: Solid
Analysis Batch: 143281

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 141462

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>LCS LCS Qualifier</i>	<i>Limits</i>
13C4 PFOS	116		25 - 150
13C5 PFNA	117		25 - 150

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
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- 10
- 11
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- 14
- 15

QC Association Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

LCMS

Prep Batch: 141115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24020-1	GW1205	Total/NA	Water	3535	
320-24020-2	GW129.5	Total/NA	Water	3535	
320-24020-2 - DL	GW129.5	Total/NA	Water	3535	
320-24020-3	GW0916	Total/NA	Water	3535	
320-24020-4	GW0911	Total/NA	Water	3535	
320-24020-5	GW0811	Total/NA	Water	3535	
320-24020-6	GW0815	Total/NA	Water	3535	
320-24020-6 - DL	GW0815	Total/NA	Water	3535	
320-24020-7	GW078.5	Total/NA	Water	3535	
320-24020-8	GW0714	Total/NA	Water	3535	
320-24020-9	DECON WATER	Total/NA	Water	3535	
320-24020-19	FIELD BLANK 02	Total/NA	Water	3535	
MB 320-141115/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-141115/2-A	Lab Control Sample	Total/NA	Water	3535	
LCS 320-141115/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 141462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24020-10	SB1201	Total/NA	Solid	SHAKE	
320-24020-11	SB129.5	Total/NA	Solid	SHAKE	
320-24020-12	SB0901	Total/NA	Solid	SHAKE	
320-24020-13	DUPLICATE	Total/NA	Solid	SHAKE	
320-24020-14	SB0916	Total/NA	Solid	SHAKE	
320-24020-15	SB0801	Total/NA	Solid	SHAKE	
320-24020-16	SB0815	Total/NA	Solid	SHAKE	
320-24020-17	SB0701	Total/NA	Solid	SHAKE	
320-24020-18	SB0714	Total/NA	Solid	SHAKE	
MB 320-141462/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-141462/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 143281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24020-10	SB1201	Total/NA	Solid	537 (modified)	141462
320-24020-11	SB129.5	Total/NA	Solid	537 (modified)	141462
320-24020-12	SB0901	Total/NA	Solid	537 (modified)	141462
320-24020-13	DUPLICATE	Total/NA	Solid	537 (modified)	141462
320-24020-14	SB0916	Total/NA	Solid	537 (modified)	141462
320-24020-15	SB0801	Total/NA	Solid	537 (modified)	141462
320-24020-16	SB0815	Total/NA	Solid	537 (modified)	141462
320-24020-17	SB0701	Total/NA	Solid	537 (modified)	141462
320-24020-18	SB0714	Total/NA	Solid	537 (modified)	141462
MB 320-141462/1-A	Method Blank	Total/NA	Solid	537 (modified)	141462
LCS 320-141462/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	141462

Analysis Batch: 143758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24020-1	GW1205	Total/NA	Water	537 (modified)	141115
320-24020-2	GW129.5	Total/NA	Water	537 (modified)	141115
320-24020-3	GW0916	Total/NA	Water	537 (modified)	141115
320-24020-4	GW0911	Total/NA	Water	537 (modified)	141115
320-24020-5	GW0811	Total/NA	Water	537 (modified)	141115

TestAmerica Sacramento

QC Association Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

LCMS (Continued)

Analysis Batch: 143758 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24020-6	GW0815	Total/NA	Water	537 (modified)	141115
320-24020-7	GW078.5	Total/NA	Water	537 (modified)	141115
320-24020-8	GW0714	Total/NA	Water	537 (modified)	141115
320-24020-9	DECON WATER	Total/NA	Water	537 (modified)	141115
320-24020-19	FIELD BLANK 02	Total/NA	Water	537 (modified)	141115
MB 320-141115/1-A	Method Blank	Total/NA	Water	537 (modified)	141115
LCS 320-141115/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	141115
LCSD 320-141115/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	141115

Analysis Batch: 144214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24020-2 - DL	GW129.5	Total/NA	Water	537 (modified)	141115
320-24020-6 - DL	GW0815	Total/NA	Water	537 (modified)	141115

General Chemistry

Analysis Batch: 142179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24020-10	SB1201	Total/NA	Solid	D 2216	
320-24020-11	SB129.5	Total/NA	Solid	D 2216	
320-24020-12	SB0901	Total/NA	Solid	D 2216	
320-24020-13	DUPLICATE	Total/NA	Solid	D 2216	
320-24020-14	SB0916	Total/NA	Solid	D 2216	
320-24020-15	SB0801	Total/NA	Solid	D 2216	
320-24020-16	SB0815	Total/NA	Solid	D 2216	
320-24020-17	SB0701	Total/NA	Solid	D 2216	
320-24020-18	SB0714	Total/NA	Solid	D 2216	

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: GW1205

Date Collected: 12/01/16 09:02

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			292.8 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			143758	12/23/16 12:05	TTP	TAL SAC

Client Sample ID: GW129.5

Date Collected: 12/01/16 09:04

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			251.8 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			143758	12/23/16 12:12	TTP	TAL SAC
Total/NA	Prep	3535	DL		251.8 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10			144214	12/28/16 17:21	TTP	TAL SAC

Client Sample ID: GW0916

Date Collected: 12/01/16 10:28

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			222.8 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			143758	12/23/16 12:20	TTP	TAL SAC

Client Sample ID: GW0911

Date Collected: 12/01/16 10:26

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			230.7 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			143758	12/23/16 12:27	TTP	TAL SAC

Client Sample ID: GW0811

Date Collected: 12/01/16 12:38

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242.4 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			143758	12/23/16 12:35	TTP	TAL SAC

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: GW0815

Date Collected: 12/01/16 12:40

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			243.8 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			143758	12/23/16 12:42	TTP	TAL SAC
Total/NA	Prep	3535	DL		243.8 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)	DL	5			144214	12/28/16 17:29	TTP	TAL SAC

Client Sample ID: GW078.5

Date Collected: 12/01/16 14:00

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			272.8 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			143758	12/23/16 12:50	TTP	TAL SAC

Client Sample ID: GW0714

Date Collected: 12/01/16 14:04

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			248.6 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			143758	12/23/16 13:27	TTP	TAL SAC

Client Sample ID: DECON WATER

Date Collected: 12/01/16 15:08

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			290.2 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			143758	12/23/16 13:35	TTP	TAL SAC

Client Sample ID: SB1201

Date Collected: 12/01/16 08:38

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			142179	12/14/16 14:34	MY1	TAL SAC

Client Sample ID: SB1201

Date Collected: 12/01/16 08:38

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-10

Matrix: Solid

Percent Solids: 91.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.06 g	1.00 mL	141462	12/09/16 12:56	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143281	12/20/16 22:07	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: SB129.5

Date Collected: 12/01/16 08:51

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-11

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			142179	12/14/16 14:34	MY1	TAL SAC

Client Sample ID: SB129.5

Date Collected: 12/01/16 08:51

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-11

Matrix: Solid

Percent Solids: 78.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	1.00 mL	141462	12/09/16 12:56	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143281	12/20/16 22:14	CBW	TAL SAC

Client Sample ID: SB0901

Date Collected: 12/01/16 09:58

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-12

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			142179	12/14/16 14:34	MY1	TAL SAC

Client Sample ID: SB0901

Date Collected: 12/01/16 09:58

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-12

Matrix: Solid

Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.99 g	1.00 mL	141462	12/09/16 12:56	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143281	12/20/16 22:52	CBW	TAL SAC

Client Sample ID: DUPLICATE

Date Collected: 12/01/16 00:00

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-13

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			142179	12/14/16 14:34	MY1	TAL SAC

Client Sample ID: DUPLICATE

Date Collected: 12/01/16 00:00

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24020-13

Matrix: Solid

Percent Solids: 96.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.00 g	1.00 mL	141462	12/09/16 12:56	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143281	12/20/16 22:59	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: SB0916

Lab Sample ID: 320-24020-14

Date Collected: 12/01/16 10:20

Matrix: Solid

Date Received: 12/03/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			142179	12/14/16 14:34	MY1	TAL SAC

Client Sample ID: SB0916

Lab Sample ID: 320-24020-14

Date Collected: 12/01/16 10:20

Matrix: Solid

Date Received: 12/03/16 09:40

Percent Solids: 72.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.93 g	1.00 mL	141462	12/09/16 12:56	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143281	12/20/16 23:07	CBW	TAL SAC

Client Sample ID: SB0801

Lab Sample ID: 320-24020-15

Date Collected: 12/01/16 11:55

Matrix: Solid

Date Received: 12/03/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			142179	12/14/16 14:34	MY1	TAL SAC

Client Sample ID: SB0801

Lab Sample ID: 320-24020-15

Date Collected: 12/01/16 11:55

Matrix: Solid

Date Received: 12/03/16 09:40

Percent Solids: 92.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.99 g	1.00 mL	141462	12/09/16 12:56	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143281	12/20/16 23:14	CBW	TAL SAC

Client Sample ID: SB0815

Lab Sample ID: 320-24020-16

Date Collected: 12/01/16 12:20

Matrix: Solid

Date Received: 12/03/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			142179	12/14/16 14:34	MY1	TAL SAC

Client Sample ID: SB0815

Lab Sample ID: 320-24020-16

Date Collected: 12/01/16 12:20

Matrix: Solid

Date Received: 12/03/16 09:40

Percent Solids: 78.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.05 g	1.00 mL	141462	12/09/16 12:56	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143281	12/20/16 23:22	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Client Sample ID: SB0701

Lab Sample ID: 320-24020-17

Date Collected: 12/01/16 13:36

Matrix: Solid

Date Received: 12/03/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			142179	12/14/16 14:34	MY1	TAL SAC

Client Sample ID: SB0701

Lab Sample ID: 320-24020-17

Date Collected: 12/01/16 13:36

Matrix: Solid

Date Received: 12/03/16 09:40

Percent Solids: 92.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.07 g	1.00 mL	141462	12/09/16 12:56	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143281	12/20/16 23:29	CBW	TAL SAC

Client Sample ID: SB0714

Lab Sample ID: 320-24020-18

Date Collected: 12/01/16 13:49

Matrix: Solid

Date Received: 12/03/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			142179	12/14/16 14:34	MY1	TAL SAC

Client Sample ID: SB0714

Lab Sample ID: 320-24020-18

Date Collected: 12/01/16 13:49

Matrix: Solid

Date Received: 12/03/16 09:40

Percent Solids: 80.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			4.96 g	1.00 mL	141462	12/09/16 12:56	ERW	TAL SAC
Total/NA	Analysis	537 (modified)		1			143281	12/20/16 23:37	CBW	TAL SAC

Client Sample ID: FIELD BLANK 02

Lab Sample ID: 320-24020-19

Date Collected: 12/01/16 11:35

Matrix: Water

Date Received: 12/03/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			284.2 mL	0.5 mL	141115	12/07/16 17:54	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			143758	12/23/16 13:42	TTP	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Environmental Compliance Services, Inc.
 Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	10-31-17
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-16 *
Wyoming	State Program	8	8TMS-L	01-29-17

* Certification renewal pending - certification considered valid.

Method Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24020-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-24020-1	GW1205	Water	12/01/16 09:02	12/03/16 09:40
320-24020-2	GW129.5	Water	12/01/16 09:04	12/03/16 09:40
320-24020-3	GW0916	Water	12/01/16 10:28	12/03/16 09:40
320-24020-4	GW0911	Water	12/01/16 10:26	12/03/16 09:40
320-24020-5	GW0811	Water	12/01/16 12:38	12/03/16 09:40
320-24020-6	GW0815	Water	12/01/16 12:40	12/03/16 09:40
320-24020-7	GW078.5	Water	12/01/16 14:00	12/03/16 09:40
320-24020-8	GW0714	Water	12/01/16 14:04	12/03/16 09:40
320-24020-9	DECON WATER	Water	12/01/16 15:08	12/03/16 09:40
320-24020-10	SB1201	Solid	12/01/16 08:38	12/03/16 09:40
320-24020-11	SB129.5	Solid	12/01/16 08:51	12/03/16 09:40
320-24020-12	SB0901	Solid	12/01/16 09:58	12/03/16 09:40
320-24020-13	DUPLICATE	Solid	12/01/16 00:00	12/03/16 09:40
320-24020-14	SB0916	Solid	12/01/16 10:20	12/03/16 09:40
320-24020-15	SB0801	Solid	12/01/16 11:55	12/03/16 09:40
320-24020-16	SB0815	Solid	12/01/16 12:20	12/03/16 09:40
320-24020-17	SB0701	Solid	12/01/16 13:36	12/03/16 09:40
320-24020-18	SB0714	Solid	12/01/16 13:49	12/03/16 09:40
320-24020-19	FIELD BLANK 02	Water	12/01/16 11:35	12/03/16 09:40

Chain of Custody Record

Client Information Client Contact: Chelsea Fellows-Stanley Company: Environmental Compliance Services, Inc. - ATC Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802.241.4131 Email: cstanley@ecsconsult.com Project Name: Champlain Cable Site: Colchester VT		Lab PM: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com Phone: 518 3668034 Carrier Tracking No(s): 320-13309-3061.3 Page 3 of 10 Job #: 012	
Due Date Requested: TAT Requested (days): Normal PO #: 256648 WO #: 32007936 Project #: 108-203600-08 SSO#:		Analysis Requested  320-24020 Chain of Custody	
Sample Identification GW1205 GW12915 GW0916 GW0911 Fred Bank 02 GW0811 GW0815 GW078.5 GW0714 Deon water		Sample Date 2016 12/1 0902 12/1 0904 12/1 1028 12/1 1026 12/1 1135 12/1 1238 12/1 1240 12/1 1400 12/1 1404 12/1 1508	
Sample Type (C=Comp, G=grab) G G G G G G G G G G		Matrix (Water, Solid, On-waste, Oil, In-Tissue, A-Air) Water Water Water Water water Water Water Water Water Water Water	
Field Filtered Sample (Yes or No) N N N N N N N N N N N		Field Filtered Sample (Yes or No) N N N N N N N N N N N	
Performs MS/MSD (Yes or No) N N N N N N N N N N N		Performs MS/MSD (Yes or No) N N N N N N N N N N N	
Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - EDA Z - other (specify)	
Special Instructions/Note: (Handwritten notes in this section)		Special Instructions/Note: (Handwritten notes in this section)	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Deliverable Requested: I, II, III, IV, Other (specify) Standard		Special Instructions/QC Requirements:	
Empty Kit Relinquished by:		Method of Shipment:	
Relinquished by: Katrina Mattice Relinquished by: Katrina Mattice Relinquished by: Katrina Mattice		Date/Time: 12/11/16 1700 12/16/16 11500 12/16/16 0940	
Company: ATC Company: ATC Company: ATC		Company: ATC Company: FedEx Company: JAWS	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 1.8°C	



Chain of Custody Record

Client Information Client Contact: Cherylse Fellows-Stanley Company: Environmental Compliance Services, Inc. - ATC Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802.241.4131 Email: cstanley@ecsconsult.com Project Name: Champlain Cable Site: Colchester VT		Lab PM: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com Carrier Tracking No(s): Lab #: Job #: COC No: 320-13309-3061.8 Page: 2 of 10 Date: 2016	
Due Date Requested: TAT Requested (days): Normal PO #: 256648 WO #: Project #: 32007936 SSO# 108203606.08		Analysis Requested Total Number of Containers: 1	
Sample Identification SB1261 SB1291.5 SB0901 duplicate SB0976 SB0801 SB0815 SB0701 SB0714 Field blank 02		Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): PFC, IDA - (MCD) 537 Short List: N	
Sample Date: 2016 Sample Time: 12/11 08:38 12/11 08:51 12/11 09:58 12/11 12/11 10:20 12/11 11:55 12/11 12:20 12/11 13:36 12/11 13:49 12/11 11:35		Matrix (Water, Inorganic, Organic, Other): Preservation Code: Soil Soil Soil Soil Soil Soil Soil Soil Soil Water Soil	
Sample Type (C=Comp, G=grab): C C C C C C C C C C G		Special Instructions/Note: FA Loop Kahn Method	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) Standard		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: Kyrina Mottice Relinquished by: Kyrina Mottice Relinquished by:		Method of Shipment: Date: 12/11/16 1700 Date: 12/11/16 1500 Date: 12/13/16 09:40 Company: ATC Company: ATC Company: AWS	
Custody Seals Intact: Yes <input type="checkbox"/> No <input type="checkbox"/> Custody Seal No.:		Other Remarks:	



Login Sample Receipt Checklist

Client: Environmental Compliance Services, Inc.

Job Number: 320-24020-1

Login Number: 24020

List Source: TestAmerica Sacramento

List Number: 1

Creator: Hytrek, Cheryl

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-24090-1
Client Project/Site: Champlain Cable

For:
Environmental Compliance Services, Inc.
1 Elm Street, Suite 3
Waterbury, Vermont 05676

Attn: Chelsea Fellows-Stanley



Authorized for release by:
1/4/2017 10:00:07 AM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Job ID: 320-24090-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 12/6/2016 10:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.9° C.

LCMS

Method(s) 537 (modified): The percent RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 320-141433 recovered outside control limits for the following analyte: Perfluorooctane Sulfonamide (FOSA). This analyte was not detected in the associated samples, therefore, the data has been reported.

Method(s) 537 (modified): Isotope Dilution Analyte (IDA) recoveries for several analytes are above the method recommended limit for the following samples: 301 (320-24090-1), MW-DUPE (320-24090-8), POB BLANK (320-24090-10), (LCS 320-141433/2-A), (LCSD 320-141433/3-A) and (MB 320-141433/1-A). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-141433.

Method(s) 3535: Due to the excessive amount of sediment in the sample bottles, the aqueous portion of these samples was decanted to new bottles prior to spiking and the extraction. 301 (320-24090-1), 516 (320-24090-2), WG-35 (320-24090-4), WG-4D (320-24090-6), MW-DG-1D (320-24090-7) and MW-DUPE (320-24090-8)

Method(s) 3535: The samples were murky/cloudy with a yellow color after concentration and taking samples to final volume. WG-35 (320-24090-4) and WG-25 (320-24090-5)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Client Sample ID: 301

Lab Sample ID: 320-24090-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	27		2.1	0.85	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	200	B	2.1	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.4	J	2.1	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	4.5		2.1	0.69	ng/L	1		537 (modified)	Total/NA

Client Sample ID: 516

Lab Sample ID: 320-24090-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	2.8		2.0	0.90	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	26		2.0	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	160	B	2.0	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.5		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	4.2		2.0	0.64	ng/L	1		537 (modified)	Total/NA

Client Sample ID: ECS-2

Lab Sample ID: 320-24090-3

No Detections.

Client Sample ID: WG-35

Lab Sample ID: 320-24090-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.5	J	1.9	0.89	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.2		1.9	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	28	B	1.9	0.72	ng/L	1		537 (modified)	Total/NA

Client Sample ID: WG-25

Lab Sample ID: 320-24090-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.0	J	2.0	0.91	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.98	J	2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.7	B	2.0	0.74	ng/L	1		537 (modified)	Total/NA

Client Sample ID: WG-4D

Lab Sample ID: 320-24090-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	2.4		2.0	0.90	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.0		2.0	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	110	B	2.0	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.1	J	2.0	0.64	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-DG-1D

Lab Sample ID: 320-24090-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	1.9	0.84	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	21		1.9	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	370	B	1.9	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.82	J	1.9	0.63	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-DUPE

Lab Sample ID: 320-24090-8

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Client Sample ID: MW-DUPE (Continued)

Lab Sample ID: 320-24090-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	2.0	0.86	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	20		2.0	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	380	B	2.0	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.76	J	2.0	0.64	ng/L	1		537 (modified)	Total/NA

Client Sample ID: RINSATE

Lab Sample ID: 320-24090-9

No Detections.

Client Sample ID: POB BLANK

Lab Sample ID: 320-24090-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	2.0	B	2.0	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	13		2.0	1.2	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.1	J	2.0	0.64	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Client Sample ID: 301

Date Collected: 12/02/16 11:22

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-1

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.1	0.97	ng/L		12/09/16 11:25	12/14/16 14:31	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.1	0.92	ng/L		12/09/16 11:25	12/14/16 14:31	1
Perfluoroheptanoic acid (PFHpA)	27		2.1	0.85	ng/L		12/09/16 11:25	12/14/16 14:31	1
Perfluorooctanoic acid (PFOA)	200	B	2.1	0.79	ng/L		12/09/16 11:25	12/14/16 14:31	1
Perfluorooctanesulfonic acid (PFOS)	1.4	J	2.1	1.3	ng/L		12/09/16 11:25	12/14/16 14:31	1
Perfluorononanoic acid (PFNA)	4.5		2.1	0.69	ng/L		12/09/16 11:25	12/14/16 14:31	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	123		25 - 150				12/09/16 11:25	12/14/16 14:31	1
18O2 PFHxS	147		25 - 150				12/09/16 11:25	12/14/16 14:31	1
13C4-PFHpA	120		25 - 150				12/09/16 11:25	12/14/16 14:31	1
13C4 PFOA	98		25 - 150				12/09/16 11:25	12/14/16 14:31	1
13C4 PFOS	153	*	25 - 150				12/09/16 11:25	12/14/16 14:31	1
13C5 PFNA	100		25 - 150				12/09/16 11:25	12/14/16 14:31	1

Client Sample ID: 516

Date Collected: 12/02/16 12:43

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-2

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	2.8		2.0	0.90	ng/L		12/09/16 11:25	12/14/16 14:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.85	ng/L		12/09/16 11:25	12/14/16 14:38	1
Perfluoroheptanoic acid (PFHpA)	26		2.0	0.79	ng/L		12/09/16 11:25	12/14/16 14:38	1
Perfluorooctanoic acid (PFOA)	160	B	2.0	0.73	ng/L		12/09/16 11:25	12/14/16 14:38	1
Perfluorooctanesulfonic acid (PFOS)	4.5		2.0	1.3	ng/L		12/09/16 11:25	12/14/16 14:38	1
Perfluorononanoic acid (PFNA)	4.2		2.0	0.64	ng/L		12/09/16 11:25	12/14/16 14:38	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	111		25 - 150				12/09/16 11:25	12/14/16 14:38	1
18O2 PFHxS	125		25 - 150				12/09/16 11:25	12/14/16 14:38	1
13C4-PFHpA	116		25 - 150				12/09/16 11:25	12/14/16 14:38	1
13C4 PFOA	98		25 - 150				12/09/16 11:25	12/14/16 14:38	1
13C4 PFOS	137		25 - 150				12/09/16 11:25	12/14/16 14:38	1
13C5 PFNA	80		25 - 150				12/09/16 11:25	12/14/16 14:38	1

Client Sample ID: ECS-2

Date Collected: 12/02/16 09:41

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-3

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.88	ng/L		12/09/16 11:25	12/14/16 14:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.83	ng/L		12/09/16 11:25	12/14/16 14:46	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.77	ng/L		12/09/16 11:25	12/14/16 14:46	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.71	ng/L		12/09/16 11:25	12/14/16 14:46	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.2	ng/L		12/09/16 11:25	12/14/16 14:46	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.62	ng/L		12/09/16 11:25	12/14/16 14:46	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Client Sample ID: ECS-2

Date Collected: 12/02/16 09:41

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-3

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	116		25 - 150	12/09/16 11:25	12/14/16 14:46	1
18O2 PFHxS	134		25 - 150	12/09/16 11:25	12/14/16 14:46	1
13C4-PFHpA	112		25 - 150	12/09/16 11:25	12/14/16 14:46	1
13C4 PFOA	91		25 - 150	12/09/16 11:25	12/14/16 14:46	1
13C4 PFOS	135		25 - 150	12/09/16 11:25	12/14/16 14:46	1
13C5 PFNA	76		25 - 150	12/09/16 11:25	12/14/16 14:46	1

Client Sample ID: WG-35

Date Collected: 12/02/16 11:57

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-4

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.5	J	1.9	0.89	ng/L		12/09/16 11:25	12/14/16 13:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.84	ng/L		12/09/16 11:25	12/14/16 13:08	1
Perfluoroheptanoic acid (PFHpA)	3.2		1.9	0.77	ng/L		12/09/16 11:25	12/14/16 13:08	1
Perfluorooctanoic acid (PFOA)	28	B	1.9	0.72	ng/L		12/09/16 11:25	12/14/16 13:08	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.2	ng/L		12/09/16 11:25	12/14/16 13:08	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.63	ng/L		12/09/16 11:25	12/14/16 13:08	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	126		25 - 150	12/09/16 11:25	12/14/16 13:08	1
18O2 PFHxS	135		25 - 150	12/09/16 11:25	12/14/16 13:08	1
13C4-PFHpA	133		25 - 150	12/09/16 11:25	12/14/16 13:08	1
13C4 PFOA	119		25 - 150	12/09/16 11:25	12/14/16 13:08	1
13C4 PFOS	147		25 - 150	12/09/16 11:25	12/14/16 13:08	1
13C5 PFNA	111		25 - 150	12/09/16 11:25	12/14/16 13:08	1

Client Sample ID: WG-25

Date Collected: 12/02/16 11:02

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-5

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.0	J	2.0	0.91	ng/L		12/09/16 11:25	12/14/16 13:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.86	ng/L		12/09/16 11:25	12/14/16 13:16	1
Perfluoroheptanoic acid (PFHpA)	0.98	J	2.0	0.80	ng/L		12/09/16 11:25	12/14/16 13:16	1
Perfluorooctanoic acid (PFOA)	7.7	B	2.0	0.74	ng/L		12/09/16 11:25	12/14/16 13:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/09/16 11:25	12/14/16 13:16	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		12/09/16 11:25	12/14/16 13:16	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	117		25 - 150	12/09/16 11:25	12/14/16 13:16	1
18O2 PFHxS	131		25 - 150	12/09/16 11:25	12/14/16 13:16	1
13C4-PFHpA	120		25 - 150	12/09/16 11:25	12/14/16 13:16	1
13C4 PFOA	90		25 - 150	12/09/16 11:25	12/14/16 13:16	1
13C4 PFOS	142		25 - 150	12/09/16 11:25	12/14/16 13:16	1
13C5 PFNA	65		25 - 150	12/09/16 11:25	12/14/16 13:16	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Client Sample ID: WG-4D

Date Collected: 12/02/16 13:42

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-6

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	2.4		2.0	0.90	ng/L		12/09/16 11:25	12/14/16 13:23	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.85	ng/L		12/09/16 11:25	12/14/16 13:23	1
Perfluoroheptanoic acid (PFHpA)	9.0		2.0	0.78	ng/L		12/09/16 11:25	12/14/16 13:23	1
Perfluorooctanoic acid (PFOA)	110	B	2.0	0.73	ng/L		12/09/16 11:25	12/14/16 13:23	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.2	ng/L		12/09/16 11:25	12/14/16 13:23	1
Perfluorononanoic acid (PFNA)	1.1	J	2.0	0.64	ng/L		12/09/16 11:25	12/14/16 13:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	120		25 - 150				12/09/16 11:25	12/14/16 13:23	1
18O2 PFHxS	135		25 - 150				12/09/16 11:25	12/14/16 13:23	1
13C4-PFHpA	121		25 - 150				12/09/16 11:25	12/14/16 13:23	1
13C4 PFOA	99		25 - 150				12/09/16 11:25	12/14/16 13:23	1
13C4 PFOS	139		25 - 150				12/09/16 11:25	12/14/16 13:23	1
13C5 PFNA	91		25 - 150				12/09/16 11:25	12/14/16 13:23	1

Client Sample ID: MW-DG-1D

Date Collected: 12/02/16 10:02

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-7

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.89	ng/L		12/09/16 11:25	12/14/16 13:31	1
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	1.9	0.84	ng/L		12/09/16 11:25	12/14/16 13:31	1
Perfluoroheptanoic acid (PFHpA)	21		1.9	0.78	ng/L		12/09/16 11:25	12/14/16 13:31	1
Perfluorooctanoic acid (PFOA)	370	B	1.9	0.73	ng/L		12/09/16 11:25	12/14/16 13:31	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.2	ng/L		12/09/16 11:25	12/14/16 13:31	1
Perfluorononanoic acid (PFNA)	0.82	J	1.9	0.63	ng/L		12/09/16 11:25	12/14/16 13:31	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	124		25 - 150				12/09/16 11:25	12/14/16 13:31	1
18O2 PFHxS	141		25 - 150				12/09/16 11:25	12/14/16 13:31	1
13C4-PFHpA	128		25 - 150				12/09/16 11:25	12/14/16 13:31	1
13C4 PFOA	100		25 - 150				12/09/16 11:25	12/14/16 13:31	1
13C4 PFOS	148		25 - 150				12/09/16 11:25	12/14/16 13:31	1
13C5 PFNA	102		25 - 150				12/09/16 11:25	12/14/16 13:31	1

Client Sample ID: MW-DUPE

Date Collected: 12/02/16 08:15

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-8

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.90	ng/L		12/09/16 11:25	12/14/16 14:08	1
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	2.0	0.86	ng/L		12/09/16 11:25	12/14/16 14:08	1
Perfluoroheptanoic acid (PFHpA)	20		2.0	0.79	ng/L		12/09/16 11:25	12/14/16 14:08	1
Perfluorooctanoic acid (PFOA)	380	B	2.0	0.74	ng/L		12/09/16 11:25	12/14/16 14:08	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/09/16 11:25	12/14/16 14:08	1
Perfluorononanoic acid (PFNA)	0.76	J	2.0	0.64	ng/L		12/09/16 11:25	12/14/16 14:08	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Client Sample ID: MW-DUPE

Date Collected: 12/02/16 08:15

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-8

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	124		25 - 150	12/09/16 11:25	12/14/16 14:08	1
18O2 PFHxS	143		25 - 150	12/09/16 11:25	12/14/16 14:08	1
13C4-PFHpA	132		25 - 150	12/09/16 11:25	12/14/16 14:08	1
13C4 PFOA	102		25 - 150	12/09/16 11:25	12/14/16 14:08	1
13C4 PFOS	153 *		25 - 150	12/09/16 11:25	12/14/16 14:08	1
13C5 PFNA	106		25 - 150	12/09/16 11:25	12/14/16 14:08	1

Client Sample ID: RINSATE

Date Collected: 12/02/16 13:30

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-9

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.88	ng/L		12/09/16 11:25	12/14/16 14:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.83	ng/L		12/09/16 11:25	12/14/16 14:16	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.77	ng/L		12/09/16 11:25	12/14/16 14:16	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.72	ng/L		12/09/16 11:25	12/14/16 14:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.2	ng/L		12/09/16 11:25	12/14/16 14:16	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.63	ng/L		12/09/16 11:25	12/14/16 14:16	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	151 *		25 - 150	12/09/16 11:25	12/14/16 14:16	1
18O2 PFHxS	144		25 - 150	12/09/16 11:25	12/14/16 14:16	1
13C4-PFHpA	154 *		25 - 150	12/09/16 11:25	12/14/16 14:16	1
13C4 PFOA	144		25 - 150	12/09/16 11:25	12/14/16 14:16	1
13C4 PFOS	148		25 - 150	12/09/16 11:25	12/14/16 14:16	1
13C5 PFNA	153 *		25 - 150	12/09/16 11:25	12/14/16 14:16	1

Client Sample ID: POB BLANK

Date Collected: 12/02/16 16:40

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-10

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.90	ng/L		12/09/16 11:25	12/14/16 14:23	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.85	ng/L		12/09/16 11:25	12/14/16 14:23	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.79	ng/L		12/09/16 11:25	12/14/16 14:23	1
Perfluorooctanoic acid (PFOA)	2.0	B	2.0	0.73	ng/L		12/09/16 11:25	12/14/16 14:23	1
Perfluorooctanesulfonic acid (PFOS)	13		2.0	1.2	ng/L		12/09/16 11:25	12/14/16 14:23	1
Perfluorononanoic acid (PFNA)	1.1	J	2.0	0.64	ng/L		12/09/16 11:25	12/14/16 14:23	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	161 *		25 - 150	12/09/16 11:25	12/14/16 14:23	1
18O2 PFHxS	152 *		25 - 150	12/09/16 11:25	12/14/16 14:23	1
13C4-PFHpA	154 *		25 - 150	12/09/16 11:25	12/14/16 14:23	1
13C4 PFOA	161 *		25 - 150	12/09/16 11:25	12/14/16 14:23	1
13C4 PFOS	136		25 - 150	12/09/16 11:25	12/14/16 14:23	1
13C5 PFNA	157 *		25 - 150	12/09/16 11:25	12/14/16 14:23	1

TestAmerica Sacramento

Isotope Dilution Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)					
		¹³ C2 PFHx (25-150)	¹⁸ O2 PFHx (25-150)	¹³ C4-PFHp (25-150)	¹³ C4 PFOA (25-150)	¹³ C4 PFOA (25-150)	¹³ C5 PFNA (25-150)
320-24090-1	301	123	147	120	98	153 *	100
320-24090-2	516	111	125	116	98	137	80
320-24090-3	ECS-2	116	134	112	91	135	76
320-24090-4	WG-35	126	135	133	119	147	111
320-24090-5	WG-25	117	131	120	90	142	65
320-24090-6	WG-4D	120	135	121	99	139	91
320-24090-7	MW-DG-1D	124	141	128	100	148	102
320-24090-8	MW-DUPE	124	143	132	102	153 *	106
320-24090-9	RINSATE	151 *	144	154 *	144	148	153 *
320-24090-10	POB BLANK	161 *	152 *	154 *	161 *	136	157 *
LCS 320-141433/2-A	Lab Control Sample	145	142	152 *	149	146	144
LCSD 320-141433/3-A	Lab Control Sample Dup	136	142	156 *	149	148	142
MB 320-141433/1-A	Method Blank	129	129	145	137	127	136

Surrogate Legend

¹³C2 PFHxA = ¹³C2 PFHxA
¹⁸O2 PFHxS = ¹⁸O2 PFHxS
¹³C4-PFHpA = ¹³C4-PFHpA
¹³C4 PFOA = ¹³C4 PFOA
¹³C4 PFOS = ¹³C4 PFOS
¹³C5 PFNA = ¹³C5 PFNA

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-141433/1-A

Matrix: Water

Analysis Batch: 142146

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 141433

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/09/16 11:25	12/14/16 12:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/09/16 11:25	12/14/16 12:16	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		12/09/16 11:25	12/14/16 12:16	1
Perfluorooctanoic acid (PFOA)	0.857	J	2.0	0.75	ng/L		12/09/16 11:25	12/14/16 12:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/09/16 11:25	12/14/16 12:16	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		12/09/16 11:25	12/14/16 12:16	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	129		25 - 150	12/09/16 11:25	12/14/16 12:16	1
18O2 PFHxS	129		25 - 150	12/09/16 11:25	12/14/16 12:16	1
13C4-PFHpA	145		25 - 150	12/09/16 11:25	12/14/16 12:16	1
13C4 PFOA	137		25 - 150	12/09/16 11:25	12/14/16 12:16	1
13C4 PFOS	127		25 - 150	12/09/16 11:25	12/14/16 12:16	1
13C5 PFNA	136		25 - 150	12/09/16 11:25	12/14/16 12:16	1

Lab Sample ID: LCS 320-141433/2-A

Matrix: Water

Analysis Batch: 142146

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 141433

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	35.0		ng/L		99	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.5		ng/L		89	58 - 138
Perfluoroheptanoic acid (PFHpA)	40.0	35.8		ng/L		89	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	33.7		ng/L		84	63 - 141
Perfluorooctanesulfonic acid (PFOS)	37.1	33.0		ng/L		89	47 - 162
Perfluorononanoic acid (PFNA)	40.0	32.5		ng/L		81	71 - 140

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	145		25 - 150
18O2 PFHxS	142		25 - 150
13C4-PFHpA	152 *		25 - 150
13C4 PFOA	149		25 - 150
13C4 PFOS	146		25 - 150
13C5 PFNA	144		25 - 150

Lab Sample ID: LCSD 320-141433/3-A

Matrix: Water

Analysis Batch: 142146

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 141433

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	35.4	36.1		ng/L		102	55 - 147	3	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.4		ng/L		92	58 - 138	3	30
Perfluoroheptanoic acid (PFHpA)	40.0	37.3		ng/L		93	63 - 135	4	30
Perfluorooctanoic acid (PFOA)	40.0	35.4		ng/L		89	63 - 141	5	30

TestAmerica Sacramento

QC Sample Results

Client: Environmental Compliance Services, Inc.
 Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-141433/3-A

Matrix: Water

Analysis Batch: 142146

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 141433

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.	RPD	RPD	Limit
							Limits	RPD	Limit	
Perfluorooctanesulfonic acid (PFOS)	37.1	34.3		ng/L		93	47 - 162	4		30
Perfluorononanoic acid (PFNA)	40.0	34.9		ng/L		87	71 - 140	7		30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C2 PFHxA	136		25 - 150
18O2 PFHxS	142		25 - 150
13C4-PFHpA	156	*	25 - 150
13C4 PFOA	149		25 - 150
13C4 PFOS	148		25 - 150
13C5 PFNA	142		25 - 150

QC Association Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

LCMS

Prep Batch: 141433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24090-1	301	Total/NA	Water	3535	
320-24090-2	516	Total/NA	Water	3535	
320-24090-3	ECS-2	Total/NA	Water	3535	
320-24090-4	WG-35	Total/NA	Water	3535	
320-24090-5	WG-25	Total/NA	Water	3535	
320-24090-6	WG-4D	Total/NA	Water	3535	
320-24090-7	MW-DG-1D	Total/NA	Water	3535	
320-24090-8	MW-DUPE	Total/NA	Water	3535	
320-24090-9	RINSATE	Total/NA	Water	3535	
320-24090-10	POB BLANK	Total/NA	Water	3535	
MB 320-141433/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-141433/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-141433/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 142146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24090-1	301	Total/NA	Water	537 (modified)	141433
320-24090-2	516	Total/NA	Water	537 (modified)	141433
320-24090-3	ECS-2	Total/NA	Water	537 (modified)	141433
320-24090-4	WG-35	Total/NA	Water	537 (modified)	141433
320-24090-5	WG-25	Total/NA	Water	537 (modified)	141433
320-24090-6	WG-4D	Total/NA	Water	537 (modified)	141433
320-24090-7	MW-DG-1D	Total/NA	Water	537 (modified)	141433
320-24090-8	MW-DUPE	Total/NA	Water	537 (modified)	141433
320-24090-9	RINSATE	Total/NA	Water	537 (modified)	141433
320-24090-10	POB BLANK	Total/NA	Water	537 (modified)	141433
MB 320-141433/1-A	Method Blank	Total/NA	Water	537 (modified)	141433
LCS 320-141433/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	141433
LCSD 320-141433/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	141433

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Client Sample ID: 301

Date Collected: 12/02/16 11:22

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			236.4 mL	0.5 mL	141433	12/09/16 11:25	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			142146	12/14/16 14:31	SBC	TAL SAC

Client Sample ID: 516

Date Collected: 12/02/16 12:43

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.2 mL	0.5 mL	141433	12/09/16 11:25	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			142146	12/14/16 14:38	SBC	TAL SAC

Client Sample ID: ECS-2

Date Collected: 12/02/16 09:41

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262 mL	0.5 mL	141433	12/09/16 11:25	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			142146	12/14/16 14:46	SBC	TAL SAC

Client Sample ID: WG-35

Date Collected: 12/02/16 11:57

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			259 mL	0.5 mL	141433	12/09/16 11:25	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			142146	12/14/16 13:08	SBC	TAL SAC

Client Sample ID: WG-25

Date Collected: 12/02/16 11:02

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			251.5 mL	0.5 mL	141433	12/09/16 11:25	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			142146	12/14/16 13:16	SBC	TAL SAC

Client Sample ID: WG-4D

Date Collected: 12/02/16 13:42

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.6 mL	0.5 mL	141433	12/09/16 11:25	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			142146	12/14/16 13:23	SBC	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Client Sample ID: MW-DG-1D

Date Collected: 12/02/16 10:02

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			257.5 mL	0.5 mL	141433	12/09/16 11:25	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			142146	12/14/16 13:31	SBC	TAL SAC

Client Sample ID: MW-DUPE

Date Collected: 12/02/16 08:15

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			254 mL	0.5 mL	141433	12/09/16 11:25	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			142146	12/14/16 14:08	SBC	TAL SAC

Client Sample ID: RINSATE

Date Collected: 12/02/16 13:30

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			260.5 mL	0.5 mL	141433	12/09/16 11:25	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			142146	12/14/16 14:16	SBC	TAL SAC

Client Sample ID: POB BLANK

Date Collected: 12/02/16 16:40

Date Received: 12/06/16 10:30

Lab Sample ID: 320-24090-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			255.3 mL	0.5 mL	141433	12/09/16 11:25	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			142146	12/14/16 14:23	SBC	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	10-31-17
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-16 *
Wyoming	State Program	8	8TMS-L	01-29-17

* Certification renewal pending - certification considered valid.

TestAmerica Sacramento

Method Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Sample Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24090-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-24090-1	301	Water	12/02/16 11:22	12/06/16 10:30
320-24090-2	516	Water	12/02/16 12:43	12/06/16 10:30
320-24090-3	ECS-2	Water	12/02/16 09:41	12/06/16 10:30
320-24090-4	WG-35	Water	12/02/16 11:57	12/06/16 10:30
320-24090-5	WG-25	Water	12/02/16 11:02	12/06/16 10:30
320-24090-6	WG-4D	Water	12/02/16 13:42	12/06/16 10:30
320-24090-7	MW-DG-1D	Water	12/02/16 10:02	12/06/16 10:30
320-24090-8	MW-DUPE	Water	12/02/16 08:15	12/06/16 10:30
320-24090-9	RINSATE	Water	12/02/16 13:30	12/06/16 10:30
320-24090-10	POB BLANK	Water	12/02/16 16:40	12/06/16 10:30

Chain of Custody Record

Client Information
 Client Contact: Kellmann, Jill
 Phone: 802 241 4131
 E-Mail: jill.kellmann@testamericainc.com
 Company: Chelsea Fellows-Stanley
 Environmental Compliance Services, Inc.
 Address: 1 Elm Street, Suite 3
 City: Waterbury
 State/Zip: VT, 05676
 Phone: 802 241 4131
 Email: cstanley@ecscsconsult.com
 Project Name: Champlain Cable
 Site: Colchester, VT

Due Date Requested:
 TAT Requested (days): Standard
 PO #: 256648
 WO #: 32007936 / 08-203606.08
 Project #: 32007936 / 08-203606.08
 SSO/W#:

Sampler: GF/WD
Lab PM: Kellmann, Jill
Carrier Tracking No(s): 320-13309-3061.3
 Page: 1 of 1
 Page 3 of 48
 Job #:

Analysis Requested

Preservation Codes:
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MeOH
 G - Antichlor
 H - Ascorbic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDA
 Other:
 M - Hexane
 N - None
 O - AsNaO2
 P - Na2O4S
 Q - Na2SO3
 R - Na2S2O3
 S - H2SO4
 T - TSP Dodecylhydrate
 U - Acetone
 V - MCAA
 W - pH 4-5
 Z - other (specify)

Sample Identification

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, On-waste, etc.)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers	Special Instructions/Note
301	12/2/16	1122	G	Water		N	N	2	
51G		1243	G	Water		N	N	2	
ECS-2		0941	G	Water		N	N	2	
WG-35		1157	G	Water		N	N	2	
WG-25		1102	G	Water		N	N	2	
WG-4D		1342	G	Water		N	N	2	
MW-DG-1D		1002	G	Water		N	N	2	
MW-Dupe		0815	G	Water		N	N	2	
Rinsate		1330	G	Water		N	N	2	
PDB Blank		1640	G	Water		N	N	2	

Barcode: 320-24090 Chain of Custody

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Special Instructions/QC Requirements:

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 12/2/16 1730 Company: ATC
 Relinquished by: Janna Woodward Date/Time: 12/5/16 1430 Company: ATC
 Relinquished by: _____ Date/Time: 12/6/16 1030 Company: ATC
 Cooler Temperature(s) °C and Other Remarks: 1.9°C



Login Sample Receipt Checklist

Client: Environmental Compliance Services, Inc.

Job Number: 320-24090-1

Login Number: 24090
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-24021-1
Client Project/Site: Champlain Cable

For:
Environmental Compliance Services, Inc.
1 Elm Street, Suite 3
Waterbury, Vermont 05676

Attn: Chelsea Fellows-Stanley



Authorized for release by:
12/30/2016 11:20:58 AM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	Isotope Dilution analyte is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Job ID: 320-24021-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt

The samples were received on 12/3/2016 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

LCMS

Method(s) 537 (modified): The following sample was diluted due to the nature of the sample matrix interfering with the quantitation of Perfluorononanoic acid (PFNA) and Perfluorooctanesulfonic acid (PFOS): PURGE WATER (320-24021-7). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-141050.

Method(s) 3535: Due to the excessive amount of sediment in the sample bottles, the aqueous portion of these samples was decanted to new bottles to spiking and the extraction.

SW0101 (320-24021-1), SW0401 (320-24021-2), SW0301 (320-24021-3), SW0501 (320-24021-5) and PURGE WATER (320-24021-7)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Client Sample ID: SW0101

Lab Sample ID: 320-24021-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.8		2.0	0.88	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.8		2.0	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	100		2.0	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	73		2.0	1.3	ng/L	1		537 (modified)	Total/NA

Client Sample ID: SW0401

Lab Sample ID: 320-24021-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.3	J	2.0	0.93	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	12		2.0	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	150		2.0	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5		2.0	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.6		2.0	0.66	ng/L	1		537 (modified)	Total/NA

Client Sample ID: SW0301

Lab Sample ID: 320-24021-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	8.4		2.0	0.90	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	2.0	0.85	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.9	J	2.0	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	10		2.0	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	9.2		2.0	1.3	ng/L	1		537 (modified)	Total/NA

Client Sample ID: DUPLICATE

Lab Sample ID: 320-24021-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	8.3		2.0	0.91	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.3	J	2.0	0.87	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.9	J	2.0	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	10		2.0	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.8		2.0	1.3	ng/L	1		537 (modified)	Total/NA

Client Sample ID: SW0501

Lab Sample ID: 320-24021-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.2	J	2.1	0.95	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.93	J	2.1	0.90	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	31		2.1	0.83	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	190		2.1	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	12		2.1	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	46		2.1	0.68	ng/L	1		537 (modified)	Total/NA

Client Sample ID: FIELD BLANK

Lab Sample ID: 320-24021-6

No Detections.

Client Sample ID: PURGE WATER

Lab Sample ID: 320-24021-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	9.9		2.0	0.93	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	14		2.0	0.88	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Client Sample ID: PURGE WATER (Continued)

Lab Sample ID: 320-24021-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	24		2.0	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	330		2.0	0.76	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	130		4.1	2.6	ng/L	2		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA) - DL	7.7		4.1	1.3	ng/L	2		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Client Sample ID: SW0101

Date Collected: 12/02/16 09:06

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-1

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.93	ng/L		12/07/16 12:37	12/23/16 16:44	1
Perfluorohexanesulfonic acid (PFHxS)	2.8		2.0	0.88	ng/L		12/07/16 12:37	12/23/16 16:44	1
Perfluoroheptanoic acid (PFHpA)	3.8		2.0	0.81	ng/L		12/07/16 12:37	12/23/16 16:44	1
Perfluorooctanoic acid (PFOA)	100		2.0	0.76	ng/L		12/07/16 12:37	12/23/16 16:44	1
Perfluorooctanesulfonic acid (PFOS)	73		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 16:44	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.66	ng/L		12/07/16 12:37	12/23/16 16:44	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2 PFHxA	73		25 - 150				12/07/16 12:37	12/23/16 16:44	1
18O2 PFHxS	103		25 - 150				12/07/16 12:37	12/23/16 16:44	1
13C4-PFHpA	85		25 - 150				12/07/16 12:37	12/23/16 16:44	1
13C4 PFOA	80		25 - 150				12/07/16 12:37	12/23/16 16:44	1
13C4 PFOS	115		25 - 150				12/07/16 12:37	12/23/16 16:44	1
13C5 PFNA	76		25 - 150				12/07/16 12:37	12/23/16 16:44	1

Client Sample ID: SW0401

Date Collected: 12/02/16 09:28

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-2

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.3	J	2.0	0.93	ng/L		12/07/16 12:37	12/23/16 16:52	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.88	ng/L		12/07/16 12:37	12/23/16 16:52	1
Perfluoroheptanoic acid (PFHpA)	12		2.0	0.81	ng/L		12/07/16 12:37	12/23/16 16:52	1
Perfluorooctanoic acid (PFOA)	150		2.0	0.76	ng/L		12/07/16 12:37	12/23/16 16:52	1
Perfluorooctanesulfonic acid (PFOS)	2.5		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 16:52	1
Perfluorononanoic acid (PFNA)	2.6		2.0	0.66	ng/L		12/07/16 12:37	12/23/16 16:52	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2 PFHxA	105		25 - 150				12/07/16 12:37	12/23/16 16:52	1
18O2 PFHxS	128		25 - 150				12/07/16 12:37	12/23/16 16:52	1
13C4-PFHpA	118		25 - 150				12/07/16 12:37	12/23/16 16:52	1
13C4 PFOA	105		25 - 150				12/07/16 12:37	12/23/16 16:52	1
13C4 PFOS	139		25 - 150				12/07/16 12:37	12/23/16 16:52	1
13C5 PFNA	88		25 - 150				12/07/16 12:37	12/23/16 16:52	1

Client Sample ID: SW0301

Date Collected: 12/02/16 09:44

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-3

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	8.4		2.0	0.90	ng/L		12/07/16 12:37	12/23/16 16:59	1
Perfluorohexanesulfonic acid (PFHxS)	1.5	J	2.0	0.85	ng/L		12/07/16 12:37	12/23/16 16:59	1
Perfluoroheptanoic acid (PFHpA)	1.9	J	2.0	0.79	ng/L		12/07/16 12:37	12/23/16 16:59	1
Perfluorooctanoic acid (PFOA)	10		2.0	0.74	ng/L		12/07/16 12:37	12/23/16 16:59	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Client Sample ID: SW0301

Date Collected: 12/02/16 09:44

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-3

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	9.2		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 16:59	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.64	ng/L		12/07/16 12:37	12/23/16 16:59	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		25 - 150				12/07/16 12:37	12/23/16 16:59	1
18O2 PFHxS	118		25 - 150				12/07/16 12:37	12/23/16 16:59	1
13C4-PFHpA	94		25 - 150				12/07/16 12:37	12/23/16 16:59	1
13C4 PFOA	91		25 - 150				12/07/16 12:37	12/23/16 16:59	1
13C4 PFOS	128		25 - 150				12/07/16 12:37	12/23/16 16:59	1
13C5 PFNA	82		25 - 150				12/07/16 12:37	12/23/16 16:59	1

Client Sample ID: DUPLICATE

Date Collected: 12/02/16 00:00

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-4

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	8.3		2.0	0.91	ng/L		12/07/16 12:37	12/23/16 17:07	1
Perfluorohexanesulfonic acid (PFHxS)	1.3	J	2.0	0.87	ng/L		12/07/16 12:37	12/23/16 17:07	1
Perfluoroheptanoic acid (PFHpA)	1.9	J	2.0	0.80	ng/L		12/07/16 12:37	12/23/16 17:07	1
Perfluorooctanoic acid (PFOA)	10		2.0	0.74	ng/L		12/07/16 12:37	12/23/16 17:07	1
Perfluorooctanesulfonic acid (PFOS)	8.8		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 17:07	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		12/07/16 12:37	12/23/16 17:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		25 - 150				12/07/16 12:37	12/23/16 17:07	1
18O2 PFHxS	119		25 - 150				12/07/16 12:37	12/23/16 17:07	1
13C4-PFHpA	98		25 - 150				12/07/16 12:37	12/23/16 17:07	1
13C4 PFOA	95		25 - 150				12/07/16 12:37	12/23/16 17:07	1
13C4 PFOS	130		25 - 150				12/07/16 12:37	12/23/16 17:07	1
13C5 PFNA	93		25 - 150				12/07/16 12:37	12/23/16 17:07	1

Client Sample ID: SW0501

Date Collected: 12/02/16 10:03

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-5

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	1.2	J	2.1	0.95	ng/L		12/07/16 12:37	12/23/16 17:14	1
Perfluorohexanesulfonic acid (PFHxS)	0.93	J	2.1	0.90	ng/L		12/07/16 12:37	12/23/16 17:14	1
Perfluoroheptanoic acid (PFHpA)	31		2.1	0.83	ng/L		12/07/16 12:37	12/23/16 17:14	1
Perfluorooctanoic acid (PFOA)	190		2.1	0.77	ng/L		12/07/16 12:37	12/23/16 17:14	1
Perfluorooctanesulfonic acid (PFOS)	12		2.1	1.3	ng/L		12/07/16 12:37	12/23/16 17:14	1
Perfluorononanoic acid (PFNA)	46		2.1	0.68	ng/L		12/07/16 12:37	12/23/16 17:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		25 - 150				12/07/16 12:37	12/23/16 17:14	1

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Client Sample ID: SW0501

Date Collected: 12/02/16 10:03

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-5

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	123		25 - 150	12/07/16 12:37	12/23/16 17:14	1
13C4-PFHpA	108		25 - 150	12/07/16 12:37	12/23/16 17:14	1
13C4 PFOA	94		25 - 150	12/07/16 12:37	12/23/16 17:14	1
13C4 PFOS	130		25 - 150	12/07/16 12:37	12/23/16 17:14	1
13C5 PFNA	91		25 - 150	12/07/16 12:37	12/23/16 17:14	1

Client Sample ID: FIELD BLANK

Date Collected: 12/02/16 10:10

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-6

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.91	ng/L		12/07/16 12:37	12/23/16 17:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.86	ng/L		12/07/16 12:37	12/23/16 17:22	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.79	ng/L		12/07/16 12:37	12/23/16 17:22	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.74	ng/L		12/07/16 12:37	12/23/16 17:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 17:22	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.64	ng/L		12/07/16 12:37	12/23/16 17:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	142		25 - 150	12/07/16 12:37	12/23/16 17:22	1
18O2 PFHxS	133		25 - 150	12/07/16 12:37	12/23/16 17:22	1
13C4-PFHpA	139		25 - 150	12/07/16 12:37	12/23/16 17:22	1
13C4 PFOA	152 *		25 - 150	12/07/16 12:37	12/23/16 17:22	1
13C4 PFOS	140		25 - 150	12/07/16 12:37	12/23/16 17:22	1
13C5 PFNA	141		25 - 150	12/07/16 12:37	12/23/16 17:22	1

Client Sample ID: PURGE WATER

Date Collected: 12/02/16 10:50

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-7

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	9.9		2.0	0.93	ng/L		12/07/16 12:37	12/28/16 17:51	1
Perfluorohexanesulfonic acid (PFHxS)	14		2.0	0.88	ng/L		12/07/16 12:37	12/28/16 17:51	1
Perfluoroheptanoic acid (PFHpA)	24		2.0	0.81	ng/L		12/07/16 12:37	12/28/16 17:51	1
Perfluorooctanoic acid (PFOA)	330		2.0	0.76	ng/L		12/07/16 12:37	12/28/16 17:51	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	43		25 - 150	12/07/16 12:37	12/28/16 17:51	1
18O2 PFHxS	86		25 - 150	12/07/16 12:37	12/28/16 17:51	1
13C4-PFHpA	57		25 - 150	12/07/16 12:37	12/28/16 17:51	1
13C4 PFOA	63		25 - 150	12/07/16 12:37	12/28/16 17:51	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	130		4.1	2.6	ng/L		12/07/16 12:37	12/28/16 17:44	2
Perfluorononanoic acid (PFNA)	7.7		4.1	1.3	ng/L		12/07/16 12:37	12/28/16 17:44	2

TestAmerica Sacramento

Client Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Client Sample ID: PURGE WATER

Date Collected: 12/02/16 10:50

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-7

Matrix: Water

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOS	86		25 - 150	12/07/16 12:37	12/28/16 17:44	2
13C5 PFNA	52		25 - 150	12/07/16 12:37	12/28/16 17:44	2

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Isotope Dilution Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)					
		¹³ C2 PFHx (25-150)	¹⁸ O2 PFHx (25-150)	¹³ C4-PFHp (25-150)	¹³ C4 PFOA (25-150)	¹³ C4 PFOA (25-150)	¹³ C5 PFNA (25-150)
320-24021-1	SW0101	73	103	85	80	115	76
320-24021-2	SW0401	105	128	118	105	139	88
320-24021-3	SW0301	90	118	94	91	128	82
320-24021-4	DUPLICATE	90	119	98	95	130	93
320-24021-5	SW0501	97	123	108	94	130	91
320-24021-6	FIELD BLANK	142	133	139	152 *	140	141
320-24021-7 - DL	PURGE WATER					86	52
320-24021-7	PURGE WATER	43	86	57	63		
LCS 320-141050/2-A	Lab Control Sample	137	136	138	143	141	132
LCSD 320-141050/3-A	Lab Control Sample Dup	130	129	133	135	135	127
MB 320-141050/1-A	Method Blank	119	122	126	136	124	118

Surrogate Legend

- ¹³C2 PFHxA = ¹³C2 PFHxA
- ¹⁸O2 PFHxS = ¹⁸O2 PFHxS
- ¹³C4-PFHpA = ¹³C4-PFHpA
- ¹³C4 PFOA = ¹³C4 PFOA
- ¹³C4 PFOS = ¹³C4 PFOS
- ¹³C5 PFNA = ¹³C5 PFNA

QC Sample Results

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-141050/1-A

Matrix: Water

Analysis Batch: 144058

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 141050

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		12/07/16 12:37	12/23/16 16:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		12/07/16 12:37	12/23/16 16:22	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		12/07/16 12:37	12/23/16 16:22	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.75	ng/L		12/07/16 12:37	12/23/16 16:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		12/07/16 12:37	12/23/16 16:22	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		12/07/16 12:37	12/23/16 16:22	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	119		25 - 150	12/07/16 12:37	12/23/16 16:22	1
18O2 PFHxS	122		25 - 150	12/07/16 12:37	12/23/16 16:22	1
13C4-PFHpA	126		25 - 150	12/07/16 12:37	12/23/16 16:22	1
13C4 PFOA	136		25 - 150	12/07/16 12:37	12/23/16 16:22	1
13C4 PFOS	124		25 - 150	12/07/16 12:37	12/23/16 16:22	1
13C5 PFNA	118		25 - 150	12/07/16 12:37	12/23/16 16:22	1

Lab Sample ID: LCS 320-141050/2-A

Matrix: Water

Analysis Batch: 144058

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 141050

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanesulfonic acid (PFBS)	35.4	36.0		ng/L		102	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	30.7		ng/L		84	58 - 138
Perfluoroheptanoic acid (PFHpA)	40.0	33.6		ng/L		84	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	32.3		ng/L		81	63 - 141
Perfluorooctanesulfonic acid (PFOS)	37.1	31.2		ng/L		84	47 - 162
Perfluorononanoic acid (PFNA)	40.0	32.0		ng/L		80	71 - 140

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	137		25 - 150
18O2 PFHxS	136		25 - 150
13C4-PFHpA	138		25 - 150
13C4 PFOA	143		25 - 150
13C4 PFOS	141		25 - 150
13C5 PFNA	132		25 - 150

Lab Sample ID: LCSD 320-141050/3-A

Matrix: Water

Analysis Batch: 144058

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 141050

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	35.4	43.5		ng/L		123	55 - 147	19	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	37.5		ng/L		103	58 - 138	20	30
Perfluoroheptanoic acid (PFHpA)	40.0	41.2		ng/L		103	63 - 135	20	30
Perfluorooctanoic acid (PFOA)	40.0	40.4		ng/L		101	63 - 141	22	30

TestAmerica Sacramento

QC Sample Results

Client: Environmental Compliance Services, Inc.
 Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-141050/3-A

Matrix: Water

Analysis Batch: 144058

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 141050

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	37.1	38.3		ng/L		103	47 - 162	20	30
Perfluorononanoic acid (PFNA)	40.0	39.3		ng/L		98	71 - 140	20	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C2 PFHxA	130		25 - 150
18O2 PFHxS	129		25 - 150
13C4-PFHpA	133		25 - 150
13C4 PFOA	135		25 - 150
13C4 PFOS	135		25 - 150
13C5 PFNA	127		25 - 150

QC Association Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

LCMS

Prep Batch: 141050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24021-1	SW0101	Total/NA	Water	3535	
320-24021-2	SW0401	Total/NA	Water	3535	
320-24021-3	SW0301	Total/NA	Water	3535	
320-24021-4	DUPLICATE	Total/NA	Water	3535	
320-24021-5	SW0501	Total/NA	Water	3535	
320-24021-6	FIELD BLANK	Total/NA	Water	3535	
320-24021-7 - DL	PURGE WATER	Total/NA	Water	3535	
320-24021-7	PURGE WATER	Total/NA	Water	3535	
MB 320-141050/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-141050/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-141050/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 144058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24021-1	SW0101	Total/NA	Water	537 (modified)	141050
320-24021-2	SW0401	Total/NA	Water	537 (modified)	141050
320-24021-3	SW0301	Total/NA	Water	537 (modified)	141050
320-24021-4	DUPLICATE	Total/NA	Water	537 (modified)	141050
320-24021-5	SW0501	Total/NA	Water	537 (modified)	141050
320-24021-6	FIELD BLANK	Total/NA	Water	537 (modified)	141050
MB 320-141050/1-A	Method Blank	Total/NA	Water	537 (modified)	141050
LCS 320-141050/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	141050
LCSD 320-141050/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	141050

Analysis Batch: 144214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24021-7 - DL	PURGE WATER	Total/NA	Water	537 (modified)	141050
320-24021-7	PURGE WATER	Total/NA	Water	537 (modified)	141050

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Client Sample ID: SW0101

Date Collected: 12/02/16 09:06

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			246.2 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 16:44	TTP	TAL SAC

Client Sample ID: SW0401

Date Collected: 12/02/16 09:28

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			247.6 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 16:52	TTP	TAL SAC

Client Sample ID: SW0301

Date Collected: 12/02/16 09:44

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			254.4 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 16:59	TTP	TAL SAC

Client Sample ID: DUPLICATE

Date Collected: 12/02/16 00:00

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			251.1 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 17:07	TTP	TAL SAC

Client Sample ID: SW0501

Date Collected: 12/02/16 10:03

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			242.1 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 17:14	TTP	TAL SAC

Client Sample ID: FIELD BLANK

Date Collected: 12/02/16 10:10

Date Received: 12/03/16 09:40

Lab Sample ID: 320-24021-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			253.5 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144058	12/23/16 17:22	TTP	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Client Sample ID: PURGE WATER

Lab Sample ID: 320-24021-7

Date Collected: 12/02/16 10:50

Matrix: Water

Date Received: 12/03/16 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	DL		246.6 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)	DL	2			144214	12/28/16 17:44	TTP	TAL SAC
Total/NA	Prep	3535			246.6 mL	0.5 mL	141050	12/07/16 12:37	NS1	TAL SAC
Total/NA	Analysis	537 (modified)		1			144214	12/28/16 17:51	TTP	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Certification Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Alaska (UST)	State Program	10	UST-055	12-18-17
Arizona	State Program	9	AZ0708	08-11-17
Arkansas DEQ	State Program	6	88-0691	06-17-17
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-17
Connecticut	State Program	1	PH-0691	06-30-17
Florida	NELAP	4	E87570	06-30-17
Hawaii	State Program	9	N/A	01-31-17
Illinois	NELAP	5	200060	03-17-17
Kansas	NELAP	7	E-10375	10-31-17
Louisiana	NELAP	6	30612	06-30-17
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-17
New Jersey	NELAP	2	CA005	06-30-17
New York	NELAP	2	11666	04-01-17
Oregon	NELAP	10	4040	01-29-17
Pennsylvania	NELAP	3	68-01272	03-31-17
Texas	NELAP	6	T104704399	07-31-17
US Fish & Wildlife	Federal		LE148388-0	10-31-17
USDA	Federal		P330-11-00436	12-30-17
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-17
Virginia	NELAP	3	460278	03-14-17
Washington	State Program	10	C581	05-05-17
West Virginia (DW)	State Program	3	9930C	12-31-16 *
Wyoming	State Program	8	8TMS-L	01-29-17

* Certification renewal pending - certification considered valid.

Method Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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- 14
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Sample Summary

Client: Environmental Compliance Services, Inc.
Project/Site: Champlain Cable

TestAmerica Job ID: 320-24021-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-24021-1	SW0101	Water	12/02/16 09:06	12/03/16 09:40
320-24021-2	SW0401	Water	12/02/16 09:28	12/03/16 09:40
320-24021-3	SW0301	Water	12/02/16 09:44	12/03/16 09:40
320-24021-4	DUPLICATE	Water	12/02/16 00:00	12/03/16 09:40
320-24021-5	SW0501	Water	12/02/16 10:03	12/03/16 09:40
320-24021-6	FIELD BLANK	Water	12/02/16 10:10	12/03/16 09:40
320-24021-7	PURGE WATER	Water	12/02/16 10:50	12/03/16 09:40

Chain of Custody Record

Client Information Client Contact: Chelsea Fellows-Stanley Company: Environmental Compliance Services, Inc. Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802 241 4131 Email: cstanley@ecscsconsult.com Project Name: Champlain Cable Site: Colchester VT		Lab P.M.: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com Phone: 802 241 4131 Carrier Tracking No(s): Job #: 1071	
Due Date Requested: TAT Requested (days): Normal PO #: 256648 MO #: 108-203606.08 Project #: 32007936 SOW#:		Analysis Requested  320-24021 Chain of Custody	
Sample Identification SW0101 SW0401 SW0301 Duplicate SW0501 Field blank		Matrix (Water, Soil, Sewage, Other): Sample Type (C=Comp, G=grab): Sample Time: Sample Date: Preservation Code: Matrix: Water Sample Type: G Sample Time: 0900 Sample Date: 12/2 Preservation Code:	
Perform MS/MSD (Yes or No): Field Filtered Sample (Yes or No): PFC_IDA - (MOD) 637 Short List:		Total Number of Containers: Special Instructions/Note:	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by:		Method of Shipment:	
Relinquished by: Katrina Mattice Date/Time: 12/2/16/1200 Company: ATC		Received by: Katrina Mattice Date/Time: 12/2/16/1200 Company: ATC	
Relinquished by: Katrina Mattice Date/Time: 12/2/16/1500 Company: ATC		Received by: EBDEX Date/Time: 12/2/16/1530 Company: ATC	
Relinquished by:		Received by: Ali Zeigami Date/Time: 12/3/16 09:40 Company: TAWS	
Custody Seals Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>		Cooler Temperature(s): Other Remarks:	



Chain of Custody Record

Client Information Client Contact: Chaisea Fellows-Stanley Company: Environmental Compliance Services, Inc. Address: 1 Elm Street, Suite 3 City: Waterbury State, Zip: VT, 05676 Phone: 802-241-4131 Email: cstanley@ecsconsult.com Project Name: Champlain Cable Site: Colchester VT		Lab P.M.: Kellmann, Jill E-Mail: jill.kellmann@testamericainc.com Phone: 802-241-4131 Carrier Tracking No(s): Lab #: Page: 1 of 10 Job #: 16f1	
Due Date Requested: TAT Requested (days): Normal PO #: 256648 WO #: 32007936 Project #: 108-20360608 SSOW#:		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> N Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> N PFC, IDA - (MOD) 637 Short List <input checked="" type="checkbox"/> N	
Sample Identification Sample Date: 12/16 Sample Time: 1050 G Matrix (Water, Sludge, Other): Water Sample Type (C=Comp, G=grab): G Preservation Code:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexahe N - None O - AsNaO2 P - Na2CO3 Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Sample Identification Sample Date: 12/12 Sample Time: 1050 G Matrix (Water, Sludge, Other): Water Sample Type (C=Comp, G=grab): G Preservation Code:		Total Number of containers: 2 Special Instructions/Note:	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) Standard		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:	
Empty Kit Relinquished by: Relinquished by: Kellmann, Jill Date: 12/16/2016 Company: ATC		Method of Shipment: Relinquished by: Kellmann, Jill Date: 12/16/2016 Company: ATC	
Custody Seals Intact: Δ Yes Δ No Custody Seal No.:		Cooler Temperature(s) °C at Other Remarks:	



Login Sample Receipt Checklist

Client: Environmental Compliance Services, Inc.

Job Number: 320-24021-1

Login Number: 24021

List Number: 1

Creator: Hytrek, Cheryl

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX C
LOW FLOW LOGS

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Date: 12/2/16

Sample I.D.: 516 Collection Time _____

Sampling Sequence: _____ Of _____

EC S Field Staff Collecting This Sample: Grg. Friedman

Climatic Conditions (Temp/Precip): cloudy/light rain

Depth To Product: _____ Feet Depth To Water: 6.83 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): +4.1 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: _____

Total Depth Of Boring (Take Measurement After Sampling): 14.40

Well Yield: High Low _____ Pumped Dry? _____

Final Water Appearance (At Sample Collection) Clear Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): PFC-TDA

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Champlain Cable Depth To 6.83 / 14.40 Of Screen (Below RP)
 Well Id: 516 Top Bottom
 Field Personnel: Greg Friedman Pump Intake Depth: 11.00
 Reference Point (RP – TOC or other-describe): TOC Pumping Device: Peristaltic

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1159	6.83	100		300	9.8	216.2	7.42	36.4	9.25	17.0	
1202	6.85	100		600	9.7	218.7	7.51	28.0	13.5	16.7	
1205	6.84	100		900	9.8	213.2	7.29	24.2	0.98	15.4	
1208	6.82	100		1200	9.9	215.0	7.18	17.7	0.78	13.7	
1211	6.83	100		1500	9.8	207.3	7.10	16.8	0.85	16.1	
1214	6.84	100		1800	10.1	208.6	7.05	13.3	0.79	16.5	
1217	6.84	100		2100	10.2	202.6	7.01	6.6	0.76	14.3	
1220	6.84	100		2400	10.2	197.1	6.98	0.2	0.77	14.0	
1223	6.84	100		2700	10.3	191.0	6.95	-4.2	0.90	11.8	
1226	6.84	100		3000	10.3	185.0	6.92	-5.9	1.13	10.5	
1229	6.84	100		3300	10.3	180.7	6.90	-6.2	1.18	10.8	
Notes:											
1232	6.84	100		3600	10.4	178.1	6.88	-6.2	1.20	11.5	
1235	6.84			3900	10.3	173.4	6.86	-4.5	1.21	10.9	

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Cable Date: 12/1/06

Sample ID.: 89-6 Collection Time 1400

Sampling Sequence: _____ Of _____

EC S Field Staff Collecting This Sample: Greg Friedman

Climatic Conditions (Temp/Precip): cloudy

Depth To Product: — Feet Depth To Water: 9.25 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): +4.1 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 15.72

Well Yield: High _____ Low — Pumped Dry? _____

Final Water Appearance (At Sample Collection) Clear — Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): H PFC - IDA

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Champlain Coble Depth To 9.25 115.72 Of Screen (Below RP)
 Well Id: 89-6 Top Bottom
 Field Personnel: Greg Friedman Pump Intake Depth: 13.00
 Reference Point (RP – TOC or other-describe): TOC Pumping Device: Peristaltic

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10 %	Turbidity (NTU) 10%	Comments
1333	9.49	100		300	10.3	149.8	6.25	105.0	1.97	4.61	
1338	9.60	100		600	10.4	150.8	6.10	109.9	1.76	4.16	
1338	9.62	100		900	10.4	152.5	6.04	111.0	1.65	4.06	
1341	9.67	100		1200	10.4	153.1	6.00	110.3	1.28	2.73	
1344	9.70	100		1500	10.4	153.7	5.97	109.6	1.12	4.25	
1347	9.73	100		1800	10.5	153.8	5.95	109.0	1.00	3.86	
1350	9.75	100		2100	10.5	153.8	5.94	109.6	0.98	2.79	
1353	9.78	100		2400	10.6	154.1	5.93	108.2	0.92	4.00	

Notes:

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Coble Date: 12/1/16

Sample I.D.: MW-3 Collection Time 1256

Sampling Sequence: _____ Of _____

EC S Field Staff Collecting This Sample: Greg Friedman

Climatic Conditions (Temp/Precip): cloudy

Depth To Product: _____ Feet Depth To Water: 20.73 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): +4.2 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: _____

Total Depth Of Boring (Take Measurement After Sampling): _____

Well Yield: High _____ Low — Pumped Dry? _____

Final Water Appearance (At Sample Collection) Clear — Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): PFC IDA

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: Champlain Cable Depth To 20.73 122.81 Of Screen (Below RP)
 Well Id: MW-3 Top Bottom
 Field Personnel: Greg Friedman Pump Intake Depth: 22.00
 Reference Point (RP - TOC or other-describe): TOC Pumping Device: Peristaltic

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1230	20.98	100		300	9.9	214.8	6.70	30.7	3.93	25.7	
1233	21.02	100		600	9.8	201.5	6.67	28.8	3.15	14.5	
1236	21.08	100		900	9.7	195.6	6.60	34.9	3.90	10.2	
1239	21.17	100		1200	9.6	197.9	6.54	47.7	4.09	4.95	
1242	21.27	100		1500	9.6	203.9	6.51	54.4	3.82	3.67	
1245	21.34	100		1800	9.6	207.8	6.52	56.1	3.77	2.24	

Notes:

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Coble Date: 12/1/16

Sample I.D.: 10 Collection Time

Sampling Sequence: Of

EC S Field Staff Collecting This Sample: Greg Friedman

Climatic Conditions (Temp/Precip): cloudy

Depth To Product: Feet Depth To Water: Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): +2 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method:

Total Depth Of Boring (Take Measurement After Sampling): 15.62

Well Yield: High Low Pumped Dry?

Final Water Appearance (At Sample Collection) Clear Cloudy Opaque

Sample Collected from (tubing, bailer, or other-describe)

Submitted For Analysis By (Method or Methods):

Field Test Results (HACH Kits):

Alkalinity: Chloride:

Iron (II): Sulfate:

Notes:

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Champlain Cable Depth To / 15.62 Of Screen (Below RP)
 Well Id: 10 Top Bottom
 Field Personnel: Greg Friedman Pump Intake Depth:
 Reference Point (RP – TOC or other-describe): TOC Pumping Device:

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10 %	Turbidity (NTU) 10%	Comments
1203	Dry										

Notes:
well dry, sample not taken

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Cable Date: 12/11/06

Sample I.D.: ECS-1 Collection Time 1130

Sampling Sequence: _____ Of _____

EC S Field Staff Collecting This Sample: Geg Friedman

Climatic Conditions (Temp/Precip): cloudy

Depth To Product: _____ Feet Depth To Water: 13.33 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): +3.5 feet

Measurement Technique (WLM, IP or other -Describe) wLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 22.20

Well Yield: High — Low _____ Pumped Dry? _____

Final Water Appearance (At Sample Collection) Clear — Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) Cubing

Submitted For Analysis By (Method or Methods): PFC JDA

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: <u>Champlain Cable</u>	Depth To <u>13.33</u> / <u>22.20</u> Of Screen (Below RP)
Well Id: <u>FCS-1</u>	Top Bottom
Field Personnel: <u>Greg Friedman</u>	Pump Intake Depth: <u>20.0</u>
Reference Point (RP - TOC or other-describe): <u>TOC</u>	Pumping Device: <u>Peristaltic</u>

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10 %	Turbidity (NTU) 10%	Comments
1057	13.33	100		300	10.0	124.6	7.82	90.2	0.60	54.8	
1100	13.33	100		600	10.1	116.8	7.17	102.3	0.44	46.1	
1103	13.33	100		900	10.1	114.3	6.84	106.0	0.29	20.5	
1106	13.33	100		1200	10.1	111.5	6.63	95.6	0.29	14.8	
1109	13.33	100		1500	10.2	111.8	6.55	105.2	0.27	9.53	
1112	13.33	100		1800	10.3	113.1	6.57	103.3	0.41	5.63	
1115	13.33	100		2100	10.3	113.8	6.54	100.7	0.39	4.76	
1118	13.33	100		2400	10.2	114.6	6.51	98.0	0.49	3.41	
1121	13.33	100		2700	10.2	115.5	6.48	94.1	0.31	2.71	

Notes:

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Canal Date: 12-1-16

Sample I.D.: MW-1 Collection Time 1124

Sampling Sequence: 1 Of 6

EC S Field Staff Collecting This Sample: WPD

Climatic Conditions (Temp/Precip): cloudy 48°F / light sprinkles

Depth To Product: — Feet Depth To Water: 11.62 Feet

Reference Point (TOC or other -Describe) Top of PVC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): +2.23 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 14.98

Well Yield: High Low Pumped Dry?

Final Water Appearance (At Sample Collection) Clear Cloudy Opaque

Sample Collected from (tubing, bailer, or other-describe) tubing (HDPE)

Submitted For Analysis By (Method or Methods): PFC ZDA (MOD) 537 sheet list

Field Test Results (HACH Kits):

Alkalinity: — Chloride: —

Iron (II): — Sulfate: —

Notes: (2.0 L in well)

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Champlain Canal Depth To — / 14.98 Of Screen (Below RP)
 Well Id: MW-1 Top Bottom (well):
 Field Personnel: WPN Pump Intake Depth: 13.0
 Reference Point (RP – TOC or other-describe): Top of PVC Pumping Device: Perist. pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10 %	Turbidity (NTU) 10%	Comments
1045	11.62	0	0	0	—	—	—	—	—	—	start
1050	11.62	200	1/2	1.0	9.8	184.5	6.00	123	0.80	6.10	
1055	11.62	200	1/2	2.0	9.8	172.5	6.08	111	0.62	6.01	
1100	11.62	200	1/2	3.0	9.8	169.5	6.07	103	0.55	5.98	
1105	11.62	200	1/2	4.0	9.8	148.2	6.07	94.7	0.52	6.12	
1110	11.62	200	1/2	5.0	9.8	167.7	6.06	94.2	0.50	6.07	
1115	11.62	200	1/2	6.0	9.8	167.5	6.07	94.0	0.53	6.02	
1120	11.62	200	1/2	7.0	9.8	167.2	6.07	93.9	0.52	6.05	
1124	sampled										

Notes:

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Cable Date: 12-1-16

Sample I.D.: 4015 Collection Time (1)

Sampling Sequence: 2 of 6

EC S Field Staff Collecting This Sample: WPD

Climatic Conditions (Temp/Precip): cloudy - 48°F / slight breeze

Depth To Product: — Feet Depth To Water: 9.94 Feet

Reference Point (TOC or other -Describe) Top of PVC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): +1.75 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 10.08 (0.14' of water in well)

Well Yield: High — Low — Pumped Dry? (1)

Final Water Appearance (At Sample Collection) Clear — Cloudy — Opaque —

Sample Collected from (tubing, bailer, or other-describe) NA (1)

Submitted For Analysis By (Method or Methods): —

Field Test Results (HACH Kits):

Alkalinity: — Chloride: —

Iron (II): — Sulfate: —

Notes:

(1) No sample - insufficient water to pump or bail. (tried both)

* 1.5" well Dia

WPD

off site - 1225

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: <u>4 Changlan cobb</u>	Depth To	<u>10.08</u>	Of Screen (Below RP)
Well Id: <u>401 S</u>	Top	Bottom	
Field Personnel: <u>VPD</u>	Pump Intake Depth: <u>16.08</u>	① see front	
Reference Point (RP – TOC or other-describe):	Pumping Device: <u>P. pump / bailer</u>		

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments

insufficient water
 no sample
 WPD
 12/1/16

Notes:

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Ccbb Date: 12-1-16

Sample I.D.: AG-7s Collection Time: NA - insufficient water

Sampling Sequence: 3 Of 4 ^{WPP 12-1-16} 6

EC S Field Staff Collecting This Sample: WPN

Climatic Conditions (Temp/Precip): cloudy 50°F / 11 breeze

Depth To Product: - Feet Depth To Water: 6.25 Feet

Reference Point (TOC or other -Describe) Top of PVC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0. feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: -

Total Depth Of Boring (Take Measurement After Sampling): 6.32

Well Yield: High - Low - Pumped Dry? (1)

Final Water Appearance (At Sample Collection) Clear - Cloudy - Opaque -

Sample Collected from (tubing, bailer, or other-describe) -

Submitted For Analysis By (Method or Methods): (1)

Field Test Results (HACH Kits):

Alkalinity: / Chloride: /

Iron (II): / Sulfate: /

Notes: (1) insufficient water in well (0.07') No sample!

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Chaplain Cdd Depth To _____ / _____ Of Screen (Below RP)

Well Id: AG-7s Top Bottom

Field Personnel: WPN Pump Intake Depth: _____

Reference Point (RP – TOC or other-describe): _____ Pumping Device: _____

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1250 WPN 12-1-16											

WPN 12-1-16
No sample / insufficient well

Notes:

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Cable Date: 12-2-16

Sample I.D.: WG-4D Collection Time 1342

Sampling Sequence: 4 of 4

EC S Field Staff Collecting This Sample: WPD

Climatic Conditions (Temp/Precip): cloudy 40°F

Depth To Product: — Feet Depth To Water: 6.19 Feet

Reference Point (TOC or other -Describe) Top of PVC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.35 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 12.90

Well Yield: High — Low ✓ Pumped Dry? —

Final Water Appearance (At Sample Collection) Clear ✓ Cloudy — Opaque —

Sample Collected from (tubing, bailer, or other-describe) tubing (HDPE)

Submitted For Analysis By (Method or Methods): PFC IDA (Mod) 537 short list

Field Test Results (HACH Kits):

Alkalinity: — Chloride: —

Iron (II): — Sulfate: —

Notes: —

—
—
—
—
—
—
—
—
—
—

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Champlain Cable Depth To 12.90 Of Screen (Below RP)

Well Id: WG-4D Top Bottom (well)

Field Personnel: WPD Pump Intake Depth: 10.5 btdc

Reference Point (RP – TOC or other-describe): Top of PVC Pumping Device: Perist. Pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1250	6.19	0	0	start	—	—	—	—	—	—	
1255	7.02	100 ①	1/3	0.5	10.4	275.8	7.31	77.3	1.77	12.7	746.9 mm Hg
1300	7.19	100	1/3	1.0	10.4	280.4	7.34	62.4	1.40	50.4	
1305	7.23	100	1/3	1.5	10.5	282.5	7.36	55.2	1.01	8.60	
1310	7.26	100	1/3	2.0	10.5	283.0	7.39	45.6	0.90	8.37	
1315	7.27	100	1/3	2.5	10.5	283.5	7.40	43.0	0.79	8.29	
1320	7.28	100	1/3	3.0	10.5	283.3	7.40	42.5	0.63	8.07	
1325	7.28	100	1/3	3.5	10.6	283.3	7.41	41.9	0.60	8.11	
1330	7.28	100	1/3	4.0	10.6	283.3	7.41	41.0	0.61	8.06	
1335	7.28	100	1/3	4.5	10.6	283.2	7.40	40.7	0.60	8.12	
1340	7.28	100	1/3	5.0	10.6	283.2	7.40	40.8	0.60	8.09	

Notes:
 1342 sampled ① slowest rate for pump - WL still dropping

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Changlue Cade Date: 12-2-16

Sample I.D.: WG-3s Collection Time: 1157

Sampling Sequence: 3 of 4

EC S Field Staff Collecting This Sample: WPA

Climatic Conditions (Temp/Precip): cloudy 40°F

Depth To Product: — Feet Depth To Water: 5.24 Feet

Reference Point (TOC or other -Describe) Top of PVC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.61 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 6.43

Well Yield: High — Low X Pumped Dry? —

Final Water Appearance (At Sample Collection) Clear ✓ Cloudy — Opaque —

Sample Collected from (tubing, bailer, or other-describe) tubing HDPE

Submitted For Analysis By (Method or Methods): PFC IDA (mod) 537 shot list

Field Test Results (HACH Kits):

Alkalinity: — Chloride: —

Iron (II): — Sulfate: —

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: Chandler Creek Depth To 6.43 Of Screen (Below RP)
 Well Id: WG-35 Top Bottom (well)
 Field Personnel: WPD Pump Intake Depth: 6.0
 Reference Point (RP - TOC or other-describe): Top of PVC Pumping Device: Perist. Pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1115	5.24	0	0	Start	—	—	—	—	—	—	—
1120	5.32	100	1/3	0.5	9.1	236.5	6.59	57.6	7.01	23.2	746.9 mg/L
1125	5.38	100	1/3	1.0	9.1	232.1	6.59	58.4	6.31	10.71	
1130	5.42	100	1/3	1.5	9.2	229.6	6.58	58.9	6.02	9.92	
1135	5.44	100	1/3	2.0	9.2	228.0	6.58	59.0	5.98	9.87	
1140	5.45	100	1/3	2.5	9.2	227.4	6.58	62.8	5.97	9.79	
1145	5.45	100	1/3	3.0	9.2	227.1	6.58	63.1	5.94	9.80	
1150	5.45	100	1/3	3.5	9.2	227.0	6.57	63.3	5.93	9.84	
1155	5.45	100	1/3	4.0	9.2	226.8	6.57	63.4	5.93	9.82	
1157	Sampled										

Notes:

MW - Dupe
Duplicate taken (2)

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Canal Date: 12-2-16

Sample I.D.: MW-DG-1D Collection Time 1002

Sampling Sequence: 1 of 4

EC S Field Staff Collecting This Sample: WPN

Climatic Conditions (Temp/Precip): cloudy/sprinkles 40°F

Depth To Product: — Feet Depth To Water: 4.62 Feet

Reference Point (TOC or other -Describe) Top of PVC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.46 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 20.20

Well Yield: High — Low X Pumped Dry? —

Final Water Appearance (At Sample Collection) Clear X Cloudy — Opaque —

Sample Collected from (tubing, bailer, or other-describe) tubing (HDPE)

Submitted For Analysis By (Method or Methods): PFC-IDA-(MOD) 537 Short list

Field Test Results (HACH Kits):

Alkalinity: — Chloride: —

Iron (II): — Sulfate: —

Notes:

(1) Duplicate taken = MW-Dupe [12-2-16/815 (Picticon) time]

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: Chang la cahl Depth To — / 20.2 Of Screen (Below RP)
 Well Id: mw-DG-1D Top Bottom (well)
 Field Personnel: wjm Pump Intake Depth: 18.0
 Reference Point (RP - TOC or other-describe): Top of PVC Pumping Device: Perist. pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10 %	Turbidity (NTU) 10%	Comments
845	4.62	0	0	start	—	—	—	—	—	—	SP -747.6 umHg
850	5.29	200	1/2	1.0	10.0	163.5	6.99	96.8	2.00	9.52	
855	5.92	100 ^①	1/3	1.5	10.0	171.2	7.03	95.0	1.88	8.77	① slower pump as! w/ dripping!
900	6.40	100	1/3	2.0	10.0	180.3	7.10	82.6	1.45	8.27	
905	6.82	100	1/3	2.5	10.0	190.8	7.17	70.8	0.70	8.49	
910	6.97	100	1/3	3.0	9.9	196.1	7.21	67.9	0.59	7.97	
920	7.02	100	1/3	4.0	9.9	197.0	7.24	64.7	0.57	8.21	
930	7.05	100	1/3	5.0	9.9	198.1	7.27	61.8	0.54	7.29	
940	7.06	100	1/2	6.0	9.9	198.5	7.28	60.9	0.55	7.47	
945	7.07	100	1/3	6.5	9.9	198.7	7.29	60.7	0.57	7.59	
950	7.07	100	1/3	7.0	9.9	199.1	7.29	60.2	0.54	7.62	
Notes:											
955	7.06	100	1/3	7.5	10.0	199.2	7.29	60.4	0.54	7.57	
1000	7.07	100	1/3	8.0	10.0	199.1	7.29	60.1	0.55	7.59	

1002 seg lid ① w/ dripping - reduced purge to slowest = 100 w/min.

② Duplicate taken = mw-DG-1D / 12-2-16 @ 8:15 (Erickson time)

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Chapel - cable Date: 12-2-16

Sample I.D.: WG-25 Collection Time 1102

Sampling Sequence: 2 of 4

EC S Field Staff Collecting This Sample: WPD

Climatic Conditions (Temp/Precip): cloudy 40° F

Depth To Product: — Feet Depth To Water: 5.01 Feet

Reference Point (TOC or other -Describe) Top of PVC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.55 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 6.54

Well Yield: High ¹²⁻²⁻¹⁶ Low Pumped Dry?

Final Water Appearance (At Sample Collection) Clear Cloudy Opaque

Sample Collected from (tubing, bailer, or other-describe) tubing (HDPE)

Submitted For Analysis By (Method or Methods): PFC TDA (MOD) S37 short list

Field Test Results (HACH Kits):

Alkalinity: — Chloride: —

Iron (II): — Sulfate: —

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: Chapman Cable Depth To — / 6.54 Of Screen (Below RP)
 Well Id: WG-2s Top Bottom (well)
 Field Personnel: WPD Pump Intake Depth: ~~6.54~~ (WPD/12-2-16) 6.0
 Reference Point (RP - TOC or other-describe): _____ Pumping Device: perist. pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1020	5.01	0	0	start	—	—	—	—	—	—	
1025	5.12	100 [Ⓢ]	1/3	0.5	9.1	262	6.31	68.5	2.80	30.1	742 747.2 mg/lg 12-2-16
1030	5.18	100	1/3	1.0	9.3	261	6.31	69.2	2.72	12.2	
1035	5.19	100	1/3	1.5	9.4	261	6.31	69.7	2.70	8.07	
1040	5.20	100	1/3	2.0	9.4	260	6.31	69.9	2.69	7.92	
1045	5.20	100	1/3	2.5	9.5	260	6.32	70.2	2.67	7.57	
1050	5.21	100	1/3	3.0	9.5	259	6.32	70.4	2.65	7.56	
1055	5.21	100	1/3	3.5	9.5	259	6.32	70.4	2.65	7.60	
1100	5.21	100	1/2	4.0	9.5	259	6.32	70.5	2.64	7.57	
1102	5.21										

Notes:

Ⓢ slowest purge rate (100 ml/min)

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Cable Date: 12/1/16

Sample I.D.: EG-1S Collection Time 1320

Sampling Sequence: 1 Of

EC S Field Staff Collecting This Sample: CFS

Climatic Conditions (Temp/Precip): Partly cloudy, 40's F

Depth To Product: NA Feet Depth To Water: 3.0' Feet

Reference Point (TOC or other -Describe): TOR (PVC)

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -1 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: NA

Total Depth Of Boring (Take Measurement After Sampling): 9.05 ft bta

Well Yield: High Low Pumped Dry?

Final Water Appearance (At Sample Collection) Clear Cloudy Opaque

Sample Collected from (tubing, bailer, or other-describe) tubing (HDPE)

Submitted For Analysis By (Method or Methods): PFC's via EPA Method 537

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Last Update: Sep 2005

* SPOZ ISW02 - no access agreement.

Low-Flow Well Sampling Form - Page 2 of 2

Location: Champlain Canal Depth To 4 / 9 Of Screen (Below RP)
 Well Id: EG-15 Top Bottom
 Field Personnel: CFS Pump Intake Depth: 7.05
 Reference Point (RP - TOC or other-describe): TOR (PVC) Pumping Device: Peristaltic pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min	Pump Speed	Cumulative Volume Purged gal/mL	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1245	3.0	Begin purging		measuring drawdown						31.9	
1250	3.45	200*	Low		10.3	312	6.77	-209	1.03	31.9	Clear / colorless, small black / brown specks
1255	3.7	200			10.2	309	6.71	-212	0.72	24.4	"
1300	4.0	200			10.3	306	6.64	-220	0.32	15.9	"
1305	4.2	200			10.3	301.2	6.58	-236	0.10	17.9	"
1310	4.4	200			10.3	300.8	6.57	-232	0.11	17.9	"
1315	4.5	200	↓		10.3	299.8	6.56	-237	0.11	18.0	"
1320	End purge. Meet stabilization criteria. Collect sample.										

Notes:

* Pump set on lowest possible rate. WL continues to draw down.

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Complain Cable Date: 12/1/16

Sample I.D.: EG-2D Collection Time _____

Sampling Sequence: 2 of _____

EC S Field Staff Collecting This Sample: CFS

Climatic Conditions (Temp/Precip): _____

Depth To Product: NA Feet Depth To Water: 2.9 Feet

Reference Point (TOC or other -Describe) TOR (PRC)

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): _____ feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: NA

Total Depth Of Boring (Take Measurement After Sampling): 20 ft btor

Well Yield: High _____ Low _____ Pumped Dry? _____

Final Water Appearance (At Sample Collection) Clear _____ Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) TUBING (HDPE)

Submitted For Analysis By (Method or Methods): DPC'S Method 537

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: ChAMPLAIN Cable Depth To _____ / _____ Of Screen (Below RP)
 Well Id: EG-2D Top Bottom
 Field Personnel: CFS Pump Intake Depth: 18' btor
 Reference Point (RP – TOC or other-describe): TOP (AVC) Pumping Device: Peristaltic pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged mL	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1350	2.7	Begin purging,									measuring drawdown, and filling flow through cell.
1355	3.65	200 * Low	Low		10.8	204.6	6.92	-162.7	5.78	8.75	Clear / colorless
1400	5.10	200	↓		10.8	204.6	6.92	-163.7	5.41	9.77	"
1405	5.80	200	↓		10.7	207.7	6.93	-166.4	5.35	8.88	"
1410	7.05	200	↓		10.7	235.5	6.99	-181.8	3.86	9.36	"
1415	8.06	200	↓		10.7	240.8	7.02	-184.7	3.83	7.70	"
1420	8.85	200	↓		10.7	259.9	7.08	-189.8	3.25	6.94	"
1423	9.20	200	↓		10.8	275.7	7.15	-193.8	2.88	6.3	"
1426	9.70	200	↓		10.8	277.3	7.16	-195.0	2.88	6.51	"
1429	10.23	200	↓		10.8	278.8	7.17	-194.1	2.91	6.02	"
1430	End	perge. meet									stabilization criteria. Collect Sample.

Notes:

* Pump set on lowest possible rate, and we continue to drawdown

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Chuglain Cable Date: 12-1-16

Sample I.D.: AG-8D Collection Time 1350

Sampling Sequence: 4 Of 6

EC S Field Staff Collecting This Sample: WPN

Climatic Conditions (Temp/Precip): cloudy 50°F / lt. breeze

Depth To Product: — Feet Depth To Water: 6.27 Feet

Reference Point (TOC or other -Describe) top of PVC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.37 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 12.66

Well Yield: High — Low Pumped Dry? —

Final Water Appearance (At Sample Collection) Clear Cloudy — Opaque —

Sample Collected from (tubing, bailer, or other-describe) tubing (HDPE)

Submitted For Analysis By (Method or Methods): PFC-IDA (mod) 537 Short List

Field Test Results (HACH Kits):

Alkalinity: / Chloride: /

Iron (II): / Sulfate: /

Notes: (3.8L = 1 well vol)

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: _____ Depth To: _____ / _____ 12.66 Of Screen (Below RP)
 Well Id: AG-8D Top _____ Bottom (well)
 Field Personnel: WPN Pump Intake Depth: 10.5
 Reference Point (RP - TOC or other-describe): Top of PVC Pumping Device: Perist. Pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1310	6.27	—	—	Start	—	—	—	—	—	—	
1315	6.29	200	1/2	1.0	10.4	204.1	7.12	113.4	0.72	12.6	BP-742.9
1320	6.32	200	1/2	2.0	10.3	200.5	7.24	112.5	0.42	9.92	
1325	6.35	200	1/2	3.0	10.3	200.3	7.26	109.6	0.32	10.21	
1330	6.36	200	1/2	4.0	10.3	200.2	7.28	109.2	0.30	9.89	
1335	6.36	200	1/2	5.0	10.3	200.9	7.29	109.0	0.30	9.87	
1340	6.36	200	1/2	6.0	10.3	200.7	7.29	108.9	0.31	9.92	
1345	6.36	200	1/2	7.0	10.3	200.4	7.30	108.7	0.30	9.88	
1350	sampled										

Notes: _____

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Chunglain Curb Date: 12-1-16

Sample I.D.: AG-5s Collection Time 1457

Sampling Sequence: S of 6

EC S Field Staff Collecting This Sample: WLM

Climatic Conditions (Temp/Precip): cloudy 50°F

Depth To Product: — Feet Depth To Water: 3.47 Feet

Reference Point (TOC or other -Describe) Top of PVC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.62 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 6.34

Well Yield: High — Low — Pumped Dry? —

Final Water Appearance (At Sample Collection) Clear Cloudy initially Opaque —

Sample Collected from (tubing, bailer, or other-describe) tubing (HDPE)

Submitted For Analysis By (Method or Methods): PFC-IDA (MOD) 537 Skat (ist)

Field Test Results (HACH Kits):

Alkalinity: — Chloride: —

Iron (II): — Sulfate: —

Notes: (1.74 L in well)

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Chaplin Cable Depth To / 6.34 Of Screen (Below RP)
 Well Id: AG-5s Top Bottom (well)
 Field Personnel: WFO Pump Intake Depth: 4.9
 Reference Point (RP – TOC or other-describe): Top of PVC Pumping Device: perist pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1415	3.47	0	0	start	—	—	—	—	—	—	
1420	3.54	200	1/2	1.0	9.0	74.2 743.1	6.09 3.15	102.4	3.15	87.7	BP - 743.0
1425	3.57	200	1/2	2.0	9.0	75.5	6.05	105.8	2.29	33.0	(original / lit. brown turbid)
1430	3.58	200	1/2	3.0	8.9	78.1	6.04	107.5	2.20	15.7	
1435	3.58	200	1/2	4.0	8.9	79.8	6.05	108.4	1.89	13.0	
1440	3.58	200	1/2	5.0	9.0	80.7	6.06	108.7	1.88	10.21	
1445	3.58	200	1/2	6.0	9.0	80.7	6.05	108.9	1.86	9.87	
1450	3.58	200	1/2	7.0	9.0	80.9	6.05	109.0	1.84	9.89	
1455	3.58	200	1/2	8.0	9.0	80.6	6.06	108.9	1.82	9.89	
1457	sample										

Notes:

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Canal Date: 12-1-16

Sample I.D.: AG-6D Collection Time 1550

Sampling Sequence: 6 of 6

ECS Field Staff Collecting This Sample: WPD

Climatic Conditions (Temp/Precip): cloudy 45°F

Depth To Product: — Feet Depth To Water: 3.56 Feet

Reference Point (TOC or other -Describe) Top of PVC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.56 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 13.02

Well Yield: High — Low — Pumped Dry? —

Final Water Appearance (At Sample Collection) Clear — Cloudy — Opaque —

Sample Collected from (tubing, bailer, or other-describe) tubing (HDPE)

Submitted For Analysis By (Method or Methods): PFC - IDA (mod) 53) Short list

Field Test Results (HACH Kits):

Alkalinity: — Chloride: —

Iron (II): — Sulfate: —

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Chaplain Cable Depth To 13.02 Of Screen (Below RP)
 Well Id: AG-6D Top Bottom well.
 Field Personnel: JPM Pump Intake Depth: 10.5
 Reference Point (RP – TOC or other-describe): Top of PVC Pumping Device: Per

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
15:10	3.56	0	0	start	—	—	—	—	—	—	
1515	3.56	200	1/2	1.0	9.8	217.1	5.95	114.0	1.20	28.9	BP-742.9
1520	3.56	200	1/2	2.0	9.9	217.9	5.95	113.4	0.98	24.6	
1525	3.56	200	1/2	3.0	9.9	219.0	5.96	112.5	0.76	14.2	
1530	3.57	200	1/2	4.0	9.9	219.8	5.96	112.3	0.74	10.2	
1535	3.57	200	1/2	5.0	9.9	219.9	5.97	112.4	0.73	9.8	
1540	3.57	200	1/2	6.0	9.9	219.7	5.97	112.3	0.74	9.5	
1545	3.57	200	1/2	7.0	9.9	219.7	5.97	112.3	0.75	9.7	
1550	single										

Notes:

ECS Well Sampling Form -- Page 1 of 2

Site Name/Location: Champlain Cobble Date: _____

Sample I.D.: ECS 2 Collection Time 1419

Sampling Sequence: _____ Of _____

EC S Field Staff Collecting This Sample: Greg Friedman

Climatic Conditions (Temp/Precip): cloudy 39°

Depth To Product: _____ Feet Depth To Water: 9.75 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): +4.0 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: _____

Total Depth Of Boring (Take Measurement After Sampling): 14.06

Well Yield: High _____ Low ✓ Pumped Dry? _____

Final Water Appearance (At Sample Collection) Clear ✓ Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): 8260 short

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: Champlain Cable Depth To: 9.75 114.06 Of Screen (Below RP)
 Well Id: ECS 2 Top Bottom
 Field Personnel: Greg Fritelman Pump Intake Depth: 11.00
 Reference Point (RP - TOC or other-describe): TOC Pumping Device: peristaltic

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10 %	Turbidity (NTU) 10%	Comments
1352	9.86	100		300	10.9	369.2	7.28	253.6	4.92	21.1	
1355	10.00	100		600	10.9	371.1	7.16	260.3	5.27	13.5	
1358	10.04	100		900	10.5	372.8	7.17	260.3	4.36	10.5	
1401	10.12	100		1200	10.6	372.2	7.14	260.9	5.06	9.6	
1404	10.16	100		1500	10.6	371.1	7.13	261.3	4.90	7.63	
1407	10.18	100		1800	10.6	370.0	7.11	261.7	4.91	6.30	
1410	10.20	100		2100	10.5	369.6	7.10	262.2	4.99	4.96	
1413	10.34	100		2400	10.5	368.4	7.08	263.3	5.04	4.53	
1416		100		2700	10.5	366.9	7.08	263.55	5.16	3.72	

Notes:

ECS Well Sampling Form - Page 1 of 2

Site Name/Location: Champlain Cable Date: 11/30/16

Sample I.D.: 301 Collection Time 1208

Sampling Sequence: _____ Of _____

EC S Field Staff Collecting This Sample: Greg Friedman

Climatic Conditions (Temp/Precip): cloudy 46°

Depth To Product: — Feet Depth To Water: 7.92 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): +3.5 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 19.12

Well Yield: High _____ Low — Pumped Dry? _____

Final Water Appearance (At Sample Collection) Clear — Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): 8200 short

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Champlain Cable Depth To 7.92 1/19/12 Of Screen (Below RP)
 Well Id: 301 Top Bottom
 Field Personnel: Gary Friedman Pump Intake Depth: 15.00
 Reference Point (RP – TOC or other-describe): TOC Pumping Device: ~~15.00~~ Peristaltic

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10 %	Turbidity (NTU) 10%	Comments
1151	7.92	100		300	9.7	401.6	6.73	246.5	0.70	6.39	
1154	9.61	100		600	9.8	410.6	6.89	244.2	0.36	10.4	
1157	10.23	100		900	9.8	411.9	6.96	241.9	0.29	4.03	
1200	10.86	100		1200	9.8	407.0	6.99	238.8	0.33	3.62	
1203	11.51	100		1500	9.8	400.5	6.99	236.2	0.49	4.59	
1205	11.85	100		1800	9.8	399.8	6.99	234.1	0.50	4.52	

Notes:

ECS Well Sampling Form – Page 1 of 2

Site Name/Location: Champlain Cable Date: 11/30/16

Sample I.D.: AG-75 Collection Time _____

Sampling Sequence: _____ Of _____

EC S Field Staff Collecting This Sample: Greg Friedman

Climatic Conditions (Temp/Precip): cloudy 46°

Depth To Product: 0 Feet Depth To Water: 5.96 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.4 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 6.38

Well Yield: High _____ Low _____ Pumped Dry? —

Final Water Appearance (At Sample Collection) Clear _____ Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): 8260 short

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: <u>Champlain Cable</u>	Depth To	<u>5.96</u>	<u>16.38</u>	Of Screen (Below RP)
Well Id: <u>AG-75</u>		Top	Bottom	
Field Personnel: <u>Greg Frigilman</u>	Pump Intake Depth:	<u>6.33</u>		
Reference Point (RP - TOC or other-describe): <u>TOC</u>	Pumping Device:	<u>Percutic</u>		

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP / eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1128	5.96	100		300	9.3	189.2	6.40	236.4	5.94	7.46	
1131	Dry	100		~500	—	—	—	—	—	—	

Notes:

Pumped dry

Did not recharge at all, no sample taken

ECS Well Sampling Form – Page 1 of 2

Site Name/Location: Champlain Cable Date: 11/30/16

Sample I.D.: AG-115 Collection Time 1328

Sampling Sequence: _____ Of _____

EC S Field Staff Collecting This Sample: Greg Friedman

Climatic Conditions (Temp/Precip): cloudy 46°

Depth To Product: — Feet Depth To Water: 5.92 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.6 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 6.42

Well Yield: High _____ Low _____ Pumped Dry? —

Final Water Appearance (At Sample Collection) Clear _____ Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): 8260 Short

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Champlain Cable Depth To 5.92 16.92 Of Screen (Below RP)
 Well Id: AG-115 Top Bottom
 Field Personnel: Greg Friedman Pump Intake Depth: 6.35
 Reference Point (RP – TOC or other-describe): TOC Pumping Device: Peristaltic

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	Temperature °C	Specific Conductance (uS/cm)	pH	ORP / eH (mV)	DO (Mg/L)	Turbidity (NTU)	Comments
1058	5.92	100		0	9.5	179.1	6.63	213.2	5.90	17.1	
1061	dry	—		~250	—	—	—	—	—	—	

Notes:
 well pumped dry
 well did not sufficiently recharge, only 2 VOAs collected
 Sample turbid

ECS Well Sampling Form – Page 1 of 2

Site Name/Location: Champlain Cable Date: 11/30/16

Sample I.D.: AG-105 Collection Time 1046

Sampling Sequence: _____ Of _____

EC S Field Staff Collecting This Sample: Greg Friedman

Climatic Conditions (Temp/Precip): 46 overcast

Depth To Product: — Feet Depth To Water: 4.02 Feet

Reference Point (TOC or other -Describe) 70C

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.5 feet

Measurement Technique (WLM, IP or other -Describe) WLM

Presence/Absence Of NAPL And Detection Method: —

Total Depth Of Boring (Take Measurement After Sampling): 6.41

Well Yield: High _____ Low — Pumped Dry? _____

Final Water Appearance (At Sample Collection) Clear — Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): 8260

Field Test Results (HACH Kits):

Alkalinity: _____ Chloride: _____

Iron (II): _____ Sulfate: _____

Notes: _____

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Champlain Cable Depth To 4.02 16.41 Of Screen (Below RP)
 Well Id: AG-105 Top Bottom
 Field Personnel: Greg Friedman Pump Intake Depth: 6.20
 Reference Point (RP – TOC or other-describe): TOC Pumping Device: Peristaltic

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged	3%	3%	±0.1	+10	10% 0.5	10% 5	Comments
					Temperature °C	Specific Conductance (uS/cm)	pH	ORP / eH (mV)	DO (Mg/L)	Turbidity (NTU)	
1018	4.02	100		0	9.5	239.2	7.98	190.3	5.12	12.4	
1021	4.28	100		300	9.3	231.7	7.46	197.6	4.34	10.3	
1024	4.32	100		600	9.2	232.0	7.13	201.5	4.21	6.04	
1027	4.39	100		900	9.1	229.6	6.83	206.1	4.04	6.13	
1030	4.45	100		1200	9.1	229.5	6.65	209.5	3.78	5.93	
1033	4.49	100		1500	9.1	228.8	6.57	211.2	3.59	2.95	
1036	4.52	100		1800	9.1	228.9	6.51	212.7	3.44	2.37	
1039	4.56	100		2100	9.1	228.3	6.46	214.6	3.31	2.37	

Notes:
