



**SITE INVESTIGATION REPORT
RUTLAND SOUTHERN VERMONT REGIONAL AIRPORT
1022 AIRPORT DRIVE
CLARENDON, VT**

ATC PROJECT NO. 280EM00212

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EXECUTIVE SUMMARY

On behalf of the Vermont Agency of Transportation (VTrans), ATC Group Services, LLC (ATC) presents this Site Investigation (SI) report to document a subsurface investigation (SI) at the Rutland-Southern Vermont Regional Airport (RUT) property located at 1022 Airport Drive in Clarendon, Vermont. The airport is owned and operated by the VTrans. This work was requested by Chuck Schwer of the Vermont Department of Environmental Conservation (VTDEC) in a letter dated May 11, 2018, in response to the discovery of per- and polyfluoralkyl substances (PFAS) in two nearby bedrock drinking water wells serving the Rutland Airport Business Park (RABP) Water System in March 2018. The SI was completed at the “Bravo” fire training area (FTA), the Fire Department building, the RABP Water System supply wells, and a planned taxiway excavation area, all located on the RUT property (i.e., Site, SMS Site #2018-4763).

The objective of this SI was to investigate areas of known aqueous film forming foam (AFFF) use, determine if the airport property is the source of the PFAS contamination detected in nearby drinking water wells, and to identify possible impacted sensitive receptors. The taxiway soil sampling is incidental to the SI, but provided valuable information that was incorporated into this SI report. The SI included the completion of twelve soil borings and installation of six monitoring wells, and the collection of soil and groundwater samples to assist in identifying possible subsurface PFAS contamination. Five overburden monitoring wells were installed at the Bravo FTA and one overburden monitoring well was installed at the Fire Department building. Groundwater samples were analyzed for the possible presence of PFAS and total oxidizable precursor (TOP) Assay. Soil samples were analyzed for the possible presence of PFAS, TOP Assay, and total organic carbon (TOC).

The SI was completed in accordance with ATC’s Work Plan and Cost Estimate and in accordance with the VTDEC Investigation and Remediation of Contaminated Properties Rule (IRule), July 27, 2017. The wells serving the RABP Water System are located on the airport property. The taxiway soil sampling was requested by Mr. Andy Shively of VTrans on June 20, 2018 due to concerns raised by the planned Taxiway excavation contractor regarding potential PFAS contamination and the planned off-site disposal of the soils. A portion of the taxiway is located to the west of the former Bravo FTA where AFFF was reportedly used by the fire department, and is a suspected source area for PFAS. The ATC SI Work Plan and Cost Estimate were approved by Mr. Michael Nahmias of the VT DEC and Mr. Andy Shively of VTrans. The SI was completed under ATC’s VTrans Contract (#PS0672).

According to the VTDEC, the presence of PFAS in the RABP wells could be from the airports use of AFFF, which likely contained PFAS. The VTDEC had identified several locations at the RUT where PFAS could be present which was used to develop a Conceptual Site Model (CSM), which include the following:

- current and former FTA’s where AFFF may have been used, referred to as Bravo and Delta,
- an area adjacent to the Fire Department building where firetrucks were washed after training exercises and where AFFF pumper trucks are stored,
- adjacent to the drinking water supply wells which serve the RABP,
- stormwater/surface water discharge location at the southeast corner of the Site, and
- at the location of an airplane crash on the northern end of the main runway

Please note that this SI addresses the Bravo FTA, Fire Department building, planned Taxiway excavation area, and RABP supply wells areas. It is ATC’s understanding that VTrans plans to have separate Work Plans prepared and submitted for the other areas of concern (AOC) identified in Mr. Schwer’s May 11, 2018 letter, which includes the storm and surface water system outfall, the Delta FTA location, and a former airplane crash site at the north end of the main runway.

The VTDEC also requested the completion of soil borings and monitoring wells at locations in the vicinity of sensitive receptors (i.e., bedrock supply wells) in locations to the north, east, south and west of the Site. It is ATC's understanding that the VTrans plans to comply with this request and complete this work under separate Work Plans.

The 21 PFAS contaminants of concern (COCs) that were submitted for laboratory analysis by Modified EPA Method 537 included: Perfluorobutanoic acid (PFBA), perfluoropentanoic acid (PFPeA), perfluorohexanoic acid (PFHxA), perfluoroheptanoic acid (PFHpA), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorodecanoic acid (PFDA), perfluoroundecanoic acid (PFUnA), perfluorododecanoic acid (PFDoA), perfluorotridecanoic Acid (PFTriA), perfluorotetradecanoic acid (PFTeA), perfluorobutanesulfonic acid (PFBS), perfluorohexanesulfonic acid (PFHxS), perfluoroheptanesulfonic Acid (PFHpS), perfluorooctanesulfonic acid (PFOS), perfluorodecanesulfonic acid (PFDS), perfluorooctane Sulfonamide (FOSA), N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA), N-ethyl perfluorooctane, sulfonamidoacetic acid (NEtFOSAA), 6:2FTS, and 8:2FTS. Additionally, perfluoropentanesulfonic acid (PFPeS), perfluoronanesulfonic acid (PFNS), and 4:2 FTS were analyzed for in the soil samples.

At this time, VT regulates the following five PFAS compounds in groundwater (PFOA, PFOS, PFHxS, PFHpA and PFNA). The Vermont Drinking Water Health Advisory (DWHA) regulatory standard or limit is 20 nano grams per liter (ng/L) or parts per trillion (ppt) in combination or individually. VT has no regulatory standard or limit for PFAS in soil at this time. However, VT does have a Department of Health (DOH) soil screening value (SSV) of 300 micrograms per kilogram ($\mu\text{g}/\text{kg}$) or parts per billion (ppb) for PFOA only.

The ATC SI concludes the following based on the SI results:

- Depth to shallow overburden groundwater ranged between 4.42 (MW-3S) to 5.56 (MW-2D) feet below ground surface (fbgs), with and a groundwater flow direction to the northeast at a less than 1% horizontal gradient. A downward vertical gradient was observed in monitoring well couplet MW-2S/2D located in the Bravo FTA. The hydrologic relationship between the shallow overburden aquifer and the bedrock aquifer is currently unknown.
- Soil boring data indicates soil generally consisted of fine to coarse sand with some silt, gravel and cobbles encountered from ground surface to approximately 15 fbgs in T-SB-1 to B-SB-10, some of which could be contributed to fill material during the construction of the runways. Clayey-silt and fine sand was generally encountered from 5-15 fbgs to approximately 32 fbgs in B-SB-2D, with dense silty-sand, fine to coarse gravel and some cobbles (likely glacial till) to the borings maximum depth of 33.5 fbgs. Refusal was encountered on suspected bedrock at MW-2D at a depth of 33.5fbgs; however, please note that no bedrock coring was completed to verify bedrock.
- All five Taxiway soil sample collection locations (T-SB-1 to T-SB-5), with samples collected from 0-2 (S), 2-4 (M) and 4-7 (D) fbgs depth in each location, had no PFAS detections above laboratory method detection limits.
- The Vermont DWHA of 20 ng/L for individual or combined totals of PFOA, PFOS, PFHxS, PFHpA and PFNA, were exceeded in all groundwater samples collected from MW-1S (shallow), MW-2S, MW-2D (deep), MW-3S, MW-4S and MW-5S. The highest total regulated PFAS concentration of 2,666 ng/L was detected at MW-1S, which is adjacent to the Fire Department building and downgradient of the Bravo FTA. An attempt (SB-11) was made to install a monitoring well near the RABP bedrock supply wells; however, no overburden groundwater was encountered before refusal of drill casing occurred; therefore no monitoring well was installed at this location. All other monitoring wells are located in the Bravo FTA. In well couplet MW-2S/MW-2D, the

highest PFAS concentrations were detected in the shallow well MW-2S. This was the first round of groundwater quality data, several rounds of data is needed for accurate PFAS trend analysis. The Bravo FTA and Fire Department are located approximately 1,100 and 1,450 feet, respectively downgradient with respect to shallow overburden groundwater flow from the two RABP water system bedrock supply wells.

- The extent of PFAS contamination in the overburden aquifer has not been fully defined with the existing soil boring/monitoring well network. The detection of PFAS in the deep well couplet member (MW-2D) which is likely installed on top of bedrock suggest that PFAS may be entering the bedrock aquifer. Testing of the bedrock aquifer would be necessary to conclusively determine if PFAS is entering the bedrock aquifer in this area of the Site.
- PFAS (PFOA, PFOS, PFHxS, PFHpA and PFNA) concentrations in soil borings ranged between 0.73 and 21.16 ug/kg. There is currently no EPA or VT DEC advisory or regulatory standard for these PFASs in soil; except as mentioned above for Vermont DOH Soil Screening Value (SSV) of 300 ug/Kg for PFOA. PFOA was detected in seven soil samples with concentrations ranging between 0.26 and 6.10 ug/Kg, which are well below the DOH SSV of 300 ug/Kg, with the highest concentrations detected in B-SB-8S from 0-2 fbg located on the southern edge of the Bravo FTA.
- TOC concentrations ranged between 720 and 6,400 mg/Kg in the six soil samples collected from the water table depth in F-SB-6 to R-SB-11. TOC has no contaminant threshold, and was collected to evaluate the potential for PFAS to absorb to soil organics. The TOC range is considered to be low to average, with no outstanding concentrations. No correlation between TOC and PFAS concentrations could be determined. The highest TOC concentration was in R-SB-11, where no monitoring well was installed due to a lack of groundwater at 18 fbg, where refusal was met.
- TOP Assay testing can help measure the concentration of non-discrete and difficult to measure PFAS compounds that are not identified by EPA Method 537; which may underestimate the PFAS transformation potential at the Site. The TOP Assay results showed total soil concentrations increasing from 3.07 to 6.80 µg/Kg, in the soil sample collected from B-SB-7. TOP Assay soil sample pre- and post-treatment concentrations differ by an increase of between 59 and 342 percent (%).
- The TOP Assay results showed total groundwater concentrations decreasing from 10,152 to 8,368 ng/L from the sample collected from MW-2S. PFHpA, PFHxS, PFOA, PFOS and PFNA had a decrease in total concentrations from nine to 25%. PFBA, PFPeA and PFHxA had increases in concentrations from 12 to 43%. 6:2 FTS was observed in the pre-treatment analysis, but was not present in the post-treatment analysis, suggesting it transformed from a poly- to per-FAS. Overall PFAS concentrations decreased by 18%.
- Based on the information collected to date, sensitive receptors impacted by the PFAS include the RABP supply wells and numerous private drinking water supply wells to the east, south and west of the Bravo and Fire Department locations. Please note that point of entry (POET) granular activated carbon (GAC) treatment systems are being installed at drinking water supply well locations with known PFAS impacts. This work is being reported under separate cover.

Based on these conclusions, ATC recommends the following:

- 1) Submit this report to the VT DEC (Michael Nahmias) for review and comment.
- 2) Based on the results of the soil and groundwater sampling and analysis, ATC recommends completing an Additional SI that would include the installation of additional soil borings/monitoring wells around the Bravo FTA and Fire Department Building. Some of the recommended wells should include nested

wells completed to top of bedrock. Testing of the bedrock aquifer would be needed to conclusively determine if PFAS is entering the bedrock aquifer in this area.

- 3) Geophysics should be considered in future investigations to assist with further development of the CSM, guide locations for additional drilling/sampling/environmental testing, and help better understand and predict future receptor impacts.
- 4) Slug testing should be completed on select wells and grain size analysis of select soil samples.
- 5) Additional investigation should be completed at the Delta FTA area and the outfall of the Sites storm and surface water transport system, which terminates to the south above the Mill River.
- 6) Properly dispose of investigative derived waste.

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1.0 INTRODUCTION

ATC Group Services, LLC (ATC), on behalf of Mr. Andy Shively, Hazardous Material and Waste Coordinator for the Vermont Agency of Transportation (VTrans), completed a Site Investigation (SI) at the Rutland-Southern Vermont Regional Airport (RUT) property located at 1022 Airport Drive in Clarendon, VT (the Site)(Figures 1, 2, and 3). This work was requested by Chuck Schwer of the Vermont Department of Environmental Conservation (VT DEC) in a letter dated May 11, 2018, in response to the discovery of PFAS in nearby drinking water wells serving the Rutland Airport Business Park (RABP) Water System, during March 2018 VT DEC sampling. The bedrock wells serving the RABP Water System are located on the airport property. The SI consisted of the installation of soil borings and groundwater monitoring wells, and sampling and analyses of soil and groundwater. The SI work plan and cost estimate were approved by Mr. Michael Nahmias of the VT DEC and Mr. Andy Shively of AOT, in emails dated June 19 and June 24, 2018, respectively.

1.1 SITE INFORMATION

Property Owner	Owner Mailing Address	Owner Email	Owner Phone #
VTrans - contact Andrew Shively	2178 Airport Road, Barre, VT 05641	Andy.Shively@vermont.gov	(802) 229-8740

The subject property is located at 1002 Airport Drive in North Clarendon, Vermont. The sites terminal has a latitude and longitude location of 43.52809/72.94603, and encompasses approximately 345 acres. The airport has two asphalt paved runways. The property slopes gently downward to the north, east, and west near to the property boundaries, with the majority of the site being flat to accommodate the runways, at an elevation of approximately 787 feet above sea level (asl). The property slopes more abruptly downward to the south, where there is a gorge (Clarendon Gorge) and the Mill River which runs through it from east to west. The property currently houses thirteen buildings associated with the airport, including: a fire station, terminal, storage and maintenance hangers and district transport garage. The ground surface on the middle of the parcel contains the asphalt runways, which are surrounded by grass. The eastern side of the parcel contains asphalt parking and grass medians. The Site is located in a rural residential area with residences and some commercial properties to the east, south and west. The subject property is bounded by Airport Road to the east, Gorge Road to the south, Vermont Route 7B to the west and Vermont Route 103 to the north.

There are two on-site hazardous waste sites listed on the ANR Natural Resources Atlas, SMS #1991-1052 and #2011-4166. SMS #2011-4166 was closed in 2012 and has a Sites Management Activities Completed (SMAC) designation. SMS #1991-1052 is still open and has a low priority designation. Both of the hazardous sites were related to the release of petroleum products and are not expected to be PFAS contributors based on available information. Additionally the ANR Atlas depicts seven hazardous waste generators on or bordering the airport property. The waste generating facilities are generally small quantities generators (SQG). No information of the types of waste generated is available at this time.

The primary surficial geology is listed on the online ANR Natural Resources Atlas as moraine, glacial deposits (assumed recessional), which is un-stratified deposited till material. Additionally, the ANR Atlas depicts kame moraine glaciofluvial deposits on the southeastern corner of the property. Glaciofluvial material is glacial melt deposits and it typically stratified. The dominant bedrock geology in the immediate vicinity is listed on the online ANR Natural Resources Atlas as dolostone consisting of well-bedded dolostone weathering beige, cream, and buff, with green, red, or gray phyllite, siliceous partings, and thin beds of blue-quartz-pebble conglomerate and quartzite. The secondary bedrock feature is listed as phyllite.

2.0 SITE HISTORY & CONCEPTUAL SITE MODEL

According to VTrans personnel, the historical use of the Site was farm and forestland prior to the construction of the airport in the 1940's. A portion of the site was also a wetland, which was filled during the airport runway construction.

In early 2018, the VT DEC learned the RUT is an FAA Part 139 Airport that stores and uses aqueous film forming foal (AFFF) onsite, and soon after the VT DEC initiated and completed drinking water sampling of 10 nearby bedrock supply wells. Eight of the supply wells sampled had no PFAS detections above laboratory method detection limits; however, the two supply wells serving the RABP had perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) detections. One RABP supply well exceeded the Vermont Drinking Water Health Advisory (DWHA) for PFOA and PFOS of 20 nanograms per liter (ng/L) or parts-per-trillion (ppt). Several other PFASs were detected in each sample.

The SI was requested to determine if the use of AFFF on airport property is the source of the PFAS detected in the RABP supply wells, which are located on the southwest portion of the airport property. The supply well waterlines travel north of the wells in the same trench, which then turns to the west and runs approximately 900 feet to the RABP pump house. The water is then chlorinated and discharged to two subsurface 15,000-gallon cylindrical reservoirs. The water is then pumped from the reservoirs to the distribution system, which serves eight business connections on the RABP water system. According to the well construction logs, the two bedrock supply wells are approximately 560 and 960 feet deep.

The possible contaminants associated with the potential AFFF sources could include perfluorobutanoic acid (PFBA), perfluoropentanoic acid (PFPeA), perfluorohexanoic acid (PFHxA), perfluoroheptanoic acid (PFHpA), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorodecanoic acid (PFDA), perfluoroundecanoic acid (PFUnA), perfluorododecanoic acid (PFDoA), perfluorotridecanoic Acid (PFTriA), perfluorotetradecanoic acid (PFTeA), perfluorobutanesulfonic acid (PFBS), perfluorohexanesulfonic acid (PFHxS), perfluoroheptanesulfonic Acid (PFHpS), perfluorooctanesulfonic acid (PFOS), perfluorodecanesulfonic acid (PFDS), perfluorooctane Sulfonamide (FOSA), N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA), N-ethyl perfluorooctane, sulfonamidoacetic acid (NEtFOSAA), 6:2FTS, 8:2FTS, perfluoropentanesulfonic acid (PFPeS), perfluoronanesulfonic acid (PFNS), 4:2 FTS, fluorotelomers and precursors, which are collectively known as PFASs.

On March 13, 2018, the VT DEC completed drinking water sampling at ten supply wells, both on- and off-site of the airport. The properties were chosen for their close proximity to the airport property boundary. The two RABP samples contained PFOS and PFOA above the DWHA of 20 nanograms per liter (ng/L) or parts-per-trillion (ppt). The DWHA at the time included individual or combined PFOS and PFOA concentrations that exceed 20 ng/L. However, since the initial VT DEC sampling, the VT DOH has added three additional PFAS compounds, PFHxA, PFHpA and PFNA to the DWHA, and any combination of the five PFAS compounds that exceed 20 ng/L trigger the need for investigation/filtration. The VT DEC then provided bottled water for water system user consumption and placed a do-not-drink order on the water system, as a precaution. On March 28, 2018, ATC completed confirmatory sampling at the RABP pump house. ATC collected drinking water samples from Well #1, Well #2 and the combined well stream, which would mimic what is being provided to the distribution system. ATCs sampling results confirmed the presence of PFOS and PFOA above the DWHA in Well #1 and #2, and determined that the combined stream sample also exceeded applicable health advisories. Design and permitting for PFAS water filtration for the RABP water system was initiated and a treatment system was completed in August 2018, and the do-not-drink order was lifted.

Additionally, surrounding private drinking water supply wells were sampled in April, May, June, July and August 2018, with six additional residential point-of-entry-treatment (POET) systems subsequently installed due to DWHA exceedances. Numerous supply well located east, south and west of the RUT had PFAS detections present, but below applicable standards.

Nearby sensitive receptors include residential and commercial properties to the east, south and west, which are generally cross-gradient to the east and generally down-gradient to the south and west. The primary exposure pathway is from ingestion of contaminated groundwater, though shallow overburden springs and bedrock supply wells. All of the businesses and the residences in the area obtain drinking water from bedrock supply wells and sewer disposal is through either private onsite or community septic systems. The nearest surface water body is the Mill Brook located several hundred feet south and down-gradient of the subject property. At this time with available data, mobilized contaminants have been identified in three of ten surrounding drinking water supplies, the RABP and two private bedrock supply wells, but the threat to additional nearby sensitive receptors is unknown.

Based on VT DEC discussions with airport personnel and the fire chief, several areas of AFFF use and storage were identified on the airport property. ATC was requested to investigate these identified areas, which include: AFFF usage during firefighter training near to the Delta and Bravo runways, a grassy area adjacent to the Fire Department building, where firetruck wash water discharges, a grassy area to the east of the RABP supply wells located on the airport property and the outfall of three subsurface storm water pipes and surface storm water swales, which coincidentally discharge to the same location at the Mill River at the southeast of the airport property. Additionally the VT DEC requested the completion of up to eight soil borings finished as groundwater monitoring wells be completed at areas located at the north, east, south and west perimeter of the subject property. One of these locations is related to AFFF sprayed on an airplane crash, and the other locations are related to nearby sensitive receptors, such as bedrock supply wells. VTTrans personnel indicated that bedrock blasting was conducted during construction of the airport, suggesting that some areas may contain shallow bedrock. This SI is for the Bravo FTA, where AFFF was used during firefighter training, for the Fire Department building where fire trucks were washed and where AFFF was stored and for soils and groundwater adjacent to the RABP drinking water supply wells on the western side of the airport property.

Soil boring data indicates soil generally consisted of fine to coarse sand with some silt, gravel and cobbles encountered from ground surface to approximately 15 fbg in T-SB-1 to B-SB-10, some of which could be contributed to fill material during the construction of the runways. Clayey-silt and fine sand, likely lacustrine deposition, was generally encountered from 15 fbg to approximately 32 fbg in B-SB-2D, with dense silty-sand, fine to coarse gravel and some cobbles (glacial till) to the borings maximum depth of 33.5 fbg. Organic rich soils, possible related to a former wetland or a buried loamy former surface soil horizon, was encountered from three to 3.5 fbg in B-SB-6. This layer was not observed in other borings. Depth to groundwater was encountered from 4.42 (MW-3S) to 5.56 (MW-2D) fbg at the Site.

Refer to Figure 1 for a site locus, Figure 2 for an overview of the full airport and Figure 3 for a site plan depicting Taxiway, Bravo, Fire Department and RABP supply well SI boring and monitoring well locations.

2.1 WORK PLAN DEVIATIONS & DATA GAPS

No work plan deviations were experienced during completion of the SI, except for the inability to install groundwater monitoring wells adjacent to the RABP bedrock supply wells. Dense till was encountered at approximately 18 fbg, and additional depth was not realized after the VT DEC Project Manager requested drilling termination. However, soil samples were collected from the soil boring at several depths.



The work plan deviation is a considered data gap, as no groundwater information is available at this location. However, it is ATCs opinion that the dense soils likely precludes the presence of groundwater and likely does not affect the outcome of the SI.

3.0 INVESTIGATIVE PROCEDURES AND RESULTS

In June and July 2018, ATC completed a SI in accordance with the VT DEC approved work plan and IRule. The following sections outline investigative procedures and results.

3.1 UTILITY LOCATION

On May 23, 2018, ATC met with Mr. Shively and Mr. Nahmias at the RUT, and with airport personnel as an escort, entered the restricted runway areas and marked the proposed boring locations and the drilling perimeter for eventual contact with Digsafe to mark underground utilities. Digsafe was contacted on June 18, 2018 to mark the underground utilities in the vicinity of the pre-placed flags. On June 21, 2018, ATC returned to the site to meet with Mr. Shively and Subterra, a private underground utility marking company, to mark locations that Digsafe was not supposed to be able to mark, based on distance from centerline of roadway (greater than 500 feet), which it turns out they had. Subterra completed electromagnetic resistance and ground penetrating radar (GPR) utility marking of all proposed boring locations. All proposed soil boring locations were cleared for work completion.

3.2 SOIL BORINGS & MONITORING WELLS

On June 26 and 27, 2018, ATC oversaw the installation of twelve soil borings over four distinct areas (Taxiway, Fire Department, Bravo and RABP supply wells), with six completed as monitoring wells MW-1S (Shallow), MW-2S, MW-2D (Deep), MW-3S, MW-4S and MW-5S. Five shallow soil borings (seven fbg) were completed within the proposed Taxiway excavation and included T-SB -1, T-SB-2, T-SB-3, T-SB-4 and T-SB-5. The five shallow soil borings were completed to assess the soils that were to be removed as part of the planned Taxiway extension, and to determine if special disposal would be required for these soils which are to be transported off-site. No PFAS was detected above laboratory method detection levels in any of the five sample locations, and the soils were cleared for general off-site disposal.

Soil sample were collected from ground surface to two fbg, from two to four fbg and from four to seven fbg, at each location. One soil boring was completed adjacent to the airports Fire Station, F-SB-6, which was finished as MW-1S. Four soil borings were completed in the “Bravo” area, B-SB-7S finished as MW-2S, B-SB-7D finished as MW-2D, B-SB-8 finished as MW-3S, B-SB-9 finished as MW-4S and B-SB-10 finished as MW-5S. MW-2S and MW-2D were installed immediately adjacent to each other as nested wells. One soil boring was completed in the vicinity of the RABP supply wells as R-SB-11. The SI drilling was completed by Crawford Drilling of Agawam, Massachusetts, utilizing a GeoProbe® vibratory drill for T-SB-1 to B-SB-10. Soil boring B-SB-2D, from 25 to 33.5 fbg, and R-SB-11 were completed with an auger attachment, which was changed in the field due to dense soils that caused Geoprobe® refusal. All borings were pre-cleared to 5 fbg utilizing a hand auger to ensure no unmarked utilities were present. Refer to Appendix A for boring logs. A geologic cross-section depicting soil type in relation to the Fire Department and Bravo soil boring/monitoring well locations and depths, is presented as Figure 4. All drilling cuttings/recovered soils were placed into a 55-gallon DOT drum for eventual off-site disposal.

During installation, ATC field-screened soils for visual and olfactory evidence of contamination and a photo-ionization detector (PID) was utilized to measure total organic vapors (TOVs). PID readings in all twelve boring were 0.0 parts-per-million volume (ppmv). Soil boring data indicates soil generally consisted of fine to coarse sand with some silt, gravel and cobbles encountered from ground surface to approximately 15 fbg in T-SB-1 to B-SB-10, some of which could be contributed to fill material during the construction of the runways. Clayey-silt and fine sand, likely lacustrine deposition, was generally encountered from 15 fbg to approximately 32 fbg in B-SB-2D, with dense silty-sand, fine to coarse gravel and some cobbles

(glacial till) to the borings maximum depth of 33.5 fbg. Very dense glacial till was encountered from 10 to 18 fbg in SB-11. Refusal was encountered on suspected bedrock at MW-2D at a depth of 33.5fbg; however, please note that no bedrock coring was completed to verify bedrock. Soil samples for PFAS analysis were collected from ground surface to two fbg (shallow soils - S) and from the saturated zone at the top of the water table (WT) in each location. Additional PFAS soil samples were also collected from four and six fbg and the bottom of the boring at the presumed bedrock interface, in the B-SB-7D location. TOC samples were collected from the WT depth in each boring. One TOP Assay soil sample was collected from B-SB-7D also at the WT depth.

MW-1S was installed to 14 fbg, MW-2S and MW-3S were installed to 13 fbg, MW-2D was installed to 32 fbg, and MW-4S and MW-5S were installed to 15 fbg. All wells, except for MW-2D, were completed with ten feet of screen with three to five feet of riser to ground surface. MW-2D was completed with five feet of screen and 27 feet of riser to ground surface, in order to isolate the well from the nested MW-2S, which based on PFAS contaminant concentrations was successful. After the completion of the wells, each one was purged to ensure representative groundwater is present in the well for the planned sampling event. During purging it was determined that most of the wells were initially turbid, but cleared after several gallons were removed. Additionally, a dedicated unpreserved 40-milliliter glass VOA container was used to conduct a shaker test on all of the wells after purging to determine if any PFAS foaming occurred. No foaming was observed in any of the six monitoring well shaker tests.

The monitoring wells consisting of 1.5-inch polyvinyl chloride (PVC) well materials were installed in each boring with 0.010-inch factory slotted screen sections. The screen section was surrounded by a sandpack and one to two feet of hydrated granular bentonite seal was placed atop the sandpack, followed by native material. However, the B-SB-7D well consisted of bentonite from 26 fbg to ten fbg to ensure isolation from the upper aquifer. The wells were completed flush at grade with protective roadboxes. Refer to Appendix A for well construction details. Photographs of well/soil boring installation and locations were taken during completion of the work and are included in Appendix B.

The latitude and longitude of the soil borings (SBs) and monitoring wells (MWs) are provided below.

SB/Well I.D.	Lat/Long
T-SB-1	43.313999,-72.565455
T-SB-2	43.314151,-72.565460
T-SB-3	43.314732,-72.565481
T-SB-4	43.320133,-72.565521
T-SB-5	43.315247,-72.565485
F-SB-6 /MW-1S	43.314183,-72.564860
B-SB-7 /MW-2S	43.313946,-72.565125
B-SB-7 /MW-2D	43.313947,-72.565125
B-SB-8 /MW-3S	43.313977,-72.565074
B-SB-9 /MW-4S	43.313883,-72.565161
B-SB-10 /MW-5S	43.313965,-72.565258
R-SB-11	43.426052,-72.751331

3.3 SOIL SAMPLING & ANALYSIS

On June 26 and 27, 2018, ATC collected soil samples from twelve soil borings, six of which were completed as groundwater monitoring wells. Five of the soil borings, not completed as monitoring wells, were completed to assess shallow soils in a planned Taxiway, and were incidental to the SI, but provided valuable information. The sixth soil boring was completed adjacent to the RABP supply wells, but did not encounter groundwater before termination and therefore, no monitoring well was installed.

Composite Taxiway soil samples were collected from ground surface to two fbgs, from two to four fbgs, and from four to seven fbgs, in the T-SB-1, T-SB-2, T-SB-3, T-SB-4 and T-SB-5 soil borings. Composite soil samples from the other seven soil borings, F-SB-6, B-SB-7D, B-SB-7D, B-SB-8, B-SB-9, B-SB-10 and B-SB-11 were collected from ground surface to two fbgs and from the water table (WT) depth, which was generally eight to nine fbgs. Additional soil samples were collected from four, six and 32 fbgs (top of bedrock) in the B-SB-7D soil boring. All soil samples were analyzed for the possible presence of PFAS. TOC soil samples were collected from the WT depth in six soil boring, which does not include the B-SB-7S location, as it was nested boring. One soil sample was collected from the WT depth in the B-SB-7D soil boring for TOP Assay analysis. Soil samples were stored on ice and submitted to the appropriate laboratory for analysis.

The Taxiway soil samples were shipped to SGS Accutest (Accutest) of Dayton, New Jersey under appropriate chain-of-custody protocols, with a five-day rush analysis, for the possible presence of PFAS by US EPA Method 537, modified. The additional PFAS soil samples, the TOC and TOP Assay soil samples were shipped to TestAmerica of Burlington, Vermont for analysis. The PFAS samples were analyzed by EPA Method 537, modified and the TOP Assay samples were analyzed by EPA Method 537 modified, pre- and post-oxidation treatment. Refer to Figures 6 for an illustration of contaminant distribution within soils across the site. These results indicate that the soils have not been significantly impacted by adsorbed PFAS. The TOC soil samples were analyzed by the Lloyd Kahn Method. The soil analytical laboratory reports are included in Appendix C. Refer to Table 1 for the PFAS analysis results, Table 2 for the TOP Assay analysis results and Table 3 for the TOC analysis results. The PFAS and TOP Assay results were compared to the DOH SSV of 300 µg/Kg for PFOA. There is no standard for TOC, as it is not considered a contaminant, but is useful in determining PFAS soil sorption potential.

The DOH SSV for PFOA was not exceeded in any of the soil samples collected from the soil borings. The highest PFOA detection was 6.10 µg/Kg in B-SB-8S, which is well below the SSV of 300 µg/Kg. TOC concentrations ranged between 720 and 6,400 mg/Kg, which are considered to be low to moderate in availability for PFAS sorption.

TOP Assay results indicate a sizable increase in Per-FAS compounds after precursor/Poly-FAS oxidization. The TOP Assay mimics biological breakdown of precursor Poly-FASs compounds into their end product Per-FASs.

A summary of results is included below:

- No PFAS compounds were detected above laboratory method detection limits in the B-SB-7TOR (top of rock), B-SB-9WT, B-SB-10WT, R-SB-11S or R-SB-11WT soil samples.
- Total PFAS soil sample concentrations, utilizing the five regulated drinking water compounds (PFOA, PFOS, PFHxS, PHHpA and PFNA) as a potential for future soil regulations, ranged between non-detect (ND) and 21.16 µg/Kg in the six soil sample locations at all sampled

depths. There are no regulatory soil advisories or standards for any of the above five PFAS compounds except for PFOA.

- PFOA was detected at concentrations ranging between 0.26 and 6.10 µg/Kg in the F-SB-6S, F-SB-6WT, B-SB-7S, B-SB-7-4ft, B-SB-7-6FT, B-SB-7WT, B-SB-8S, B-SB-8WT, B-SB-9S and B-SB-10S soil sample locations. The highest PFOA detection was in B-SB-8S. All concentrations are well below the SSV of 300 µg/Kg.
- TOC concentrations ranged between 720 and 6,400 mg/Kg in the six WT soil samples collected from F-SB-6WT to R-SB-11WT locations. The highest TOC concentration was in the R-SB-11WT location and the lowest concentration was in B-SB-7WT location. No correlation between TOC and PFAS concentrations can be made.
- TOP Assay soil sample pre- and post-treatment concentrations collected from B-SB-7WT, differ by an increase of between 59 and 342 percent (%).

Quality assurance/quality control (QA/QC) field blank (FB) samples were collected from each soil boring location. FBs were only analyzed for locations with PFAS detections in their soil samples. Consequently, PFAS analysis was completed for FB-SB-6, FB-SB-7, FB-SB-8, FB-SB-9 and FB-SB-10. No PFAS was detected above laboratory method detection limits in the five QA/QC FB samples listed above. A duplicate soil sample was collected from F-SB-6S for QA/QC purposes. PFAS detections in the duplicate soil sample were at or within the EPA's acceptable difference of 30 percent of the original sample. Two equipment blank (EB) samples were collected from the metal soil mixing bowl after cleaning with wash-water between soil sample collections. No PFAS was detected above laboratory method detection limits in the two QA/QC EB samples, which were collected by placing laboratory provided PFAS-free distilled water into the bowl, swirling and then recollecting for analysis. A drilling tool wash-water QA/QC sample was collected from the VTrans garage water supply, which was presumed to have been PFAS free. However, low concentrations of several PFAS compounds were detected above laboratory method detection limits, but below the DWHA. Based on numerous non-detect (ND) soil samples, it appears that the presence of small quantities of PFAS in the wash-water did not transfer from the tooling to the soil samples collected in the same borings. Overall, no QA/QC issues were noted during the completion of the soil boring program.

3.4 GROUNDWATER MONITORING & ANALYSIS

On July 11, 2018, the six groundwater monitoring wells, MW-1S, MW-2S, MW-2D, MW-3S MW-4S and MW-5S, were gauged for water depth to evaluate groundwater elevations and flow characteristics. A site survey was also completed on this day by Otter Creek Engineering. Depth to water ranged from 4.42 ft below top of casing (ft BTOC) in MW-3S to 5.56 ft BTOC in MW-2D; however, MW-2D is a deep well isolated from the shallow aquifer wells (S sample nomenclature ending) and was not included in the groundwater contouring. The deepest depth to water in the upper aquifer is 5.50 ft BTOC in MW-5S. Groundwater elevations for the monitoring wells were calculated by subtracting the depth to water from surveyed top of casing (TOC) elevations. This data is tabulated in Table 4. A groundwater contour map was generated utilizing groundwater elevation data and is presented in Figure 5. The figure illustrates that shallow horizontal groundwater flow is to the northeast with a hydraulic gradient of less than 1% (MW-5S to MW-1S). Based on the extremely shallow hydraulic gradient, ATC postulates that groundwater flow direction could change seasonally or during heavy rainfall events. The depth to groundwater in the couplet wells, indicates a downward gradient of 0.04 from 4.52 to 5.56 fbgs in MW-2S and MW-2D, respectively.

The wells were then purged utilizing low-flow sampling techniques. ATC then collected groundwater samples from the six monitoring wells, which were stored on ice, and transported to TestAmerica for analysis in accordance with appropriate chain-of-custody protocols. The samples were analyzed for the

possible presence of PFAS by US EPA Method 537, modified. One sample was collected for TOP Assay analysis, also by EPA Method 537, modified. Results were compared to the Vermont Drinking Water Health Advisory (DWHA). The groundwater analytical report is provided in Appendix C, and a tabulated summary of the PFAS results is provided in Table 5 and the TOP Assay results are included in Table 6. A duplicate sample was collected from MW-2S, and the results were at or within the EPA's acceptable difference of 30 percent of the original sample. Purge water was placed into an on-site 55-gallon DOT shippable drum, until groundwater results were available. Based on the results, the water will be properly disposed of off-site.

Groundwater quality data was collected utilizing a YSI and turbidity meter during low-flow purging for parameter stabilization. Temperature ranged between 14.59 (MW-3S) and 16.88 (MW-1S) °C; specific conductivity ranged between 329 (MW-2D) and 549 (MW-1S) microsiemens per centimeter ($\mu\text{S}/\text{cm}$); pH ranged between 6.16 (MW-3S) and 7.53 (MW-2D) standard units (SU); oxidation reduction potential (ORP) ranged between -180 (MW-2D) and 129 (MW-5S) millivolts (mV); dissolved oxygen (DO) ranged between 0.17 (MW-1S) and 2.48 (MW-5S) milligrams per liter (mg/L) and turbidity ranged between 1.52 (MW-1S) and 79 (MW-5S) nephelometric turbidity units (NTUs). No outstanding high or low values were present, and the ranges conform to generally accepted groundwater quality parameters.

A summary of results are included below:

- The combined totals of the regulated drinking/groundwater PFAS compounds (PFOA, PFOS, PFHxS, PFHpA and PFNA) exceeded the DWHA of 20 nanograms per liter (ng/L) in each of the six wells sampled. Total regulated PFAS concentrations ranged between 28.2 ng/L in MW-4s and 2,666.1 ng/L in MW-1S.
- PFHpA was detected at 1,100, 760, 16, 1,200, 13 and 100 ng/L in the MW-1S, MW-2S, MW-2D, MW-3S MW-4S and MW-5S wells, respectively.
- PFOA was detected at 340, 460, 22, 500, 9.4 and 72 ng/L in the MW-1S, MW-2S, MW-2D, MW-3S MW-4S and MW-5S wells, respectively.
- PFNA was detected at 6.1, 23, 9.7, 73, 1.9 and 14 ng/L in the MW-1S, MW-2S, MW-2D, MW-3S MW-4S and MW-5S wells, respectively.
- PFHxS was detected at 460, 22, 41 and 1.9 ng/L in the MW-1S, MW-2S, MW-3S and MW-4S wells, respectively. PFHxS was not detected above laboratory method detection limits in the MW-2D and MW-5S samples; however, these wells PFAS totals exceeded the DWHA.
- PFOS was detected at 760, 34, 5.6, 6.6 and 2.0 ng/L in the MW-1S, MW-2S, MW-2D, MW-3S and MW-4S wells, respectively. PFHxS was not detected above laboratory method detection limits in the MW-5S sample; however, the wells PFAS totals exceeded the DWHA.
- The TOP Assay results showed total groundwater concentrations decreasing from 10,152 to 8,368 ng/L from the sample collected from MW-2S. PFHpA, PFHxS, PFOA, PFOS and PFNA had a decrease in total concentrations from nine to 25%. PFBA, PFPeA and PFHxA had increases in concentrations from 12 to 43%. 6:2 FTS was observed in the pre-treatment analysis, but was not present in the post-treatment analysis, suggesting it transformed from a poly- to per-FAS. Overall PFAS concentrations decreased by 18%.

Refer to Figures 7 for an illustration of contaminant distribution within groundwater across the site. These results indicate that the groundwater has been significantly impacted by dissolved PFAS.

4.0 CONCLUSIONS & RECOMMENDATIONS

On behalf of the Vermont Agency of Transportation (AOT), ATC Group Services, LLC (ATC) presents this SI report to document a subsurface investigation at the RUT property located at 1022 Airport Drive in Clarendon, Vermont. In accordance with the approved work plan, ATC oversaw the installation of soil borings and groundwater monitoring wells, and the sampling/analyses of soil and groundwater samples

ATC concludes that the DWHA for the five regulated PFAS compounds (PFOA, PFOS, PFHxS, PFHpA and PFNA) were generally exceeded individually and all exceeded when combined, in the groundwater samples collected from the six monitoring wells (MW-1S, MW-2S, MW-2D, MW-3S, MW-4S and MW-5S). ATC compared the regulated PFAS groundwater sample results, which ranged between 28.2 and 2,666.1 ng/L, to the DWHA of 20 ng/L.

ATC concludes that the DOH SSV for PFOA was not exceeded in any of the 30 soil samples collected from the 11 soil borings, which includes the five Taxiway borings. PFOA is the only PFAS compound currently regulated in soils by the VT DEC. However, the VT DEC has a list of five regulated compounds for drinking/groundwater, which includes PFOA, PFOS, PFHxS, PFHpA and PFNA. In anticipation that these five compounds are eventually added to the regulated soil PFASs, ATC also compared the regulated drinking/groundwater compound list soil totals to the PFOA SSV. ATC concluded that the DOH SSV for the five regulated drinking water PFASs was not exceeded in any of the 30 soil samples collected from the 11 soil borings, which included the five Taxiway borings. ATC compared PFOA soil sample results, which ranged between 0.26 and 6.10 $\mu\text{g}/\text{Kg}$, to the SSV of 300 $\mu\text{g}/\text{Kg}$. ATC compared the five totalized PFAS compounds results, which ranged between 0.73 and 21.16 $\mu\text{g}/\text{Kg}$, to the PFOA SSV.

TOC soil samples were collected from the water table depth in the six soil borings completed as monitoring wells. TOC concentrations ranged between 720 to 6,400 mg/Kg, which are considered to be low to average based on comparison to other Vermont soil TOC concentrations from similar projects (Bennington). Low TOC soil concentrations are confirmed by low PFAS soil concentrations, indicating that little PFAS is being retained by soil sorbtion. High groundwater PFAS concentrations indicate that AFFF applied to the grounds surface during pumper truck testing and equipment washing, is flushing through the soils to the shallow overburden aquifer. However, the SI scope was not able to determine where the dissolved PFAS is entering the bedrock aquifer.

The TOP Assay PFAS soil sample collected from the water table depth in the B-SB-7 soil boring, determined that the percent increase after oxidation ranged between 59 and 342 percent, which are considered significant. The TOP Assay PFAS groundwater sample collected from the MW-2S, determined that the total PFAS percent decreased after oxidation by 18 percent, which is considered significant. It is likely that the precursor poly-FAS oxidized to per-FAS compounds, as several PFAS compounds showed an increase in percentage change after oxidation, ranging between 12 and 43 percent.

The nested wells, MW-2S and MW-2D, showed dramatically different PFAS concentrations, implying that shallow and deep overburden aquifers are present. Dense silt, clay and fine sand appear to be present at around 15 fbs, and may be a confining layer for the upper aquifer. The total regulated drinking/groundwater PFAS compounds were detected at 1,299 ng/L in the shallow MS-2S well and at 53.3 ng/L in the deep MW-2D well. This disparity is likely due to a confining or separating soil layer present at the bottom of the shallow wells. Further delineation is required to determine where the shallow aquifer groundwater is infiltrating the deeper aquifer and entering the bedrock aquifer.

Additionally, Mr. Andy Shively of VTrans, recently attended the annual pumper truck testing and truck cleaning performed by the RUT Fire Department. Mr. Shively determined, after interviewing the Fire

Department employees, that typically at least 100 gallons of water was mixed with the AFFF liquid before being sprayed for 30 to 60 seconds intervals for the testing; however, up to 1,000-gallons of water is typically used to clean out the pumps and trucks. This liquid was previously discharged to the grassy ground surface adjacent to the Fire Station, which accounts for the highest detected groundwater PFAS concentration of any of the six wells, discovered in MW-1S located adjacent to the Fire Station. During Mr. Shively's foam testing site visit, he ensured that the pumper truck cleaning water and dissolved PFAS was captured on poly-sheeting, which was then transferred to 55-gallon DOT shippable drums for off-site disposal. The Fire Department used considerably less water to clean the pumper truck under Mr. Shively's direction.

Based on these conclusions, ATC recommends the following:

- 1) Submit this report to the VT DEC (Michael Nahmias) for review and comment.
- 2) Based on the results of the soil and groundwater sampling and analysis, ATC recommends completing an Additional SI that would include the installation of additional soil borings/monitoring wells around the Bravo FTA and Fire Department Building. Some of the recommended wells should include nested wells completed to top of bedrock. Testing of the bedrock aquifer would be needed to conclusively determine if PFAS is entering the bedrock aquifer in this area.
- 3) Geophysics should be considered in future investigations to assist with further development of the CSM, guide locations for additional drilling/sampling/environmental testing, and help better understand and predict future receptor impacts.
- 4) Slug testing should be completed on select wells and grain size analysis of select soil samples.
- 5) Additional investigation should be completed at the Delta FTA area and the outfall of the Sites storm and surface water transport system, which terminates to the south above the Mill River.
- 6) Properly dispose of investigative derived waste.

4.1 STANDARD OPERATING PROCEDURES (SOPs)

ATC SOPs for each stage of the Site Investigation are presented below. All SOPs can be presented upon request.

Monitoring Well Installation –

- SOP 1. Drilling Equipment Standards
- SOP 2. Monitoring Well Construction Procedures
- SOP 3. Well Development Procedures
- SOP 8.3 Sampling for Perfluorinated Compounds

Monitoring Well Sampling -

- SOP 4. General Sampling Procedures for Aqueous & Solid Matrices
- SOP 8.1 Groundwater Sampling Collection Procedures Using Bailers or Pumps
- SOP 8.3 Sampling for Perfluorinated Compounds
- SOP 9. Water Level Measurement Procedure
- SOP 10. Decontamination Procedure
- SOP 11. Sample Custody Procedure

Subsurface Soil Sampling –

SOP 5. Subsurface Soil Sample Collection Procedure
SOP 8.3 Sampling for Perfluorinated Compounds

Field notes for the drilling and sample collection are included in Appendix D.

SIGNATURE OF REPORT AUTHORS

This report has been prepared by the employees of ATC Group Services, LLC whose signatures appear below. Requests for information on the contents of this report should be directed to these individuals.

I certify under penalty of perjury that I am an environmental professional and that all content contained within this deliverable is to the best of my knowledge true and correct.

Prepared by:

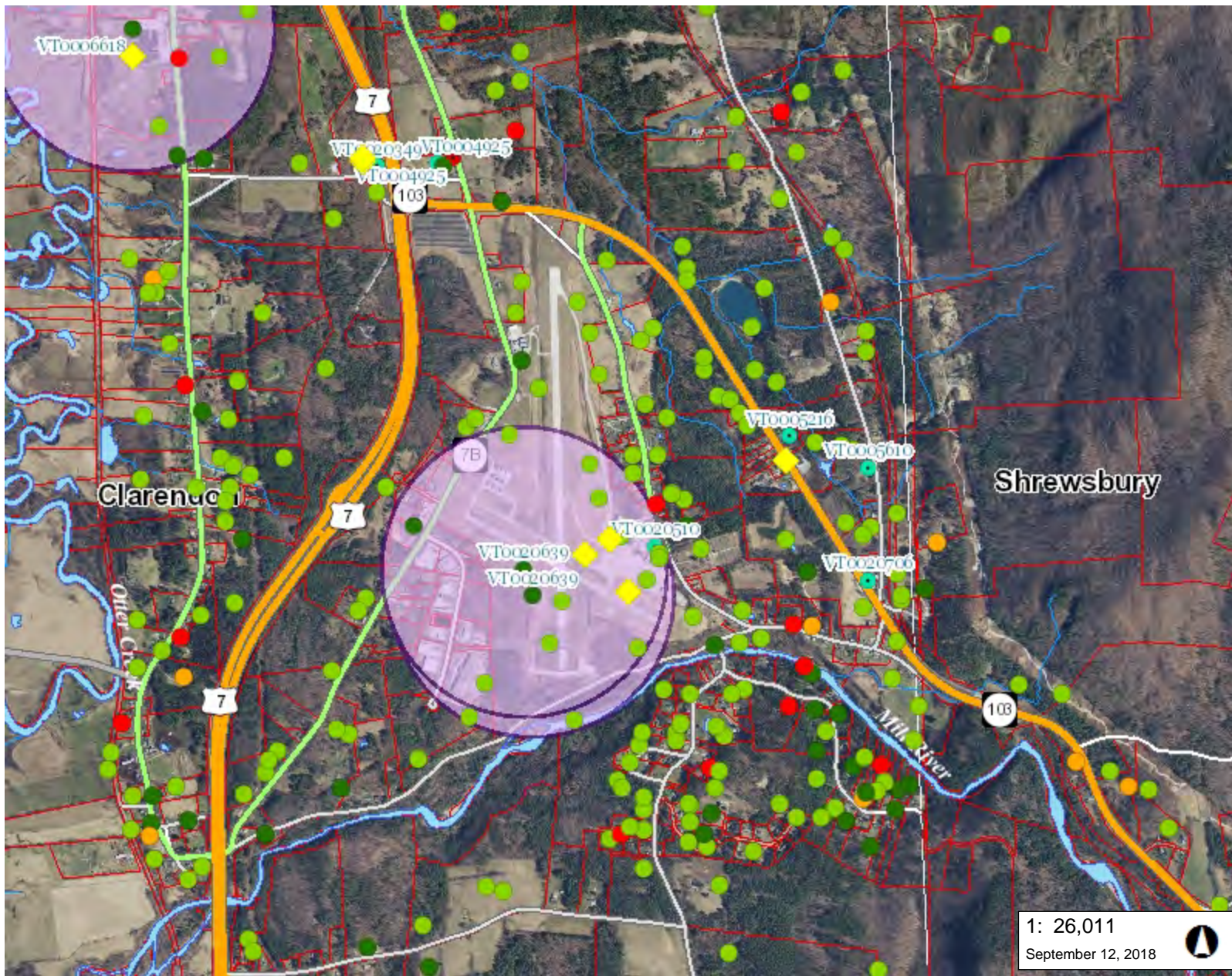


James Gascoyne
Senior Project Manager



Joseph J. Hayes, C.P.G, P.G.
Branch Manager

FIGURES



LEGEND

- Hazardous Site
- Brownfields
- Dry Cleaner
- Private Wells
 - GPS Location
 - screen digitized
 - E911 Address
 - Map
 - Unknown
- Public Water Sources
 - Active
 - Proposed
 - Inactive
- SurfaceWaterSPA
 - Active
 - Inactive
- Ground Water SPA
 - Active
 - Proposed
 - Inactive
- Parcels (Standardized)
- Roads
 - Interstate
 - Principal Arterial
 - Minor Arterial
 - Major Collector
 - Minor Collector

1: 26,011
September 12, 2018

NOTES

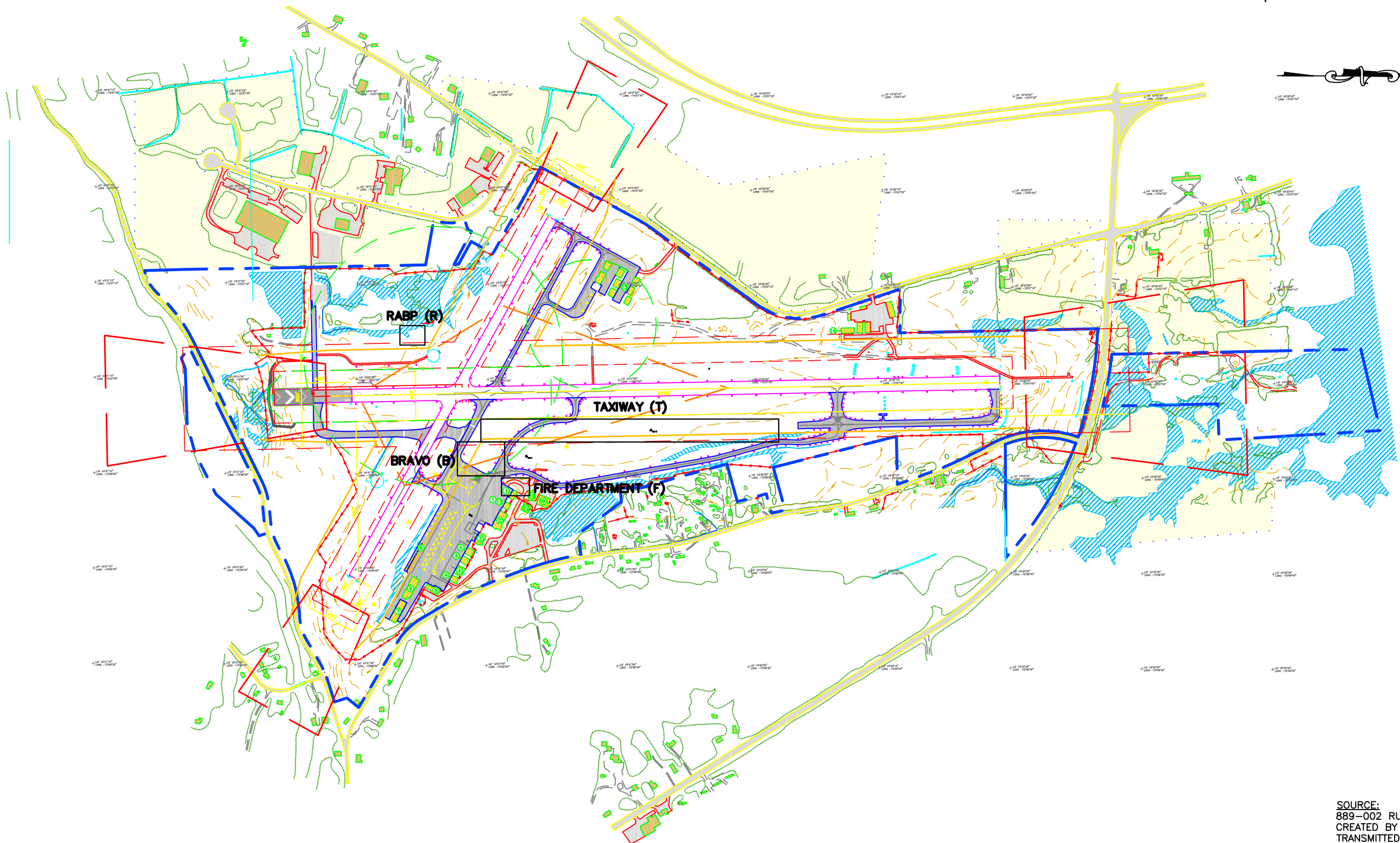
Map created using ANR's Natural Resources Atlas
Clarendon, VT
SMS No. 2018-4763

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WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 2168 Ft. 1cm = 260 Meters

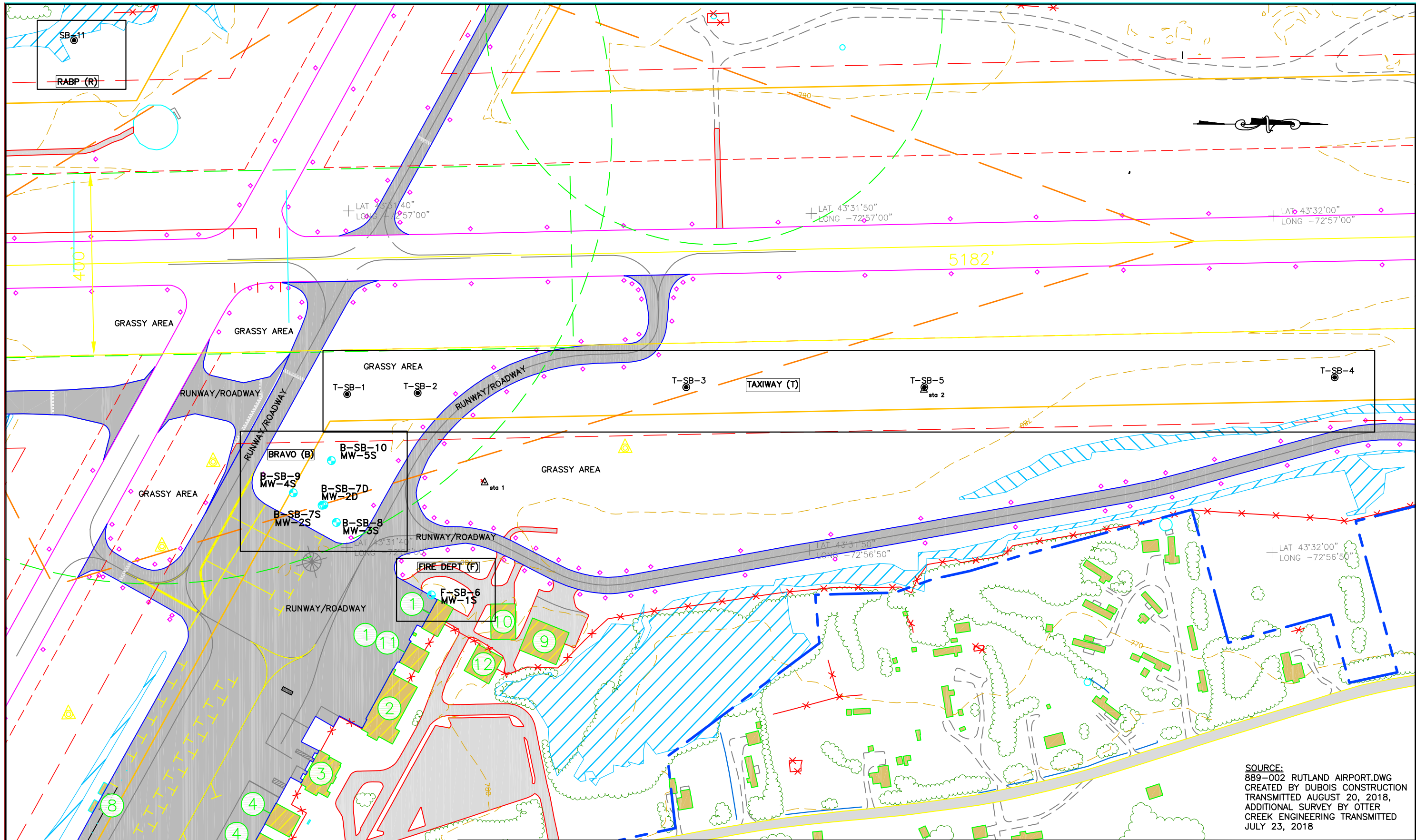
© Vermont Agency of Natural Resources THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.



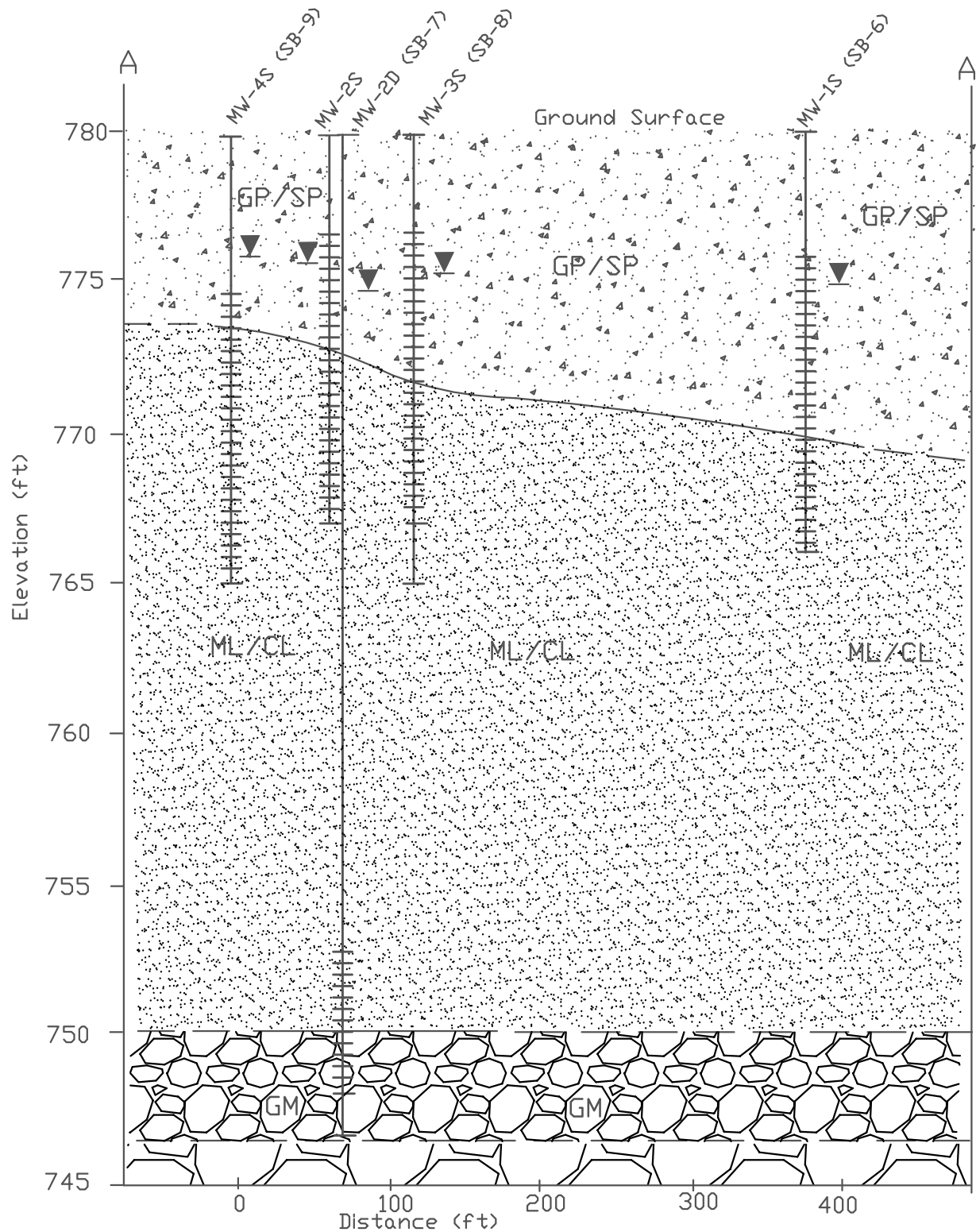
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 CREATED BY DUBOIS CONSTRUCTION
 TRANSMITTED AUGUST 20, 2018,
 ADDITIONAL SURVEY BY OTTER
 CREEK ENGINEERING TRANSMITTED
 JULY 23, 2018

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				COMPUTER CADFILE	V:\VTRANS\RUTLAND\CADD						
				DRAWN BY:	AC	DESIGNED BY:	OCE	CHECKED BY:	JG	APPROVED BY:	JG
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





SOURCE:
 889-002 RUTLAND AIRPORT.DWG
 CREATED BY DUBOIS CONSTRUCTION
 TRANSMITTED AUGUST 20, 2018,
 ADDITIONAL SURVEY BY OTTER
 CREEK ENGINEERING TRANSMITTED
 JULY 23, 2018

LEGEND B-SB-8 MW-3S SOIL BORING WITH MONITORING WELL T-SB-1 SOIL BORING <div style="border: 1px solid black; padding: 2px; display: inline-block;">Area of Concern</div>	 ATC 1 Elm Street, Suite 3 • Waterbury, VT 05676 Phone: 802-241-4131 Fax: 802-244-8894	CLIENT: VTRANS	PROJECT: RUTLAND SVRA CLARENDON, VT	COMPUTER CADFILE: CADFILE DRAWN BY: AC DESIGNED BY: OCE CHECKED BY: JG APPROVED BY: JG
		GRAPHIC SCALE: 	TITLE: SITE PLAN	SCALE: 1"=200' DATE: 9/11/18 JOB NO.: 280EM00212 FIGURE NO.: 3



KEY

-  Monitoring Well/Soil Boring
-  Screened Interval
-  Water Table
- GP/SP  Sand and Gravel
- ML/CL  Silt and Clay
- GM  Till
-  Bedrock



1 Elm Street, Suite 3 • Waterbury, VT 05676
 Phone: 802-241-4131 Fax: 802-244-6894

PROJECT: RUTLAND SVRA
 1022 Airport Dr.
 Clarendon, VT

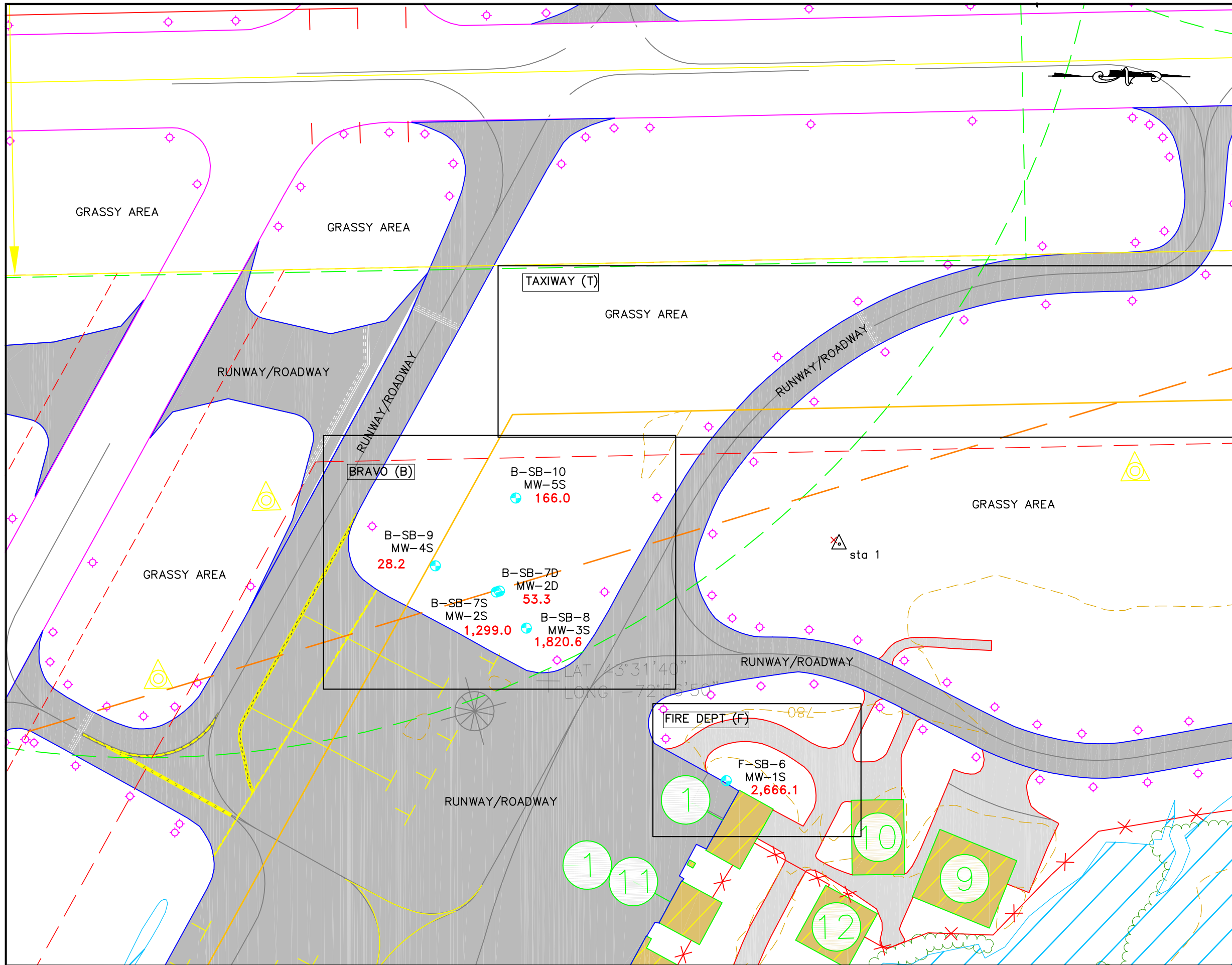
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DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
AC	JP	JP	JH

SCALE:	DATE:	JOB NO.:	FIGURE NO.:
VERTICAL: 1"=10'	9/26/18	280EM00212	4
HORIZONTAL: 1"=100'			



LEGEND

- ⊕ B-SB-8 SOIL BORING WITH MW-3S MONITORING WELL
- 2,666.1 TOTAL REGULATED PFAS ng/L (nanograms per liter) PER-AND POLYFLUOROALKYL SUBSTANCES CPFOA, PFOS, PFHxS, PFHpA, PFNA
- Area of Concern

SOURCE:
 889-002 RUTLAND AIRPORT.DWG
 CREATED BY DUBOIS CONSTRUCTION
 TRANSMITTED AUGUST 20, 2018,
 ADDITIONAL SURVEY BY OTTER
 CREEK ENGINEERING TRANSMITTED
 JULY 23, 2018

ATC
 1 Elm Street, Suite 3 • Waterbury, VT 05676
 Phone: 802-241-4131 Fax: 802-244-6894

PROJECT:
 RUTLAND SVRA
 CLARENDON, VT

TITLE:
 GROUNDWATER CONTAMINATION DISTRIBUTION MAP
 SAMPLE DATE: JULY 11, 2018

CLIENT:
 VTRANS

GRAPHIC SCALE:
 1" = 100'

COMPUTER CADFILE: V/VTRANS/Rutland/DWG

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
AC	OTE/Dubois	JG	JH
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
1"=100'	9/11/18	280EM00212	7

TABLES

Table 1
PFAS Concentrations - SI Soil Sampling
June 26 27, 2018

Southern Vermont Regional Airport
North Clarendon, VT

Date	Location	6/26/2018							6/27/2018							VT DOH SSV (ug/Kg)	6/26/2018		6/27/2018		6/26/2018		6/27/2018		6/26/2018		6/27/2018			
		F-SB-6-S	F-SB-6-WT	B-SB-7-S	B-SB-7-4FT	B-SB-7-6FT	B-SB-7-WT	B-SB-7-TOR	B-SB-8-S	B-SB-8-WT	B-SB-9-S	B-SB-9-WT	B-SB-10-S	B-SB-10-WT	R-SB-11-S		R-SB-11-WT	DUP-1 (F-SB-6-S)	% Difference	DUP-2 (B-SB-9-WT)	% Difference	DWHA	EB-1	Wash Water	EB-2	FB-SB-6	FB-SB-7	FB-SB-8	FB-SB-9	FB-SB-10
6/26/2018	PFBA	0.32	ND<0.26	ND<0.21	1.10	ND<0.23	0.80	ND<0.21	1.60	0.29	2.20	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	ND<0.22	--	ND<0.23	-	--	ND<1.8	2.5	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFPeA	0.74	ND<0.26	0.37	5.80	0.49	5.10	ND<0.21	4.40	1.20	4.00	ND<0.24	0.33	ND<0.25	ND<0.22	ND<0.23	--	0.96	26	ND<0.23	-	--	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFHxA	0.62	ND<0.26	0.22	3.20	0.29	2.50	ND<0.21	2.40	0.65	1.40	ND<0.24	0.37	ND<0.25	ND<0.22	ND<0.23	--	0.65	5	ND<0.23	-	--	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFHpA	0.63	ND<0.26	0.24	4.30	ND<0.23	0.91	ND<0.21	1.40	0.35	1.20	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	0.62	2	ND<0.23	-	20	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFOA	1.20	ND<0.26	1.30	2.00	ND<0.23	0.50	ND<0.21	6.10	0.26	2.10	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	300	1.30	8	ND<0.23	-	20	ND<1.8	2.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFNA	2.00	ND<0.26	ND<0.21	ND<0.35	ND<0.23	ND<0.24	ND<0.21	3.30	ND<0.25	4.30	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	2.10	5	ND<0.23	-	20	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFDA	0.52	ND<0.26	ND<0.21	ND<0.35	ND<0.23	ND<0.24	ND<0.21	0.81	ND<0.25	1.00	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	0.60	14	ND<0.23	-	--	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFUnA	ND<0.22	ND<0.26	ND<0.21	ND<0.35	ND<0.23	ND<0.24	ND<0.21	0.23	ND<0.25	0.31	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	ND<0.22	--	ND<0.23	-	--	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFDoA	ND<0.22	ND<0.26	ND<0.21	ND<0.35	ND<0.23	ND<0.24	ND<0.21	ND<0.22	ND<0.25	ND<0.22	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	ND<0.22	--	ND<0.23	-	--	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFTriA	ND<0.22	ND<0.26	ND<0.21	ND<0.35	ND<0.23	ND<0.24	ND<0.21	ND<0.22	ND<0.25	ND<0.22	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	ND<0.22	--	ND<0.23	-	QA/QC - Soil	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFTA	ND<0.22	ND<0.26	ND<0.21	ND<0.35	ND<0.23	ND<0.24	ND<0.21	ND<0.22	ND<0.25	ND<0.22	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	ND<0.22	--	ND<0.23	-	QA/QC - Aqueous	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFBS	ND<0.22	ND<0.26	ND<0.21	ND<0.35	ND<0.23	ND<0.24	ND<0.21	ND<0.22	ND<0.25	ND<0.22	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	ND<0.22	--	ND<0.23	-	--	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFHxS	0.33	ND<0.26	ND<0.21	1.60	ND<0.23	ND<0.24	ND<0.21	ND<0.22	ND<0.25	ND<0.22	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	0.35	6	ND<0.23	-	20	ND<1.8	4.0	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFHpS	ND<0.22	ND<0.26	ND<0.21	ND<0.35	ND<0.23	ND<0.24	ND<0.21	ND<0.22	ND<0.25	ND<0.22	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	ND<0.22	--	ND<0.23	-	--	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFOS	17.0	0.73	ND<0.21	ND<0.35	ND<0.58	ND<0.60	ND<0.53	ND<0.55	ND<0.25	ND<0.55	ND<0.61	ND<0.53	ND<0.61	ND<0.56	ND<0.56	--	17.0	0	ND<0.57	-	20	ND<1.8	1.8	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	PFDS	ND<0.22	ND<0.26	ND<0.21	ND<0.35	ND<0.23	ND<0.24	ND<0.21	ND<0.22	ND<0.25	ND<0.22	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	ND<0.22	--	ND<0.23	-	--	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	FOSA	ND<0.22	ND<0.26	ND<0.21	ND<0.35	ND<0.23	ND<0.24	ND<0.21	ND<0.22	ND<0.63	ND<0.22	ND<0.24	ND<0.21	ND<0.25	ND<0.22	ND<0.23	--	ND<0.22	--	ND<0.23	-	--	ND<1.8	ND<1.9	ND<0.22	ND<1.9	ND<1.8	ND<1.7	ND<1.9	ND<1.8
	NMeFOSAA	ND<2.2	ND<2.6	ND<2.1	ND<3.5	ND<2.3	ND<2.4	ND<2.1	ND<2.2	ND<2.5	ND<2.2	ND<2.4	ND<2.1	ND<2.5	ND<2.2	ND<2.3	--	ND<0.22	--	ND<2.3	-	--	ND<18	ND<19	ND<2.2	ND<19	ND<18	ND<17	ND<19	ND<18
	NEIFOSAA	ND<2.2	ND<2.6	ND<2.1	ND<3.5	ND<2.3	ND<2.4	ND<2.1	ND<2.2	ND<2.5	ND<2.2	ND<2.4	ND<2.1	ND<2.5	ND<2.2	ND<2.3	--	ND<0.22	--	ND<2.3	-	--	ND<18	ND<19	ND<2.2	ND<19	ND<18	ND<17	ND<19	ND<18
	6:2 FTS	3.80	ND<2.6	2.20	ND<3.5	ND<2.3	14.00	ND<2.1	23.00	2.60	22.00	ND<2.4	ND<2.1	ND<2.5	ND<2.2	ND<2.3	--	2.8	30	ND<2.3	-	--	ND<18	ND<19	ND<2.2	ND<19	ND<18	ND<17	ND<19	ND<18
8:2 FTS	9.60	ND<2.6	ND<2.1	ND<3.5	ND<2.3	ND<2.4	ND<2.1	37.00	ND<2.5	60.00	ND<2.4	ND<2.2	ND<2.5	ND<2.2	ND<2.3	--	7.3	27	ND<2.3	-	--	ND<18	ND<19	ND<2.2	ND<19	ND<18	ND<17	ND<19	ND<18	
Total Regulated PFAS	21.16	0.73	1.54	7.90	ND	1.41	ND	4.70	0.61	7.60	ND	ND	ND	ND	ND	--						ND	8.7	ND	ND	ND	ND	ND	ND	

Notes:
 Results given in micrograms per kilogram (ug/Kg).
 VT DOH SSV - VT Department of Health preliminary Soil Screening Value, VT DOH Memorandum March 10, 2016
 EPA RSL residential Noncancer Child Hazard Index (HI) = 1, Ingestion SL Child THQ=1 (mg/kg)
 ND - Not Detected above laboratory method detection limits
 VGES/VHA - Vermont Groundwater Enforcement Standards/Vermont Health Advisory
 NS - no (applicable VGES/VHA) standard for compound
 -- no contaminant detection
 Total Regulated PFAS - combined total of PFOA, PFOS, PFHxS, PFHpA and PFNA
 Shaded areas indicate VGES exceedences.
 Analyzed by EPA Method 537 (modified)
 QA/QC - Quality Assurance/Quality Control
 PFAS - perfluoroalkyl substances
 Perfluorobutanoic acid (PFBA) perfluorobutanesulfonic acid (PFBS)
 Perfluoropentanoic acid (PFPeA) perfluorohexanesulfonic acid (PFHxS)
 Perfluorohexanoic acid (PFHxA) perfluoroheptanesulfonic acid (PFHpS)
 Perfluoroheptanoic acid (PFHpA) perfluoroctanesulfonic acid (PFOS)
 Perfluorooctanoic acid (PFOA) perfluorodecane sulfonic acid (PFDS)
 Perfluorononanoic acid (PFNA) perfluorooctane Sulfonamide (FOSA)
 Perfluorodecanoic acid (PFDA) N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)
 Perfluoroundecanoic acid (PFUnA) N-ethyl perfluorooctane sulfonamidoacetic acid (NEIFOSAA)
 Perfluorododecanoic acid (PFDoA) 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2FTS)
 Perfluorotridecanoic acid (PFTriA) 1H,1H,2H,2H-perfluorodecane sulfonic acid (8:2FTS)
 Perfluorotetradecanoic acid (PFTeA)

Table 2
PFAS Top Assay Concentrations -SI Soil Sampling
June 26 27, 2018

Southern Vermont Regional Airport
North Clarendon, VT

B-SB-7 Detections	Pre-treatment	Post-treatment	Treatment Difference	Percent change
PFBA	0.52	2.3	1.7	342
PFPeA	1.7	2.7	0.94	59
PFHxA	0.85	1.8	0.95	112
Total PFAS	3.07	6.80	3.73	121

Notes:

Results given in micrograms per kilogram (ug/Kg).

Analyzed by EPA Method 537 (modified)

PFAS - perfluoroalkyl substances

Perfluorobutanoic acid (PFBA)	perfluorobutanesulfonic acid (PFBS)
perfluoropentanoic acid (PFPeA)	perfluorohexanesulfonic acid (PFHxS)
perfluorohexanoic acid (PFHxA)	perfluoroheptanesulfonic Acid (PFHpS)
perfluoroheptanoic acid (PFHpA)	perfluorooctanesulfonic acid (PFOS)
perfluorooctanoic acid (PFOA)	perfluorodecanesulfonic acid (PFDS)
perfluorononanoic acid (PFNA)	perfluorooctane Sulfonamide (FOSA)
perfluorodecanoic acid (PFDA)	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)
perfluoroundecanoic acid (PFUnA)	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)
perfluorododecanoic acid (PFDoA)	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2FTS)
perfluorotridecanoic Acid (PFTriA)	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2FTS)
perfluorotetradecanoic acid (PFTeA)	

Table 3
TOC Concentrations -SI Soil Sampling
June 26 27, 2018

Southern Vermont Regional Airport
North Clarendon, VT

Date	Location	Depth (fbs)	Total Organic Carbon (mg/Kg)
6/26/2018	F-SB-6-TOC	9.0	730
	B-SB-7-TOC	9.0	720
6/27/2018	B-SB-8-TOC	8.0	1300
	B-SB-9-TOC	8.0	870
	B-SB-10-TOC	9.0	1300
	B-SB-11-TOC	9.0	6400
Average TOC in Soil			1,622

Notes:

Results given in milligrams per kilogram (mg/Kg).

Analyzed by Lloyd Khan Method

Table 4
Groundwater Elevation -SI Groundwater Sampling
July 11, 2018

Southern Vermont Regional Airport
North Clarendon, VT

Well I.D.	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-1S	779.78	4.80	774.98
MW-2S	779.84	4.52	775.32
MW-2D	780.16	5.56	774.60
MW-3S	779.53	4.42	775.11
MW-4S	780.38	4.56	775.82
MW-5S	780.86	5.50	775.36

Wells surveyed by Otter Creek Engineering on 7/11/18
All measurement in foot/tenths of a foot increments.

**Table 5
PFAS Concentrations - Groundwater Sampling
July 11, 2018**

Southern Vermont Regional Airport
North Clarendon, VT

Date	Location	MW-1S	MW-2S	MW-2D	MW-3S	MW-4S	MW-5S	DWHA		DUP (MW-2S)	% Difference	FB-MW-1S	FB-MW-2S/2D	FB-MW-3S	FB-MW-4S	FB-MW-5S	
7/11/2018	PFBA	740	1,100	18	1,200	21	130	--	QA/QC	1,100	--	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	
	PFPeA	2,900	3,900	83	4,300	40	400	--		3,700	5	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFHxA	1,700	1,400	25	2,500	19	150	--		1,500	7	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PfHpA*	1,100	760	16	1,200	13	100	20		810	6	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFOA*	340	460	22	500	9.4	72	20		510	10	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFNA*	6.1	23	9.7	73	1.9	14	20		25	8	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFDA	ND<1.8	ND<2.0	2.7	ND<1.8	ND<1.9	ND<2.0	--		ND<2.0	--	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PfUnA	ND<1.8	ND<2.0	ND<1.9	ND<1.8	ND<1.9	ND<2.0	--		ND<2.0	--	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFDaA	ND<1.8	ND<2.0	ND<1.9	ND<1.8	ND<1.9	ND<2.0	--		ND<2.0	--	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFTriA	ND<1.8	ND<2.0	ND<1.9	ND<1.8	ND<1.9	ND<2.0	--		ND<2.0	--	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFTeA	ND<1.8	ND<2.0	ND<1.9	ND<1.8	ND<1.9	ND<2.0	--		ND<2.0	--	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFBS	9.9	ND<2.0	ND<1.9	3.3	ND<1.9	ND<2.0	--		ND<2.0	--	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFHxS*	460	22	ND<1.9	41	1.9	ND<2.0	20		23	4	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFHpS	69	3.0	ND<1.9	2.3	ND<1.9	ND<2.0	--		2.6	14	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFOS*	760	34	5.6	6.6	2.0	ND<2.0	20		33	3	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	PFDS	ND<1.8	ND<2.0	ND<1.9	ND<1.8	ND<1.9	ND<2.0	--		ND<2.0	--	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	FOSA	ND<1.8	ND<2.0	ND<1.9	ND<1.8	ND<1.9	ND<2.0	--		ND<2.0	--	ND<1.9	ND<1.8	ND<2.0	ND<1.9	ND<1.9	ND<1.9
	NMeFOSAA	ND<18	ND<20	ND<19	ND<18	ND<19	ND<20	--		ND<20	--	ND<19	ND<18	ND<20	ND<19	ND<19	ND<19
	NEIFOSAA	ND<18	ND<20	ND<19	ND<18	ND<19	ND<20	--		ND<20	--	ND<19	ND<18	ND<20	ND<19	ND<19	ND<19
	6:2 FTS	1,200	810	91	1,100	ND<19	ND<20	--		1,100	30	ND<19	ND<18	ND<20	ND<19	ND<19	ND<19
8:2 FTS	ND<18	ND<20	ND<19	ND<18	ND<19	ND<20	--	ND<20	--	ND<19	ND<18	ND<20	ND<19	ND<19	ND<19		
Total Regulated PFAS	2,666.1	1,299.0	53.3	1,820.6	28.2	186.0											

Notes:
 PFAS - poly-/perfluoroalkyl substances
 Results given in nanograms per liter (ng/L).
 ND - Not-Detected above laboratory method detection limits
 DWHA - Vermont Drinking Water Health Advisory
 -- no contaminant detection/or no DWHA for compound
 Total Regulated PFAS - combined total of PFOA, PFOS, PFHxS, PFHpA and PFNA
 * - compound included in Total Regulated PFAS
 Shaded areas indicate DWHA exceedences, either individually or combined with other regulated PFAS for total >20 ng/L
 Analyzed by EPA Method 537 (modified)
 QA/QC - Quality Assurance/Quality Control
 Dup - duplicate sample
 FB - Field Blank location sample
 Perfluorobutanoic acid (PFBA) perfluorobutanesulfonic acid (PFBS)
 perfluoropentanoic acid (PFPeA) perfluorohexanesulfonic acid (PFHxS)
 perfluorohexanoic acid (PFHxA) perfluoroheptanesulfonic acid (PFHpS)
 perfluoroheptanoic acid (PFHpA) perfluoroctanesulfonic acid (PFOS)
 perfluorooctanoic acid (PFOA) perfluorodecanesulfonic acid (PFDS)
 perfluorononanoic acid (PFNA) perfluorooctane Sulfonamide (FOSA)
 perfluorodecanoic acid (PFDA) N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)
 perfluoroundecanoic acid (PFUnA) N-ethyl perfluorooctane sulfonamidoacetic acid (NEIFOSAA)
 perfluorododecanoic acid (PFDaA) 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2FTS)
 perfluorotridecanoic acid (PFTriA) 1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2FTS)
 perfluorotetradecanoic acid (PFTeA)

Table 6
PFAS Top Assay Concentrations -SI Groundwater Sampling
July 11, 2018

Southern Vermont Regional Airport
North Clarendon, VT

MW-2S Detections	Pre-treatment	Post-treatment	Treatment Difference	Percent Change
PFBA	980	1,400	420	43
PFPeA	3,300	3,800	500	15
PFHxA	1,700	1,900	200	12
PFHpA	810	740	-70	-9
PFHxS	21	18	-3	-14
PFOA	590	470	-120	-20
PFOS	27	22	-5	-19
6:2 FTS	2,700	--	--	--
PFNA	24	18	-6	-25
Total PFAS	10,152	8,368	-1,784	-18

Notes:

Results given in nanograms per liter (ng/L).

Analyzed by EPA Method 537 (modified)

PFAS - perfluoroalkyl substances

Perfluorobutanoic acid (PFBA)

perfluoropentanoic acid (PFPeA)

perfluorohexanoic acid (PFHxA)

perfluoroheptanoic acid (PFHpA)

perfluorooctanoic acid (PFOA)

perfluorononanoic acid (PFNA)

perfluorodecanoic acid (PFDA)

perfluoroundecanoic acid (PFUnA)

perfluorododecanoic acid (PFDoA)

perfluorotridecanoic Acid (PFTriA)

perfluorotetradecanoic acid (PFTeA)

perfluorobutanesulfonic acid (PFBS)

perfluorohexanesulfonic acid (PFHxS)

perfluoroheptanesulfonic Acid (PFHpS)

perfluorooctanesulfonic acid (PFOS)

perfluorodecanesulfonic acid (PFDS)

perfluorooctane Sulfonamide (FOSA)

N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)

N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)

1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2FTS)

1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2FTS)

APPENDIX A

BORING LOGS & MONITORING WELL CONSTRUCTION DETAILS



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

BORING / WELL IDENTIFICATION: **SB-1**

SITE NAME: Rutland SURA

SITE LOCATION: taxiway

INSTALLATION DATE: 6/26/18

JOB NUMBER: 280EM000212

WELL DEPTH: —	BORING DEPTH: 7 ft	ATC REPRESENTATIVE: JP
DEPTH TO WATER (DURING DRILLING): N/A ~ 7 ft	DRILLING COMPANY: Crawford	
SCREEN DIAMETER: —	DEPTH: —	SAMPLING METHOD: split spoon
SCREEN TYPE/SIZE: —		REFERENCE POINT (RP): ground
RISER DIAMETER: —	DEPTH: —	ELEVATION OF RP: —
RISER TYPE/SIZE: —		
REMARKS: hand down to 5 ft, drill 5-7'		

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-2' brown, dry, f-m sand and f-c gravel, trace silt	0.0		Concrete
1						Native Material
2			2-5' light brown, f-c sand, little f. gravel, trace silt, moist at bottom			Bentonite
3						Filter Sand
4						Riser
5		(2 ft)	5-6' light brown, S&A			Screen
6			6-7' light brown, moist to wet (bottom 2 inches), f. sandy silt, trace clay	✓		Water level
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 7 feet
 Well set @ 7 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-2**

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

SITE NAME: Rutland SVRA
 SITE LOCATION: Taxway
 INSTALLATION DATE: 6/26/18
 JOB NUMBER: 280EM00212

WELL DEPTH: -	BORING DEPTH: 7 ft	ATC REPRESENTATIVE: JP
DEPTH TO WATER (DURING DRILLING): -	N 7 ft	DRILLING COMPANY: Crawford
SCREEN DIAMETER: -	DEPTH: -	SAMPLING METHOD: split spoon
SCREEN TYPE/SIZE: -	DEPTH: -	REFERENCE POINT (RP): ground
RISER DIAMETER: -	DEPTH: -	ELEVATION OF RP: -
RISER TYPE/SIZE: -	DEPTH: -	
REMARKS: hand clear to 5 ft, drill 5-7'		

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-2 dry dark brown, f-c o.c			Concrete
1			2-5 - SAA, darker brown, more coarse angular cobbles, little silt			Native Material
2			5-7' - lt. brown, dry to wet (bottom 2 inches), silty f. sand, trace f. gravel at top, trace sand at bottom			Bentonite
3						Filter Sand
4						Riser
5						Screen
6						Water level
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 7 feet
 Well set @ 7 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-3

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

SITE NAME: Rutland SVRA
 SITE LOCATION: Taxidway
 INSTALLATION DATE: 6-26-18
 JOB NUMBER: 280EM00212

WELL DEPTH:	—	BORING DEPTH:	7 ft	ATC REPRESENTATIVE:	JP
DEPTH TO WATER (DURING DRILLING):	—	NA		DRILLING COMPANY:	Crawford
SCREEN DIAMETER:	—	DEPTH:	—	SAMPLING METHOD:	Split spoon
SCREEN TYPE/SIZE:	—			REFERENCE POINT (RP):	ground
RISER DIAMETER:	—	DEPTH:	—	ELEVATION OF RP:	
RISER TYPE/SIZE:	—				
REMARKS:	hard clear to 5 ft, drill 5-7				

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROF ILE	LEGEND
0			0-3' - light brown, dry, f-m o.o			Concrete
1	T-SB-3-S		sand, trace silt, trace			Native Material
2			f. gravel			Bentonite
3	T-SB-3-M		3-5' - dark brown, dry, f-m			Filter Sand
4			sand and silt, trace			Riser
5	T-SB-3-D	2 ft	5-7' - light brown, f-c sand,			Screen
6			little silt, trace gravel (fine)			Water level
7			dry			
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

bc
8
11
13
15

End of Sampling = 7 feet
 Well set @ 7 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-4**

SITE NAME: Rutland SUR A

SITE LOCATION: Taxiway

INSTALLATION DATE: 6/26/18

JOB NUMBER: 280EM00212

WELL DEPTH:	_____	BORING DEPTH:	7 ft	ATC REPRESENTATIVE:	JP
DEPTH TO WATER (DURING DRILLING):	_____	DEPTH:	_____	DRILLING COMPANY:	Crawford
SCREEN DIAMETER:	_____	DEPTH:	_____	SAMPLING METHOD:	split spoon
SCREEN TYPE/SIZE:	_____	DEPTH:	_____	REFERENCE POINT (RP):	ground
RISER DIAMETER:	_____	DEPTH:	_____	ELEVATION OF RP:	_____
RISER TYPE/SIZE:	_____	REMARKS: hand clear to 5ft, drill 5-7			

DEPTH (IN FEET)	BLOW COUNTS PER 8"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILES	LEGEND
0		Blew out	0-3' dry, dark brown, f-c sand and f-c gravel, little silt	0.0		Concrete
1						Native Material
2						Bentonite
3			3-5' dry, light brown, silt and f-sand, trace clay			Filter Sand
4						Riser
5		2	5-7' light brown, moist, silt, f-m sand, trace			Screen
6		5				Water level
7		7				
8		(1.4' rec)				
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 7 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-5**

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

SITE NAME: Rutland SURT
 SITE LOCATION: taxiway
 INSTALLATION DATE: 6.26.18
 JOB NUMBER: 280EM00212

WELL DEPTH: — BORING DEPTH: 7ft ATC REPRESENTATIVE: JP
 DEPTH TO WATER (DURING DRILLING): — NA DRILLING COMPANY:
 SCREEN DIAMETER: — DEPTH: — SAMPLING METHOD: Crawford split spoon
 SCREEN TYPE/SIZE: — REFERENCE POINT (RP): 1' ground
 RISER DIAMETER: — DEPTH: — ELEVATION OF RP: —
 RISER TYPE/SIZE: —
 REMARKS: hand clear to 5ft, drill 5-7

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-2' f-m sand, dry, brown,	0.0		Concrete
1	(T-SB-5-S)		and f-c gravel, trace silt, trace cobbles			Native Material
2						Bentonite
3			2-5' - light brown, dry, f-m sand and silt, little f-c gravel, trace cobbles			Filter Sand
4	(T-SB-5-M)					Riser
5		17	5-7' - SAA			Screen
6	(T-SB-5-D)	22	6-7 - weathered rock or large boulder - whitish grey, crystalline (fine)			Water level
7		27				
8		(2' Rec.)				
9			maybe sandstone			
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 7 feet
Well set @ 7 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: Phocreek #2 Depth to water was _____ feet after four hours.
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BORING / WELL IDENTIFICATION: SB-6/13 MW-13

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

SITE NAME: Rutland #SVR1
 SITE LOCATION: FD Building
 INSTALLATION DATE: 6/26/18
 JOB NUMBER: 280EM00212

WELL DEPTH:	14	BORING DEPTH:	14	ATC REPRESENTATIVE:	JJ
DEPTH TO WATER (DURING DRILLING):	N 7 ft	DRILLING COMPANY:	Crawford		
SCREEN DIAMETER:	1.5"	DEPTH:	14-4'	SAMPLING METHOD:	split spoon
SCREEN TYPE/SIZE:	0.010" slot	REFERENCE POINT (RP):	ground		
RISER DIAMETER:	1.5"	DEPTH:	4-0'	ELEVATION OF RP:	
RISER TYPE/SIZE:	PVC	REMARKS: hand clear to 5'; drill 5'			

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-5' - grey to lt. to dark brown, f-m sand and f-c gravel, trace silt, dry	0.0		Concrete
1						Native Material
2						Bentonite
3						Filter Sand
4						Riser
5	3	2 ft	5-7' - lt. brown, dry to moist, f-m sand; trace f. gravel			Screen
6	7		(auger 7-10', sample 10-12')			Water level
7	9					
8	10					
9			10-12' brown to grey, wet, f-m sand, trace c. sand, grading down to silt and f. sand	0.0		
10	5					
11	7					
12	7					
13	9					
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 12 feet
Well set @ 14 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: Phoccek Tiger 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-7

SITE NAME: Rutland SVRA MW-2D
 SITE LOCATION: Bravo MW-2B
 INSTALLATION DATE: 6/26/18
 JOB NUMBER: 280EM00212

WELL DEPTH:	13	BORING DEPTH:	33.5	ATC REPRESENTATIVE:	AP
DEPTH TO WATER (DURING DRILLING):			10 ft	DRILLING COMPANY:	Crowford
SCREEN DIAMETER:	1.5"	DEPTH:	13-3'	SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:	0.010" slot			REFERENCE POINT (RP):	ground
RISER DIAMETER:	1.5"	DEPTH:	3-0'	ELEVATION OF RP:	
RISER TYPE/SIZE:	PVC				
REMARKS:	hand clear to 5 ft; see next page for MW-2D specs				

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-3' dry, brown, p-c sand and p-c gravel	0.0		Concrete
1						Native Material
2			3-3.5' - black, moist, organic silty f. sand			Bentonite
3			3.5-5' - greyish brown, moist, f. sand, little silt			Filter Sand
5		5-10' 2.5' Rec.	0-2' - moist to wet, brown f. sand, trace silt + m-c sand			Riser
6			p-c sand and p-c gravel lenses at 2 ft			Screen
7			2-2.5' - grey, wet, clayey silt			Water level
10		10-15' 5' Rec.	0-5' - SAA, grey, wet; some p-m sand lenses < 0.5" thick sticky			
11						
12						
13						
14						
15		15-20'	0-5' - SAA			
16		5' Rec.				
17						
18						
19						
20		20-25' 5' Rec.	0-5' SAA	End of Sampling = 32 feet Well set @ 37 feet		

sand 13-2'
chips 2-1'

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-7 / MW-2D

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

SITE NAME:

SITE LOCATION:

INSTALLATION DATE:

JOB NUMBER:

continued

WELL DEPTH:	32	BORING DEPTH:	33.5	ATC REPRESENTATIVE:	
DEPTH TO WATER (DURING DRILLING):			N 8 ft	DRILLING COMPANY:	
SCREEN DIAMETER:	1.5"	DEPTH:	32-27'	SAMPLING METHOD:	
SCREEN TYPE/SIZE:	0.010" slot			REFERENCE POINT (RP):	
RISER DIAMETER:	1.5"	DEPTH:	27-0'	ELEVATION OF RP:	
RISER TYPE/SIZE:	PVC				
REMARKS:	hard clear 5 ft				

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
20		-	switched to augers	-		Concrete
1		-	at 25 ft; all	-		Native Material
2		-	flight spoil is same	-		Bentonite
3		-	grey, wet, soft sticky	-		Filter Sand
4		-	silty clay as above	-		Riser
5		-		-		Screen
6		-		-		Water level
7		-		-		
8		-		-		
9		-		-		
30			Ht resistance at 30 ft	-		
11			augers wouldn't turn			
12	12	32-33.5'	pas f 32 ft; collect			
13	18	(1.5' Rec.)	split spoon			
14	31	(50 - no advance)	0-0.5' - reddish brown, f-c			
15			sand, little f-c gravel, trace			
16			sand. Dry			
17			0.5-1' - lt. brownish grey, dry			
18			f. sand and f-c gravel, some silt			
19			Top of Rock = 33.5'			
4/20						

mw-2D
 Sand up to 26'
 chips 26-10'
 to isolate from upper aquifer

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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ENVIRONMENTAL • GEOTECHNICAL
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BORING / WELL IDENTIFICATION: SB-8/MW-3

SITE NAME: Rutland SVRA

SITE LOCATION: Bravo

INSTALLATION DATE: 6/27/18

JOB NUMBER: 280EM00212

WELL DEPTH:	13	BORING DEPTH:	15	ATC REPRESENTATIVE:	JP
DEPTH TO WATER (DURING DRILLING):	~ 8 ft	DRILLING COMPANY:	Crawford		
SCREEN DIAMETER:	1.5"	DEPTH:	13-3'	SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:	0.010" sleet	REFERENCE POINT (RP):	ground		
RISER DIAMETER:	1.5"	DEPTH:	3-0'	ELEVATION OF RP:	
RISER TYPE/SIZE:	PVC				
REMARKS:	hand clear				

DEPTH (IN FEET)	SAMPLE DEPTH	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-3' - light brown, dry, f-c sand, trace f. gravel			Concrete Native Material Bentonite Filter Sand Riser Screen Water Level
1	B-SB-8-3					
2			3-5' - light brown to grey, dry to moist, silty f. sand, some c. sand			
3						
4						
5		5-10'	5-2.5' - brown to grey, moist to wet, c. to f. sand, little silt, trace f. gravel			
6		3.5' rec.				
7			2.5-3.5' - grey, wet, soft, silt @ w/ f. sand			
8	B-SB-8-WT					
9	B-SB-8-FOC					
10		10-15'	0-4' - grey, wet, soft, silt, some clay, coarsening downwards to f. sandy silt			
11		4' rec.				
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 15 feet
Well set @ 15 feet

Sand 13-2
chips 2-1

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: Phoccheck Tiger Depth to water was _____ feet after four hours.
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ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

BORING / WELL IDENTIFICATION: SB-9 / MW-4

SITE NAME: Rutland SVRA
SITE LOCATION: Bravo
INSTALLATION DATE: 6/27/18
JOB NUMBER: 2802M002/2

WELL DEPTH:	15	BORING DEPTH:	15'	ATC REPRESENTATIVE:	JP
DEPTH TO WATER (DURING DRILLING):			N 8 ft	DRILLING COMPANY:	Crawford
SCREEN DIAMETER:	1.5"	DEPTH:	15-5'	SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:	0.010" slot			REFERENCE POINT (RP):	ground
RISER DIAMETER:	1.5"	DEPTH:	5-0	ELEVATION OF RP:	
RISER TYPE/SIZE:	PVC				
REMARKS:	head clear to 5 ft.				

DEPTH (IN FEET)	SAMPLE DEPTH	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-1' - brown, dry, f-c			Concrete
1			Sand / organics, trace silt			Native Material
	B2-SB-9-3		1-2' - greyish brown, dry, sandy f. gravel, little c. gravel			Bentonite
3						Filter Sand
4						Riser
5		5-10'	2-5' - reddish brown to tan, silty f. sand coarsening to m-c sand, trace silt + f. gravel			Screen
6		2.5' Rec.				Water Level
7			0-1' - SAA, moist to wet			
8	B-SB-9-WT		1-2.5' - grey, wet, f. sand to f. sandy silt, little clay			
9	B-SB-9-TOC					
10		10-15'	0-4' - SAA, wet, soft, grey silt, little f. sand and clay			
11		4' Rec.	Some fine lenses of f-m sand and silt			
12						
13						
14						
15						
16						
17						
18						
19						
20						

sand 15-4
chips 4-3

End of Sampling = 15 feet
Well set @ 15 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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ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

BORING / WELL IDENTIFICATION: **SB-10/MW-5**

SITE NAME: **Rustland SVRA**

SITE LOCATION: **Bravo**

INSTALLATION DATE: **6-27-18**

JOB NUMBER: **280PM00212**

WELL DEPTH:	15'	BORING DEPTH:	15'	ATC REPRESENTATIVE:	JR
DEPTH TO WATER (DURING DRILLING):	~ 8 ft	DRILLING COMPANY:	Crawford		
SCREEN DIAMETER:	1.5"	DEPTH:	15-5	SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:	0.010" slot	DEPTH:	5-0	REFERENCE POINT (RP):	ground
RISER DIAMETER:	1.5"	ELEVATION OF RP:			
RISER TYPE/SIZE:	PVC	REMARKS: hand clear to 5 ft.			

DEPTH (IN FEET)	SAMPLE DEPTH	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-3' brown, dry, f-m sand, little silt and f-c gravel, trace cobbles.			Concrete Native Material Bentonite Filter Sand Riser Screen Water Level
1	B-SB-10-S					
2			3-5' grey, brown, white (pulverized cobble), dry, f-c sandy f-c gravel, little silt and cobbles			
3						
4						
5		5-10'				
6		3' Rec	0-2' - brown to reddish brown to grey, moist to wet, f-m sand, little c. sand and silt, trace f. gravel			
7						
8	B-SB-10-WT					
9	B-SB-10-TOC		2-3' - grey, wet, soft, f. sandy silt, some fine m-c sand lenses			
10		10-15'				
11		4' Rec.				
12			0-4' - SAA			
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = **15** feet
Well set @ **15** feet

Sand 15-4
chips 4-3

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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ENVIRONMENTAL • GEOTECHNICAL
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BORING / WELL IDENTIFICATION: SB-11/MW-65

SITE NAME: Ryland SURA

SITE LOCATION: RAB

INSTALLATION DATE: 6/27/18

JOB NUMBER: 280 EMC0212

WELL DEPTH:		BORING DEPTH:		ATC REPRESENTATIVE:	JP
DEPTH TO WATER (DURING DRILLING):		79 ft? no water		DRILLING COMPANY:	Crawford
SCREEN DIAMETER:	1.5"	DEPTH:		SAMPLING METHOD:	direct push/auger
SCREEN TYPE/SIZE:	0.010" slot		NO	REFERENCE POINT (RP):	ground
RISER DIAMETER:	1.5"	DEPTH:		ELEVATION OF RP:	
RISER TYPE/SIZE:	1.5" PVC				
REMARKS:	hard clear to 5 ft. Well				

DEPTH (IN FEET)	SAMPLE DEPTH	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-3' - brown, dry, f-c sand, little f-c gravel + silt			Concrete
1	R-SB-11-3					Native Material
2			3-4' - brownish-grey + white, silty f-c sand and f-c gravel			Bentonite
3						Filter Sand
4			4-5' - dark grey, dry, silty f. sand, trace gravel			Riser
5		5-10'				Screen
6		3' Rec.	0-3' - lt. brownish grey, moist to wet, silty f. sand, some f-c gravel			Water Level
7						
8						
9	R-SB-11-WT					
10	R-SB-11-TOC	10-15	0-3' - SAA, slightly more grey, very light, moist			
11		3' Rec.				
12						
13						
14						
15		15-18 3' Rec	0-3' - SAA ; refusal at 18 ft. (Till? at 18 ft)			
16						
17						
18		18-20	0-2' - till - lt. grey, sandy silt and f-c gravel, little cobbles			
19		split spoon				
20						

*? probably lower
- did not hit GW,
no wells set

End of Sampling = 20 feet
Well set @ 2 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.
--	--	---	---

APPENDIX B

SOIL BORING & MONITORING WELL INSTALLATION PHOTOGRAPHS

PHOTOGRAPHIC LOG

ATC Group Services, LLC.
1 Elm St., Suite 3
Waterbury, Vermont 05676



Client Name:
VTrans, Andy Shively

Site Location:
*1022 Airport Drive
Clarendon, Vermont*

ATC Project #:
280EM00212

Photograph #1

Description:
*View of one of the five
Taxiway soil borings.
View toward the
southwest.*



Photograph #2

Description:
*View of installation of
F-SB-6S/MW-1S at the
Fire Dept. location.
View toward the
northwest.*



PHOTOGRAPHIC LOG

ATC Group Services, LLC.
1 Elm St., Suite 3
Waterbury, Vermont 05676



Client Name:
VTrans, Andy Shively

Site Location:
*1022 Airport Drive
Clarendon, Vermont*

ATC Project #:
280EM00212

Photograph #3

Description:
*View of initial purging
of newly installed MW-
1S.*



Photograph #4

Description:
*View of nested wells
MW-2S and MW-2D
after installation.*



PHOTOGRAPHIC LOG

ATC Group Services, LLC.
1 Elm St., Suite 3
Waterbury, Vermont 05676



Client Name:
VTrans, Andy Shively

Site Location:
*1022 Airport Drive
Clarendon, Vermont*

ATC Project #:
280EM00212

Photograph #5

Description:
*View of newly installed
MW-3S. View toward
the northeast.*



Photograph #6

Description:
*View of newly installed
MW-4S. View toward
the south.*



PHOTOGRAPHIC LOG

ATC Group Services, LLC.
1 Elm St., Suite 3
Waterbury, Vermont 05676



Client Name:
VTrans, Andy Shively

Site Location:
*1022 Airport Drive
Clarendon, Vermont*

ATC Project #:
280EM00212

Photograph #7

Description:
*View of newly installed
MW-5S. View toward
the northeast.*



Photograph #8

Description:
*View of installation of
R-SB-11. View toward
the southwest.*



APPENDIX C

SOIL & GROUNDWATER LABORATORY ANALYTICAL REPORTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Burlington

30 Community Drive

Suite 11

South Burlington, VT 05403

Tel: (802)660-1990

TestAmerica Job ID: 200-44098-1

TestAmerica Sample Delivery Group: 200-44098-1

Client Project/Site: PFAS, SVRA (21/24 analytes)

For:

ATC Group Services LLC

1 Elm Street, Suite 3

Waterbury, Vermont 05676

Attn: Mr. James Gascoyne



Authorized for release by:

8/6/2018 5:23:16 PM

Kristine Dusablon, Project Manager II

(802)660-1990

kris.dusablon@testamericainc.com

LINKS

Review your project
results through

Total Access

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: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

General Chemistry

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.
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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

Job ID: 200-44098-1

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: ATC Group Services LLC

Project: PFAS, SVRA (21/24 analytes)

Report Number: 200-44098-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 06/28/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 5.9° C.

TOTAL ORGANIC CARBON

Samples F-SB-6-TOC (200-44098-5), B-SB-7-TOC (200-44098-10), B-SB-8-TOC (200-44098-16), B-SB-9-TOC (200-44098-20), B-SB-10-TOC (200-44098-30) and R-SB-11-TOC (200-44098-33) were analyzed for total organic carbon in accordance with Lloyd Kahn Method. The samples were analyzed on 07/02/2018.

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

PERFLUORINATED HYDROCARBONS

Samples WASH-DW (200-44098-1), EQUIP BLANK-1 (200-44098-2), FB-SB-6 (200-44098-11), FB-SB-7 (200-44098-12), FB-SB-8 (200-44098-21), FB-SB-9 (200-44098-22), FB-SB-10 (200-44098-23) and EQUIP BLANK-2 (200-44098-25) were analyzed for Perfluorinated Hydrocarbons in accordance with TAL SOP WS-LC-0025. The samples were prepared on 07/09/2018 and analyzed on 07/15/2018.

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

PFOA/PFOS LC/MS/MS

Samples F-SB-6-S (200-44098-3), F-SB-6-WT (200-44098-4), B-SB-7-S (200-44098-6), B-SB-7-4FT (200-44098-7), B-SB-7-6FT (200-44098-8), B-SB-7-WT (200-44098-9), B-SB-7-TOR (200-44098-13), B-SB-8-S (200-44098-15), B-SB-8-WT (200-44098-17), B-SB-9-S (200-44098-18), B-SB-9-WT (200-44098-19), DUP-1 (200-44098-26), DUP-2 (200-44098-27), B-SB-10-S (200-44098-28), B-SB-10-WT (200-44098-29), R-SB-11-S (200-44098-31) and R-SB-11-WT (200-44098-32) were analyzed for PFOA/PFOS LC/MS/MS in accordance with 537. The samples were prepared on 07/03/2018 and analyzed on 07/17/2018, 07/18/2018, 07/19/2018 and 07/23/2018.

Samples B-SB-8-S (200-44098-15)[10X] and B-SB-9-S (200-44098-18)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for M2-6:2FTS and M2-8:2FTS in the following samples: F-SB-6-S (200-44098-3), B-SB-7-4FT (200-44098-7), DUP-1 (200-44098-26), (200-44098-A-3-B MS) and (200-44098-A-3-C

Case Narrative

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

Job ID: 200-44098-1 (Continued)

Laboratory: TestAmerica Burlington (Continued)

MSD). Re-analysis was performed with concurring results. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Results for samples B-SB-8-S (200-44098-15) and B-SB-9-S (200-44098-18) were reported from the analysis of a diluted extract due to high concentration of the target analytes in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for 6:2 FTS for preparation batch 320-232219 and analytical batch 320-234583 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Due to the high concentration of 8:2 FTS the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 320-232219 and analytical batch 320-234583 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

The matrix spike / matrix spike duplicate (MS/MSD) in preparation batch 320-232255 and analytical batch 320-235750 were spiked at a level below the method detection limit for the following analytes: 6:2 FTS, 8:2 FTS, N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) and N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA). As a result, the MS/MSD recoveries for these analytes could not be displayed. The MS/MSD recoveries for M2-6:2FTS were calculated to be 90% and 100% respectively. The MS/MSD recoveries for 8:2 FTS were calculated to be 85% and 92% respectively. The MS/MSD recoveries for N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) were calculated to be 97% and 98% respectively. The MS/MSD recoveries for N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA) were calculated to be 96% and 87% respectively

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

Detection Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: WASH-DW

Lab Sample ID: 200-44098-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.9		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.0		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.8		1.8	1.8	ng/L	1		537 (modified)	Total/NA

Client Sample ID: EQUIP BLANK-1

Lab Sample ID: 200-44098-2

No Detections.

Client Sample ID: F-SB-6-S

Lab Sample ID: 200-44098-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.32		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.74		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.62		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.63		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.2		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.0		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.52		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.33		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	17		0.54	0.54	ug/Kg	1	*	537 (modified)	Total/NA
6:2 FTS	3.8	F1	2.2	2.2	ug/Kg	1	*	537 (modified)	Total/NA
8:2 FTS	9.6		2.2	2.2	ug/Kg	1	*	537 (modified)	Total/NA

Client Sample ID: F-SB-6-WT

Lab Sample ID: 200-44098-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.73		0.65	0.65	ug/Kg	1	*	537 (modified)	Total/NA

Client Sample ID: F-SB-6-TOC

Lab Sample ID: 200-44098-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	730	J	1000	380	mg/Kg	1		Lloyd Kahn	Total/NA

Client Sample ID: B-SB-7-S

Lab Sample ID: 200-44098-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.37		0.21	0.21	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.22		0.21	0.21	ug/Kg	1	*	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.24		0.21	0.21	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.3		0.21	0.21	ug/Kg	1	*	537 (modified)	Total/NA
6:2 FTS	2.2		2.1	2.1	ug/Kg	1	*	537 (modified)	Total/NA

Client Sample ID: B-SB-7-4FT

Lab Sample ID: 200-44098-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.1		0.35	0.35	ug/Kg	1	*	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.8		0.35	0.35	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.2		0.35	0.35	ug/Kg	1	*	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.3		0.35	0.35	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		0.35	0.35	ug/Kg	1	*	537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Detection Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-7-4FT (Continued)

Lab Sample ID: 200-44098-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	1.6		0.35	0.35	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: B-SB-7-6FT

Lab Sample ID: 200-44098-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.49		0.23	0.23	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.29		0.23	0.23	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: B-SB-7-WT

Lab Sample ID: 200-44098-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.80		0.24	0.24	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.1		0.24	0.24	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.5		0.24	0.24	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.91		0.24	0.24	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.50		0.24	0.24	ug/Kg	1	☼	537 (modified)	Total/NA
6:2 FTS	14		2.4	2.4	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: B-SB-7-TOC

Lab Sample ID: 200-44098-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	720	J	1000	380	mg/Kg	1		Lloyd Kahn	Total/NA

Client Sample ID: FB-SB-6

Lab Sample ID: 200-44098-11

No Detections.

Client Sample ID: FB-SB-7

Lab Sample ID: 200-44098-12

No Detections.

Client Sample ID: B-SB-7-TOR

Lab Sample ID: 200-44098-13

No Detections.

Client Sample ID: B-SB-8-S

Lab Sample ID: 200-44098-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.6		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.4		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.4		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.4		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	6.1		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	3.3		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.81		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.23		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
6:2 FTS - DL	23		22	22	ug/Kg	10	☼	537 (modified)	Total/NA
8:2 FTS - DL	37		22	22	ug/Kg	10	☼	537 (modified)	Total/NA

Client Sample ID: B-SB-8-TOC

Lab Sample ID: 200-44098-16

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Detection Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-8-TOC (Continued)

Lab Sample ID: 200-44098-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	1300		1000	380	mg/Kg	1		Lloyd Kahn	Total/NA

Client Sample ID: B-SB-8-WT

Lab Sample ID: 200-44098-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.29		0.25	0.25	ug/Kg	1	*	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.2		0.25	0.25	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.65		0.25	0.25	ug/Kg	1	*	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.35		0.25	0.25	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.26		0.25	0.25	ug/Kg	1	*	537 (modified)	Total/NA
6:2 FTS	2.6		2.5	2.5	ug/Kg	1	*	537 (modified)	Total/NA

Client Sample ID: B-SB-9-S

Lab Sample ID: 200-44098-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.2		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.0		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.4		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.2		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	4.3		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.0		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.31		0.22	0.22	ug/Kg	1	*	537 (modified)	Total/NA
6:2 FTS - DL	22		22	22	ug/Kg	10	*	537 (modified)	Total/NA
8:2 FTS - DL	60		22	22	ug/Kg	10	*	537 (modified)	Total/NA

Client Sample ID: B-SB-9-WT

Lab Sample ID: 200-44098-19

No Detections.

Client Sample ID: B-SB-9-TOC

Lab Sample ID: 200-44098-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	870	J	1000	380	mg/Kg	1		Lloyd Kahn	Total/NA

Client Sample ID: FB-SB-8

Lab Sample ID: 200-44098-21

No Detections.

Client Sample ID: FB-SB-9

Lab Sample ID: 200-44098-22

No Detections.

Client Sample ID: FB-SB-10

Lab Sample ID: 200-44098-23

No Detections.

Client Sample ID: EQUIP BLANK-2

Lab Sample ID: 200-44098-25

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Detection Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: DUP-1

Lab Sample ID: 200-44098-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.96		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.65		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.62		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.3		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.1		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.60		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.35		0.22	0.22	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	17		0.54	0.54	ug/Kg	1	☼	537 (modified)	Total/NA
6:2 FTS	2.8		2.2	2.2	ug/Kg	1	☼	537 (modified)	Total/NA
8:2 FTS	7.3		2.2	2.2	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: DUP-2

Lab Sample ID: 200-44098-27

No Detections.

Client Sample ID: B-SB-10-S

Lab Sample ID: 200-44098-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.33		0.21	0.21	ug/Kg	1	☼	537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.37		0.21	0.21	ug/Kg	1	☼	537 (modified)	Total/NA

Client Sample ID: B-SB-10-WT

Lab Sample ID: 200-44098-29

No Detections.

Client Sample ID: B-SB-10-TOC

Lab Sample ID: 200-44098-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	1300		1000	380	mg/Kg	1		Lloyd Kahn	Total/NA

Client Sample ID: R-SB-11-S

Lab Sample ID: 200-44098-31

No Detections.

Client Sample ID: R-SB-11-WT

Lab Sample ID: 200-44098-32

No Detections.

Client Sample ID: R-SB-11-TOC

Lab Sample ID: 200-44098-33

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	6400		1000	380	mg/Kg	1		Lloyd Kahn	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: WASH-DW

Lab Sample ID: 200-44098-1

Date Collected: 06/26/18 07:40

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.5		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorooctanoic acid (PFOA)	2.9		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorononanoic acid (PFNA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorodecanoic acid (PFDA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorohexanesulfonic acid (PFHxS)	4.0		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorooctanesulfonic acid (PFOS)	1.8		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
Perfluorooctane Sulfonamide (FOSA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:14	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:14	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:14	1
4:2 FTS	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:14	1
6:2 FTS	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:14	1
8:2 FTS	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:14	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	52		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C5 PFPeA	69		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C2 PFHxA	76		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C4-PFHpA	91		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C4 PFOA	92		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C5 PFNA	89		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C2 PFDA	85		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C2 PFUnA	84		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C2 PFDoA	71		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C2-PFTeDA	67		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C3-PFBS	77		25 - 150	07/09/18 06:43	07/15/18 19:14	1
18O2 PFHxS	85		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C4 PFOS	81		25 - 150	07/09/18 06:43	07/15/18 19:14	1
13C8 FOSA	76		25 - 150	07/09/18 06:43	07/15/18 19:14	1
d3-NMeFOSAA	78		25 - 150	07/09/18 06:43	07/15/18 19:14	1
d5-NEtFOSAA	80		25 - 150	07/09/18 06:43	07/15/18 19:14	1
M2-6:2FTS	113		25 - 150	07/09/18 06:43	07/15/18 19:14	1
M2-8:2FTS	79		25 - 150	07/09/18 06:43	07/15/18 19:14	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: EQUIP BLANK-1

Lab Sample ID: 200-44098-2

Date Collected: 06/26/18 10:15

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorooctanoic acid (PFOA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorononanoic acid (PFNA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorodecanoic acid (PFDA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
Perfluorooctane Sulfonamide (FOSA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:22	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:22	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:22	1
6:2 FTS	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:22	1
8:2 FTS	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	92		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C5 PFPeA	92		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C2 PFHxA	96		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C4-PFHpA	96		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C4 PFOA	98		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C5 PFNA	99		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C2 PFDA	100		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C2 PFUnA	104		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C2 PFDoA	102		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C2-PFTeDA	106		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C3-PFBS	87		25 - 150	07/09/18 06:43	07/15/18 19:22	1
18O2 PFHxS	91		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C4 PFOS	92		25 - 150	07/09/18 06:43	07/15/18 19:22	1
13C8 FOSA	88		25 - 150	07/09/18 06:43	07/15/18 19:22	1
d3-NMeFOSAA	103		25 - 150	07/09/18 06:43	07/15/18 19:22	1
d5-NEtFOSAA	105		25 - 150	07/09/18 06:43	07/15/18 19:22	1
M2-6:2FTS	92		25 - 150	07/09/18 06:43	07/15/18 19:22	1
M2-8:2FTS	92		25 - 150	07/09/18 06:43	07/15/18 19:22	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: F-SB-6-S

Lab Sample ID: 200-44098-3

Date Collected: 06/26/18 12:10

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 90.2

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.32		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluoropentanoic acid (PFPeA)	0.74		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorohexanoic acid (PFHxA)	0.62		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluoroheptanoic acid (PFHpA)	0.63		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorooctanoic acid (PFOA)	1.2		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorononanoic acid (PFNA)	2.0		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorodecanoic acid (PFDA)	0.52		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorohexanesulfonic acid (PFHxS)	0.33		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorooctanesulfonic acid (PFOS)	17		0.54	0.54	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	F1	2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	F1	2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
6:2 FTS	3.8	F1	2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1
8:2 FTS	9.6		2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/17/18 20:50	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	65		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C5 PFPeA	71		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C2 PFHxA	65		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C4-PFHpA	83		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C4 PFOA	88		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C5 PFNA	80		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C2 PFDA	83		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C2 PFUnA	75		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C2 PFDoA	64		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C2-PFTeDA	58		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C3-PFBS	72		25 - 150	07/03/18 08:22	07/17/18 20:50	1
18O2 PFHxS	78		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C4 PFOS	71		25 - 150	07/03/18 08:22	07/17/18 20:50	1
13C8 FOSA	51		25 - 150	07/03/18 08:22	07/17/18 20:50	1
d3-NMeFOSAA	85		25 - 150	07/03/18 08:22	07/17/18 20:50	1
d5-NEtFOSAA	80		25 - 150	07/03/18 08:22	07/17/18 20:50	1
M2-6:2FTS	235	*	25 - 150	07/03/18 08:22	07/17/18 20:50	1
M2-8:2FTS	174	*	25 - 150	07/03/18 08:22	07/17/18 20:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	9.8		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	90.2		0.1	0.1	%			07/02/18 17:10	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: F-SB-6-WT

Lab Sample ID: 200-44098-4

Date Collected: 06/26/18 12:40

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 75.8

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluoropentanoic acid (PFPeA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorohexanoic acid (PFHxA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluoroheptanoic acid (PFHpA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorooctanoic acid (PFOA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorononanoic acid (PFNA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorodecanoic acid (PFDA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluoroundecanoic acid (PFUnA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorododecanoic acid (PFDoA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorooctanesulfonic acid (PFOS)	0.73		0.65	0.65	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.26	0.26	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.6	2.6	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.6	2.6	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
6:2 FTS	ND		2.6	2.6	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1
8:2 FTS	ND		2.6	2.6	ug/Kg	☼	07/03/18 08:22	07/17/18 21:21	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	75		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C5 PFPeA	76		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C2 PFHxA	79		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C4-PFHpA	85		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C4 PFOA	86		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C5 PFNA	83		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C2 PFDA	84		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C2 PFUnA	84		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C2 PFDoA	80		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C2-PFTeDA	79		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C3-PFBS	74		25 - 150	07/03/18 08:22	07/17/18 21:21	1
18O2 PFHxS	81		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C4 PFOS	78		25 - 150	07/03/18 08:22	07/17/18 21:21	1
13C8 FOSA	67		25 - 150	07/03/18 08:22	07/17/18 21:21	1
d3-NMeFOSAA	84		25 - 150	07/03/18 08:22	07/17/18 21:21	1
d5-NEtFOSAA	92		25 - 150	07/03/18 08:22	07/17/18 21:21	1
M2-6:2FTS	74		25 - 150	07/03/18 08:22	07/17/18 21:21	1
M2-8:2FTS	79		25 - 150	07/03/18 08:22	07/17/18 21:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	24.2		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	75.8		0.1	0.1	%			07/02/18 17:10	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: F-SB-6-TOC

Date Collected: 06/26/18 12:41

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-5

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	730	J	1000	380	mg/Kg			07/02/18 12:20	1

Client Sample ID: B-SB-7-S

Date Collected: 06/26/18 14:04

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-6

Matrix: Solid

Percent Solids: 94.1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluoropentanoic acid (PFPeA)	0.37		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorohexanoic acid (PFHxA)	0.22		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluoroheptanoic acid (PFHpA)	0.24		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorooctanoic acid (PFOA)	1.3		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.52	0.52	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.1	2.1	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.1	2.1	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
6:2 FTS	2.2		2.1	2.1	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1
8:2 FTS	ND		2.1	2.1	ug/Kg	☼	07/03/18 08:22	07/17/18 21:29	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	68		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C5 PFPeA	76		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C2 PFHxA	85		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C4-PFHpA	85		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C4 PFOA	81		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C5 PFNA	78		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C2 PFDA	78		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C2 PFUnA	83		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C2 PFDoA	70		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C2-PFTeDA	78		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C3-PFBS	43		25 - 150	07/03/18 08:22	07/17/18 21:29	1
18O2 PFHxS	45		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C4 PFOS	43		25 - 150	07/03/18 08:22	07/17/18 21:29	1
13C8 FOSA	42		25 - 150	07/03/18 08:22	07/17/18 21:29	1
d3-NMeFOSAA	71		25 - 150	07/03/18 08:22	07/17/18 21:29	1
d5-NEtFOSAA	75		25 - 150	07/03/18 08:22	07/17/18 21:29	1
M2-6:2FTS	39		25 - 150	07/03/18 08:22	07/17/18 21:29	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-7-S

Lab Sample ID: 200-44098-6

Date Collected: 06/26/18 14:04

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 94.1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2FTS	36		25 - 150	07/03/18 08:22	07/17/18 21:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.9		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	94.1		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: B-SB-7-4FT

Lab Sample ID: 200-44098-7

Date Collected: 06/26/18 14:20

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 55.5

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.1		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluoropentanoic acid (PFPeA)	5.8		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorohexanoic acid (PFHxA)	3.2		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluoroheptanoic acid (PFHpA)	4.3		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorooctanoic acid (PFOA)	2.0		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorononanoic acid (PFNA)	ND		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorodecanoic acid (PFDA)	ND		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluoroundecanoic acid (PFUnA)	ND		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorododecanoic acid (PFDoA)	ND		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorohexanesulfonic acid (PFHxS)	1.6		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.89	0.89	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.35	0.35	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		3.5	3.5	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		3.5	3.5	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
6:2 FTS	ND		3.5	3.5	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1
8:2 FTS	ND		3.5	3.5	ug/Kg	☼	07/03/18 08:22	07/17/18 21:37	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	51		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C5 PFPeA	63		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C2 PFHxA	50		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C4-PFHpA	70		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C4 PFOA	74		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C5 PFNA	74		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C2 PFDA	71		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C2 PFUnA	74		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C2 PFDoA	59		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C2-PFTeDA	57		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C3-PFBS	64		25 - 150	07/03/18 08:22	07/17/18 21:37	1
18O2 PFHxS	75		25 - 150	07/03/18 08:22	07/17/18 21:37	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-7-4FT

Date Collected: 06/26/18 14:20

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-7

Matrix: Solid

Percent Solids: 55.5

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	67		25 - 150	07/03/18 08:22	07/17/18 21:37	1
13C8 FOSA	49		25 - 150	07/03/18 08:22	07/17/18 21:37	1
d3-NMeFOSAA	89		25 - 150	07/03/18 08:22	07/17/18 21:37	1
d5-NEtFOSAA	84		25 - 150	07/03/18 08:22	07/17/18 21:37	1
M2-6:2FTS	269 *		25 - 150	07/03/18 08:22	07/17/18 21:37	1
M2-8:2FTS	201 *		25 - 150	07/03/18 08:22	07/17/18 21:37	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	44.5		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	55.5		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: B-SB-7-6FT

Date Collected: 06/26/18 14:22

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-8

Matrix: Solid

Percent Solids: 85.8

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluoropentanoic acid (PFPeA)	0.49		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorohexanoic acid (PFHxA)	0.29		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.58	0.58	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.3	2.3	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.3	2.3	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
6:2 FTS	ND		2.3	2.3	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1
8:2 FTS	ND		2.3	2.3	ug/Kg	☼	07/03/18 08:22	07/17/18 21:45	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	85		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C5 PFPeA	85		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C2 PFHxA	97		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C4-PFHpA	97		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C4 PFOA	95		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C5 PFNA	88		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C2 PFDA	91		25 - 150	07/03/18 08:22	07/17/18 21:45	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-7-6FT

Lab Sample ID: 200-44098-8

Date Collected: 06/26/18 14:22

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 85.8

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PUnA	93		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C2 PFDa	84		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C2-PFTeDA	77		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C3-PFBS	86		25 - 150	07/03/18 08:22	07/17/18 21:45	1
18O2 PFHxS	95		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C4 PFOS	88		25 - 150	07/03/18 08:22	07/17/18 21:45	1
13C8 FOSA	76		25 - 150	07/03/18 08:22	07/17/18 21:45	1
d3-NMeFOSAA	84		25 - 150	07/03/18 08:22	07/17/18 21:45	1
d5-NEtFOSAA	90		25 - 150	07/03/18 08:22	07/17/18 21:45	1
M2-6:2FTS	87		25 - 150	07/03/18 08:22	07/17/18 21:45	1
M2-8:2FTS	81		25 - 150	07/03/18 08:22	07/17/18 21:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.2		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	85.8		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: B-SB-7-WT

Lab Sample ID: 200-44098-9

Date Collected: 06/26/18 14:24

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 82.8

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.80		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluoropentanoic acid (PFPeA)	5.1		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorohexanoic acid (PFHxA)	2.5		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluoroheptanoic acid (PFHpA)	0.91		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorooctanoic acid (PFOA)	0.50		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.60	0.60	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.4	2.4	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.4	2.4	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
6:2 FTS	14		2.4	2.4	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
8:2 FTS	ND		2.4	2.4	ug/Kg	☼	07/03/18 08:22	07/17/18 21:53	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C4 PFBA	83		25 - 150	07/03/18 08:22	07/17/18 21:53	1			
13C5 PFPeA	82		25 - 150	07/03/18 08:22	07/17/18 21:53	1			

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

Client Sample ID: B-SB-7-WT

Lab Sample ID: 200-44098-9

Date Collected: 06/26/18 14:24

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 82.8

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		25 - 150	07/03/18 08:22	07/17/18 21:53	1
13C4-PFHpA	91		25 - 150	07/03/18 08:22	07/17/18 21:53	1
13C4 PFOA	90		25 - 150	07/03/18 08:22	07/17/18 21:53	1
13C5 PFNA	82		25 - 150	07/03/18 08:22	07/17/18 21:53	1
13C2 PFDA	84		25 - 150	07/03/18 08:22	07/17/18 21:53	1
13C2 PFUnA	80		25 - 150	07/03/18 08:22	07/17/18 21:53	1
13C2 PFDoA	77		25 - 150	07/03/18 08:22	07/17/18 21:53	1
13C2-PFTeDA	77		25 - 150	07/03/18 08:22	07/17/18 21:53	1
13C3-PFBS	81		25 - 150	07/03/18 08:22	07/17/18 21:53	1
18O2 PFHxS	92		25 - 150	07/03/18 08:22	07/17/18 21:53	1
13C4 PFOS	84		25 - 150	07/03/18 08:22	07/17/18 21:53	1
13C8 FOSA	65		25 - 150	07/03/18 08:22	07/17/18 21:53	1
d3-NMeFOSAA	77		25 - 150	07/03/18 08:22	07/17/18 21:53	1
d5-NEtFOSAA	88		25 - 150	07/03/18 08:22	07/17/18 21:53	1
M2-6:2FTS	87		25 - 150	07/03/18 08:22	07/17/18 21:53	1
M2-8:2FTS	75		25 - 150	07/03/18 08:22	07/17/18 21:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17.2		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	82.8		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: B-SB-7-TOC

Lab Sample ID: 200-44098-10

Date Collected: 06/26/18 14:25

Matrix: Solid

Date Received: 06/28/18 13:45

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	720	J	1000	380	mg/Kg			07/02/18 12:26	1

Client Sample ID: FB-SB-6

Lab Sample ID: 200-44098-11

Date Collected: 06/26/18 12:30

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorooctanoic acid (PFOA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorononanoic acid (PFNA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorodecanoic acid (PFDA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

Client Sample ID: FB-SB-6

Lab Sample ID: 200-44098-11

Date Collected: 06/26/18 12:30

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
Perfluorooctane Sulfonamide (FOSA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:30	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		19	19	ng/L		07/09/18 06:43	07/15/18 19:30	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		19	19	ng/L		07/09/18 06:43	07/15/18 19:30	1
6:2 FTS	ND		19	19	ng/L		07/09/18 06:43	07/15/18 19:30	1
8:2 FTS	ND		19	19	ng/L		07/09/18 06:43	07/15/18 19:30	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	92		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C5 PFPeA	91		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C2 PFHxA	96		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C4-PFHpA	96		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C4 PFOA	95		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C5 PFNA	97		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C2 PFDA	99		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C2 PFUnA	96		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C2 PFDoA	96		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C2-PFTeDA	99		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C3-PFBS	87		25 - 150				07/09/18 06:43	07/15/18 19:30	1
18O2 PFHxS	93		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C4 PFOS	91		25 - 150				07/09/18 06:43	07/15/18 19:30	1
13C8 FOSA	89		25 - 150				07/09/18 06:43	07/15/18 19:30	1
d3-NMeFOSAA	97		25 - 150				07/09/18 06:43	07/15/18 19:30	1
d5-NEtFOSAA	100		25 - 150				07/09/18 06:43	07/15/18 19:30	1
M2-6:2FTS	87		25 - 150				07/09/18 06:43	07/15/18 19:30	1
M2-8:2FTS	85		25 - 150				07/09/18 06:43	07/15/18 19:30	1

Client Sample ID: FB-SB-7

Lab Sample ID: 200-44098-12

Date Collected: 06/26/18 14:23

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorooctanoic acid (PFOA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorononanoic acid (PFNA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorodecanoic acid (PFDA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: FB-SB-7

Lab Sample ID: 200-44098-12

Date Collected: 06/26/18 14:23

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
Perfluorooctane Sulfonamide (FOSA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 19:38	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:38	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:38	1
6:2 FTS	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:38	1
8:2 FTS	ND		18	18	ng/L		07/09/18 06:43	07/15/18 19:38	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	94		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C5 PFPeA	95		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C2 PFHxA	102		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C4-PFHpA	106		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C4 PFOA	98		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C5 PFNA	96		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C2 PFDA	99		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C2 PFUnA	105		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C2 PFDoA	98		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C2-PFTeDA	101		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C3-PFBS	93		25 - 150				07/09/18 06:43	07/15/18 19:38	1
18O2 PFHxS	93		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C4 PFOS	95		25 - 150				07/09/18 06:43	07/15/18 19:38	1
13C8 FOSA	92		25 - 150				07/09/18 06:43	07/15/18 19:38	1
d3-NMeFOSAA	106		25 - 150				07/09/18 06:43	07/15/18 19:38	1
d5-NEtFOSAA	109		25 - 150				07/09/18 06:43	07/15/18 19:38	1
M2-6:2FTS	94		25 - 150				07/09/18 06:43	07/15/18 19:38	1
M2-8:2FTS	91		25 - 150				07/09/18 06:43	07/15/18 19:38	1

Client Sample ID: B-SB-7-TOR

Lab Sample ID: 200-44098-13

Date Collected: 06/26/18 15:10

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 92.2

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluoropentanoic acid (PFPeA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

Client Sample ID: B-SB-7-TOR

Lab Sample ID: 200-44098-13

Date Collected: 06/26/18 15:10

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 92.2

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.53	0.53	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.1	2.1	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.1	2.1	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
6:2 FTS	ND		2.1	2.1	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1
8:2 FTS	ND		2.1	2.1	ug/Kg	☼	07/03/18 08:22	07/17/18 22:00	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	81		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C5 PFPeA	81		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C2 PFHxA	88		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C4-PFHpA	94		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C4 PFOA	89		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C5 PFNA	87		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C2 PFDA	89		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C2 PFUnA	94		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C2 PFDoA	84		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C2-PFTeDA	87		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C3-PFBS	53		25 - 150	07/03/18 08:22	07/17/18 22:00	1
18O2 PFHxS	61		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C4 PFOS	59		25 - 150	07/03/18 08:22	07/17/18 22:00	1
13C8 FOSA	58		25 - 150	07/03/18 08:22	07/17/18 22:00	1
d3-NMeFOSAA	90		25 - 150	07/03/18 08:22	07/17/18 22:00	1
d5-NEtFOSAA	94		25 - 150	07/03/18 08:22	07/17/18 22:00	1
M2-6:2FTS	50		25 - 150	07/03/18 08:22	07/17/18 22:00	1
M2-8:2FTS	47		25 - 150	07/03/18 08:22	07/17/18 22:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.8		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	92.2		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: B-SB-8-S

Lab Sample ID: 200-44098-15

Date Collected: 06/27/18 08:50

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 89.1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.6		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluoropentanoic acid (PFPeA)	4.4		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorohexanoic acid (PFHxA)	2.4		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluoroheptanoic acid (PFHpA)	1.4		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorooctanoic acid (PFOA)	6.1		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorononanoic acid (PFNA)	3.3		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorodecanoic acid (PFDA)	0.81		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluoroundecanoic acid (PFUnA)	0.23		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-8-S

Lab Sample ID: 200-44098-15

Date Collected: 06/27/18 08:50

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 89.1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.55	0.55	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/18/18 08:49	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	72		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C5 PFPeA	78		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C2 PFHxA	67		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C4-PFHpA	89		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C4 PFOA	87		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C5 PFNA	81		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C2 PFDA	87		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C2 PFUnA	91		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C2 PFDoA	77		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C2-PFTeDA	72		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C3-PFBS	75		25 - 150	07/03/18 08:22	07/18/18 08:49	1
18O2 PFHxS	84		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C4 PFOS	74		25 - 150	07/03/18 08:22	07/18/18 08:49	1
13C8 FOSA	63		25 - 150	07/03/18 08:22	07/18/18 08:49	1
d3-NMeFOSAA	110		25 - 150	07/03/18 08:22	07/18/18 08:49	1
d5-NEtFOSAA	108		25 - 150	07/03/18 08:22	07/18/18 08:49	1

Method: 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	23		22	22	ug/Kg	☼	07/03/18 08:22	07/19/18 09:15	10
8:2 FTS	37		22	22	ug/Kg	☼	07/03/18 08:22	07/19/18 09:15	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2FTS	94		25 - 150	07/03/18 08:22	07/19/18 09:15	10
M2-8:2FTS	100		25 - 150	07/03/18 08:22	07/19/18 09:15	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	10.9		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	89.1		0.1	0.1	%			07/02/18 17:10	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-8-TOC

Date Collected: 06/27/18 08:55

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-16

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1300		1000	380	mg/Kg			07/02/18 12:33	1

Client Sample ID: B-SB-8-WT

Date Collected: 06/27/18 08:54

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-17

Matrix: Solid

Percent Solids: 78.3

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.29		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluoropentanoic acid (PFPeA)	1.2		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorohexanoic acid (PFHxA)	0.65		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluoroheptanoic acid (PFHpA)	0.35		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorooctanoic acid (PFOA)	0.26		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.63	0.63	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.5	2.5	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.5	2.5	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
6:2 FTS	2.6		2.5	2.5	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1
8:2 FTS	ND		2.5	2.5	ug/Kg	☼	07/03/18 08:22	07/18/18 08:56	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	82		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C5 PFPeA	81		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C2 PFHxA	95		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C4-PFHpA	91		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C4 PFOA	93		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C5 PFNA	84		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C2 PFDA	85		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C2 PFUnA	88		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C2 PFDoA	75		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C2-PFTeDA	80		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C3-PFBS	80		25 - 150	07/03/18 08:22	07/18/18 08:56	1
18O2 PFHxS	88		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C4 PFOS	82		25 - 150	07/03/18 08:22	07/18/18 08:56	1
13C8 FOSA	62		25 - 150	07/03/18 08:22	07/18/18 08:56	1
d3-NMeFOSAA	75		25 - 150	07/03/18 08:22	07/18/18 08:56	1
d5-NEtFOSAA	84		25 - 150	07/03/18 08:22	07/18/18 08:56	1
M2-6:2FTS	96		25 - 150	07/03/18 08:22	07/18/18 08:56	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-8-WT

Date Collected: 06/27/18 08:54

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-17

Matrix: Solid

Percent Solids: 78.3

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2FTS	89		25 - 150	07/03/18 08:22	07/18/18 08:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	21.7		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	78.3		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: B-SB-9-S

Date Collected: 06/27/18 09:50

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-18

Matrix: Solid

Percent Solids: 90.3

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.2		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluoropentanoic acid (PFPeA)	4.0		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorohexanoic acid (PFHxA)	1.4		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluoroheptanoic acid (PFHpA)	1.2		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorooctanoic acid (PFOA)	2.1		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorononanoic acid (PFNA)	4.3		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorodecanoic acid (PFDA)	1.0		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluoroundecanoic acid (PFUnA)	0.31		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.55	0.55	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/18/18 09:04	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	68		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C5 PFPeA	74		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C2 PFHxA	70		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C4-PFHpA	86		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C4 PFOA	84		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C5 PFNA	84		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C2 PFDA	88		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C2 PFUnA	88		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C2 PFDoA	74		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C2-PFTeDA	63		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C3-PFBS	70		25 - 150	07/03/18 08:22	07/18/18 09:04	1
18O2 PFHxS	75		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C4 PFOS	70		25 - 150	07/03/18 08:22	07/18/18 09:04	1
13C8 FOSA	59		25 - 150	07/03/18 08:22	07/18/18 09:04	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-9-S

Date Collected: 06/27/18 09:50

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-18

Matrix: Solid

Percent Solids: 90.3

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	106		25 - 150	07/03/18 08:22	07/18/18 09:04	1
d5-NEtFOSAA	112		25 - 150	07/03/18 08:22	07/18/18 09:04	1

Method: 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	22		22	22	ug/Kg	☼	07/03/18 08:22	07/19/18 09:23	10
8:2 FTS	60		22	22	ug/Kg	☼	07/03/18 08:22	07/19/18 09:23	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2FTS	102		25 - 150	07/03/18 08:22	07/19/18 09:23	10
M2-8:2FTS	96		25 - 150	07/03/18 08:22	07/19/18 09:23	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	9.7		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	90.3		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: B-SB-9-WT

Date Collected: 06/27/18 10:00

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-19

Matrix: Solid

Percent Solids: 81.4

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluoropentanoic acid (PFPeA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorohexanoic acid (PFHxA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorooctanoic acid (PFOA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.61	0.61	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.24	0.24	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.4	2.4	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.4	2.4	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
6:2 FTS	ND		2.4	2.4	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1
8:2 FTS	ND		2.4	2.4	ug/Kg	☼	07/03/18 08:22	07/18/18 09:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	79		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C5 PFPeA	75		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C2 PFHxA	89		25 - 150	07/03/18 08:22	07/18/18 09:12	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-9-WT

Lab Sample ID: 200-44098-19

Date Collected: 06/27/18 10:00

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 81.4

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4-PFHpA	90		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C4 PFOA	83		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C5 PFNA	84		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C2 PFDA	84		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C2 PFUnA	82		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C2 PFDoA	73		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C2-PFTeDA	71		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C3-PFBS	77		25 - 150	07/03/18 08:22	07/18/18 09:12	1
18O2 PFHxS	88		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C4 PFOS	82		25 - 150	07/03/18 08:22	07/18/18 09:12	1
13C8 FOSA	69		25 - 150	07/03/18 08:22	07/18/18 09:12	1
d3-NMeFOSAA	77		25 - 150	07/03/18 08:22	07/18/18 09:12	1
d5-NEtFOSAA	88		25 - 150	07/03/18 08:22	07/18/18 09:12	1
M2-6:2FTS	90		25 - 150	07/03/18 08:22	07/18/18 09:12	1
M2-8:2FTS	92		25 - 150	07/03/18 08:22	07/18/18 09:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	18.6		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	81.4		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: B-SB-9-TOC

Lab Sample ID: 200-44098-20

Date Collected: 06/27/18 10:02

Matrix: Solid

Date Received: 06/28/18 13:45

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	870	J	1000	380	mg/Kg			07/02/18 12:39	1

Client Sample ID: FB-SB-8

Lab Sample ID: 200-44098-21

Date Collected: 06/27/18 08:52

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluoropentanoic acid (PFPeA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorooctanoic acid (PFOA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorononanoic acid (PFNA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorodecanoic acid (PFDA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: FB-SB-8

Lab Sample ID: 200-44098-21

Date Collected: 06/27/18 08:52

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
Perfluorooctane Sulfonamide (FOSA)	ND		1.7	1.7	ng/L		07/09/18 06:43	07/15/18 19:46	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		17	17	ng/L		07/09/18 06:43	07/15/18 19:46	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		17	17	ng/L		07/09/18 06:43	07/15/18 19:46	1
6:2 FTS	ND		17	17	ng/L		07/09/18 06:43	07/15/18 19:46	1
8:2 FTS	ND		17	17	ng/L		07/09/18 06:43	07/15/18 19:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	95		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C5 PFPeA	94		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C2 PFHxA	96		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C4-PFHpA	98		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C4 PFOA	95		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C5 PFNA	97		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C2 PFDA	99		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C2 PFUnA	103		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C2 PFDoA	94		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C2-PFTeDA	93		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C3-PFBS	91		25 - 150				07/09/18 06:43	07/15/18 19:46	1
18O2 PFHxS	97		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C4 PFOS	94		25 - 150				07/09/18 06:43	07/15/18 19:46	1
13C8 FOSA	90		25 - 150				07/09/18 06:43	07/15/18 19:46	1
d3-NMeFOSAA	98		25 - 150				07/09/18 06:43	07/15/18 19:46	1
d5-NEtFOSAA	107		25 - 150				07/09/18 06:43	07/15/18 19:46	1
M2-6:2FTS	96		25 - 150				07/09/18 06:43	07/15/18 19:46	1
M2-8:2FTS	84		25 - 150				07/09/18 06:43	07/15/18 19:46	1

Client Sample ID: FB-SB-9

Lab Sample ID: 200-44098-22

Date Collected: 06/27/18 10:04

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorooctanoic acid (PFOA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorononanoic acid (PFNA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorodecanoic acid (PFDA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: FB-SB-9

Lab Sample ID: 200-44098-22

Date Collected: 06/27/18 10:04

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
Perfluorooctane Sulfonamide (FOSA)	ND		1.9	1.9	ng/L		07/09/18 06:43	07/15/18 19:54	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		19	19	ng/L		07/09/18 06:43	07/15/18 19:54	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		19	19	ng/L		07/09/18 06:43	07/15/18 19:54	1
6:2 FTS	ND		19	19	ng/L		07/09/18 06:43	07/15/18 19:54	1
8:2 FTS	ND		19	19	ng/L		07/09/18 06:43	07/15/18 19:54	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	96		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C5 PFPeA	96		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C2 PFHxA	102		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C4-PFHpA	100		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C4 PFOA	100		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C5 PFNA	99		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C2 PFDA	104		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C2 PFUnA	103		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C2 PFDoA	100		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C2-PFTeDA	103		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C3-PFBS	93		25 - 150				07/09/18 06:43	07/15/18 19:54	1
18O2 PFHxS	97		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C4 PFOS	94		25 - 150				07/09/18 06:43	07/15/18 19:54	1
13C8 FOSA	90		25 - 150				07/09/18 06:43	07/15/18 19:54	1
d3-NMeFOSAA	100		25 - 150				07/09/18 06:43	07/15/18 19:54	1
d5-NEtFOSAA	104		25 - 150				07/09/18 06:43	07/15/18 19:54	1
M2-6:2FTS	98		25 - 150				07/09/18 06:43	07/15/18 19:54	1
M2-8:2FTS	86		25 - 150				07/09/18 06:43	07/15/18 19:54	1

Client Sample ID: FB-SB-10

Lab Sample ID: 200-44098-23

Date Collected: 06/27/18 11:18

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorooctanoic acid (PFOA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorononanoic acid (PFNA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorodecanoic acid (PFDA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: FB-SB-10

Lab Sample ID: 200-44098-23

Date Collected: 06/27/18 11:18

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
Perfluorooctane Sulfonamide (FOSA)	ND		1.8	1.8	ng/L		07/09/18 06:43	07/15/18 20:01	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		18	18	ng/L		07/09/18 06:43	07/15/18 20:01	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		18	18	ng/L		07/09/18 06:43	07/15/18 20:01	1
6:2 FTS	ND		18	18	ng/L		07/09/18 06:43	07/15/18 20:01	1
8:2 FTS	ND		18	18	ng/L		07/09/18 06:43	07/15/18 20:01	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	94		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C5 PFPeA	94		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C2 PFHxA	99		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C4-PFHpA	98		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C4 PFOA	101		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C5 PFNA	98		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C2 PFDA	104		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C2 PFUnA	100		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C2 PFDoA	95		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C2-PFTeDA	99		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C3-PFBS	92		25 - 150				07/09/18 06:43	07/15/18 20:01	1
18O2 PFHxS	97		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C4 PFOS	95		25 - 150				07/09/18 06:43	07/15/18 20:01	1
13C8 FOSA	91		25 - 150				07/09/18 06:43	07/15/18 20:01	1
d3-NMeFOSAA	101		25 - 150				07/09/18 06:43	07/15/18 20:01	1
d5-NEtFOSAA	105		25 - 150				07/09/18 06:43	07/15/18 20:01	1
M2-6:2FTS	92		25 - 150				07/09/18 06:43	07/15/18 20:01	1
M2-8:2FTS	88		25 - 150				07/09/18 06:43	07/15/18 20:01	1

Client Sample ID: EQUIP BLANK-2

Lab Sample ID: 200-44098-25

Date Collected: 06/27/18 10:06

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluoropentanoic acid (PFPeA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorohexanoic acid (PFHxA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluoroheptanoic acid (PFHpA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorooctanoic acid (PFOA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorononanoic acid (PFNA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorodecanoic acid (PFDA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluoroundecanoic acid (PFUnA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorododecanoic acid (PFDoA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: EQUIP BLANK-2

Lab Sample ID: 200-44098-25

Date Collected: 06/27/18 10:06

Matrix: Water

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.2	2.2	ng/L		07/09/18 06:43	07/15/18 20:25	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		22	22	ng/L		07/09/18 06:43	07/15/18 20:25	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		22	22	ng/L		07/09/18 06:43	07/15/18 20:25	1
6:2 FTS	ND		22	22	ng/L		07/09/18 06:43	07/15/18 20:25	1
8:2 FTS	ND		22	22	ng/L		07/09/18 06:43	07/15/18 20:25	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	94		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C5 PFPeA	94		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C2 PFHxA	103		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C4-PFHpA	99		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C4 PFOA	100		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C5 PFNA	99		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C2 PFDA	111		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C2 PFUnA	113		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C2 PFDoA	107		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C2-PFTeDA	116		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C3-PFBS	94		25 - 150				07/09/18 06:43	07/15/18 20:25	1
18O2 PFHxS	94		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C4 PFOS	95		25 - 150				07/09/18 06:43	07/15/18 20:25	1
13C8 FOSA	92		25 - 150				07/09/18 06:43	07/15/18 20:25	1
d3-NMeFOSAA	101		25 - 150				07/09/18 06:43	07/15/18 20:25	1
d5-NEtFOSAA	115		25 - 150				07/09/18 06:43	07/15/18 20:25	1
M2-6:2FTS	93		25 - 150				07/09/18 06:43	07/15/18 20:25	1
M2-8:2FTS	94		25 - 150				07/09/18 06:43	07/15/18 20:25	1

Client Sample ID: DUP-1

Lab Sample ID: 200-44098-26

Date Collected: 06/26/18 12:00

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 91.7

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluoropentanoic acid (PFPeA)	0.96		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorohexanoic acid (PFHxA)	0.65		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluoroheptanoic acid (PFHpA)	0.62		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorooctanoic acid (PFOA)	1.3		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorononanoic acid (PFNA)	2.1		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorodecanoic acid (PFDA)	0.60		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorohexanesulfonic acid (PFHxS)	0.35		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: DUP-1
Date Collected: 06/26/18 12:00
Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-26
Matrix: Solid
Percent Solids: 91.7

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorooctanesulfonic acid (PFOS)	17		0.54	0.54	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
6:2 FTS	2.8		2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
8:2 FTS	7.3		2.2	2.2	ug/Kg	☼	07/03/18 08:22	07/18/18 09:20	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	63		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C5 PFPeA	66		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C2 PFHxA	64		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C4-PFHpA	80		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C4 PFOA	80		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C5 PFNA	77		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C2 PFDA	79		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C2 PFUnA	77		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C2 PFDoA	62		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C2-PFTeDA	60		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C3-PFBS	69		25 - 150				07/03/18 08:22	07/18/18 09:20	1
18O2 PFHxS	76		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C4 PFOS	71		25 - 150				07/03/18 08:22	07/18/18 09:20	1
13C8 FOSA	57		25 - 150				07/03/18 08:22	07/18/18 09:20	1
d3-NMeFOSAA	79		25 - 150				07/03/18 08:22	07/18/18 09:20	1
d5-NEtFOSAA	78		25 - 150				07/03/18 08:22	07/18/18 09:20	1
M2-6:2FTS	233	*	25 - 150				07/03/18 08:22	07/18/18 09:20	1
M2-8:2FTS	179	*	25 - 150				07/03/18 08:22	07/18/18 09:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.3		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	91.7		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: DUP-2
Date Collected: 06/27/18 12:00
Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-27
Matrix: Solid
Percent Solids: 87.0

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluoropentanoic acid (PFPeA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

Client Sample ID: DUP-2
Date Collected: 06/27/18 12:00
Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-27
Matrix: Solid
Percent Solids: 87.0

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.57	0.57	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.3	2.3	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.3	2.3	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
6:2 FTS	ND		2.3	2.3	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
8:2 FTS	ND		2.3	2.3	ug/Kg	☼	07/03/18 09:28	07/23/18 18:47	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	85		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C5 PFPeA	84		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C2 PFHxA	90		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C4-PFHpA	85		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C4 PFOA	85		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C5 PFNA	85		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C2 PFDA	84		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C2 PFUnA	82		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C2 PFDoA	73		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C2-PFTeDA	73		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C3-PFBS	78		25 - 150				07/03/18 09:28	07/23/18 18:47	1
18O2 PFHxS	80		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C4 PFOS	75		25 - 150				07/03/18 09:28	07/23/18 18:47	1
13C8 FOSA	71		25 - 150				07/03/18 09:28	07/23/18 18:47	1
d3-NMeFOSAA	68		25 - 150				07/03/18 09:28	07/23/18 18:47	1
d5-NEtFOSAA	75		25 - 150				07/03/18 09:28	07/23/18 18:47	1
M2-6:2FTS	82		25 - 150				07/03/18 09:28	07/23/18 18:47	1
M2-8:2FTS	82		25 - 150				07/03/18 09:28	07/23/18 18:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.0		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	87.0		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: B-SB-10-S
Date Collected: 06/27/18 11:15
Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-28
Matrix: Solid
Percent Solids: 93.0

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.21	0.21	ug/Kg	☼	07/03/18 09:28	07/23/18 18:55	1
Perfluoropentanoic acid (PFPeA)	0.33		0.21	0.21	ug/Kg	☼	07/03/18 09:28	07/23/18 18:55	1
Perfluorohexanoic acid (PFHxA)	0.37		0.21	0.21	ug/Kg	☼	07/03/18 09:28	07/23/18 18:55	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-10-S

Lab Sample ID: 200-44098-28

Date Collected: 06/27/18 11:15

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 93.0

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.53	0.53	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.21	0.21	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	F1	2.1	2.1	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	F1	2.1	2.1	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
6:2 FTS	ND		2.1	2.1	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1
8:2 FTS	ND		2.1	2.1	ug/Kg	*	07/03/18 09:28	07/23/18 18:55	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	88		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C5 PFPeA	88		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C2 PFHxA	76		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C4-PFHpA	86		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C4 PFOA	89		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C5 PFNA	92		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C2 PFDA	101		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C2 PFUnA	104		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C2 PFDoA	92		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C2-PFTeDA	82		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C3-PFBS	75		25 - 150	07/03/18 09:28	07/23/18 18:55	1
18O2 PFHxS	80		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C4 PFOS	82		25 - 150	07/03/18 09:28	07/23/18 18:55	1
13C8 FOSA	79		25 - 150	07/03/18 09:28	07/23/18 18:55	1
d3-NMeFOSAA	97		25 - 150	07/03/18 09:28	07/23/18 18:55	1
d5-NEtFOSAA	93		25 - 150	07/03/18 09:28	07/23/18 18:55	1
M2-6:2FTS	93		25 - 150	07/03/18 09:28	07/23/18 18:55	1
M2-8:2FTS	102		25 - 150	07/03/18 09:28	07/23/18 18:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.0		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	93.0		0.1	0.1	%			07/02/18 17:10	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-10-WT

Lab Sample ID: 200-44098-29

Date Collected: 06/27/18 11:20

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 80.5

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluoropentanoic acid (PFPeA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorohexanoic acid (PFHxA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorooctanoic acid (PFOA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.61	0.61	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.25	0.25	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.5	2.5	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.5	2.5	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
6:2 FTS	ND		2.5	2.5	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1
8:2 FTS	ND		2.5	2.5	ug/Kg	☼	07/03/18 09:28	07/23/18 19:18	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	91		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C5 PFPeA	90		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C2 PFHxA	99		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C4-PFHpA	91		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C4 PFOA	91		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C5 PFNA	92		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C2 PFDA	96		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C2 PFUnA	95		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C2 PFDoA	88		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C2-PFTeDA	85		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C3-PFBS	84		25 - 150	07/03/18 09:28	07/23/18 19:18	1
18O2 PFHxS	91		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C4 PFOS	88		25 - 150	07/03/18 09:28	07/23/18 19:18	1
13C8 FOSA	82		25 - 150	07/03/18 09:28	07/23/18 19:18	1
d3-NMeFOSAA	76		25 - 150	07/03/18 09:28	07/23/18 19:18	1
d5-NEtFOSAA	91		25 - 150	07/03/18 09:28	07/23/18 19:18	1
M2-6:2FTS	97		25 - 150	07/03/18 09:28	07/23/18 19:18	1
M2-8:2FTS	99		25 - 150	07/03/18 09:28	07/23/18 19:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19.5		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	80.5		0.1	0.1	%			07/02/18 17:10	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-10-TOC

Date Collected: 06/27/18 11:21
 Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-30

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1300		1000	380	mg/Kg			07/02/18 12:58	1

Client Sample ID: R-SB-11-S

Date Collected: 06/27/18 13:20
 Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-31

Matrix: Solid
 Percent Solids: 88.9

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluoropentanoic acid (PFPeA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorohexanoic acid (PFHxA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.56	0.56	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.22	0.22	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.2	2.2	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.2	2.2	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
6:2 FTS	ND		2.2	2.2	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1
8:2 FTS	ND		2.2	2.2	ug/Kg	☼	07/03/18 09:28	07/23/18 19:26	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	86		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C5 PFPeA	89		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C2 PFHxA	73		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C4-PFHpA	86		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C4 PFOA	93		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C5 PFNA	94		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C2 PFDA	101		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C2 PFUnA	99		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C2 PFDoA	91		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C2-PFTeDA	76		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C3-PFBS	80		25 - 150	07/03/18 09:28	07/23/18 19:26	1
18O2 PFHxS	88		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C4 PFOS	86		25 - 150	07/03/18 09:28	07/23/18 19:26	1
13C8 FOSA	71		25 - 150	07/03/18 09:28	07/23/18 19:26	1
d3-NMeFOSAA	115		25 - 150	07/03/18 09:28	07/23/18 19:26	1
d5-NEtFOSAA	98		25 - 150	07/03/18 09:28	07/23/18 19:26	1
M2-6:2FTS	116		25 - 150	07/03/18 09:28	07/23/18 19:26	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: R-SB-11-S

Date Collected: 06/27/18 13:20

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-31

Matrix: Solid

Percent Solids: 88.9

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2FTS	126		25 - 150	07/03/18 09:28	07/23/18 19:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	11.1		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	88.9		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: R-SB-11-WT

Date Collected: 06/27/18 13:25

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-32

Matrix: Solid

Percent Solids: 88.5

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluoropentanoic acid (PFPeA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.56	0.56	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.23	0.23	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.3	2.3	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.3	2.3	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
6:2 FTS	ND		2.3	2.3	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1
8:2 FTS	ND		2.3	2.3	ug/Kg	☼	07/03/18 09:28	07/23/18 19:34	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	90		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C5 PFPeA	91		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C2 PFHxA	96		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C4-PFHpA	89		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C4 PFOA	92		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C5 PFNA	94		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C2 PFDA	97		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C2 PFUnA	95		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C2 PFDoA	88		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C2-PFTeDA	84		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C3-PFBS	64		25 - 150	07/03/18 09:28	07/23/18 19:34	1
18O2 PFHxS	66		25 - 150	07/03/18 09:28	07/23/18 19:34	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: R-SB-11-WT

Date Collected: 06/27/18 13:25

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-32

Matrix: Solid

Percent Solids: 88.5

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	67		25 - 150	07/03/18 09:28	07/23/18 19:34	1
13C8 FOSA	82		25 - 150	07/03/18 09:28	07/23/18 19:34	1
d3-NMeFOSAA	78		25 - 150	07/03/18 09:28	07/23/18 19:34	1
d5-NEtFOSAA	87		25 - 150	07/03/18 09:28	07/23/18 19:34	1
M2-6:2FTS	62		25 - 150	07/03/18 09:28	07/23/18 19:34	1
M2-8:2FTS	70		25 - 150	07/03/18 09:28	07/23/18 19:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	11.5		0.1	0.1	%			07/02/18 17:10	1
Percent Solids	88.5		0.1	0.1	%			07/02/18 17:10	1

Client Sample ID: R-SB-11-TOC

Date Collected: 06/27/18 13:26

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-33

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	6400		1000	380	mg/Kg			07/02/18 13:05	1

Isotope Dilution Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
200-44098-3	F-SB-6-S	65	71	65	83	88	80	83	75
200-44098-3 MS	F-SB-6-S	64	68	62	79	90	80	84	86
200-44098-3 MSD	F-SB-6-S	61	64	59	75	83	75	79	74
200-44098-4	F-SB-6-WT	75	76	79	85	86	83	84	84
200-44098-6	B-SB-7-S	68	76	85	85	81	78	78	83
200-44098-7	B-SB-7-4FT	51	63	50	70	74	74	71	74
200-44098-8	B-SB-7-6FT	85	85	97	97	95	88	91	93
200-44098-9	B-SB-7-WT	83	82	95	91	90	82	84	80
200-44098-13	B-SB-7-TOR	81	81	88	94	89	87	89	94
200-44098-15	B-SB-8-S	72	78	67	89	87	81	87	91
200-44098-15 - DL	B-SB-8-S								
200-44098-17	B-SB-8-WT	82	81	95	91	93	84	85	88
200-44098-18	B-SB-9-S	68	74	70	86	84	84	88	88
200-44098-18 - DL	B-SB-9-S								
200-44098-19	B-SB-9-WT	79	75	89	90	83	84	84	82
200-44098-26	DUP-1	63	66	64	80	80	77	79	77
200-44098-27	DUP-2	85	84	90	85	85	85	84	82
200-44098-28	B-SB-10-S	88	88	76	86	89	92	101	104
200-44098-28 MS	B-SB-10-S	91	93	79	91	96	96	104	98
200-44098-28 MSD	B-SB-10-S	93	93	79	86	95	96	104	103
200-44098-29	B-SB-10-WT	91	90	99	91	91	92	96	95
200-44098-31	R-SB-11-S	86	89	73	86	93	94	101	99
200-44098-32	R-SB-11-WT	90	91	96	89	92	94	97	95
LCS 320-232219/2-A	Lab Control Sample	78	79	85	89	85	82	83	89
LCS 320-232255/2-A	Lab Control Sample	87	90	86	87	89	88	91	86
MB 320-232219/1-A	Method Blank	78	80	85	88	88	84	86	80
MB 320-232255/1-A	Method Blank	86	89	86	88	95	88	90	93

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDaA (25-150)	PFTDA (25-150)	3C3-PFBs (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	NMeFOS/ (25-150)	NEtFOS/ (25-150)
200-44098-3	F-SB-6-S	64	58	72	78	71	51	85	80
200-44098-3 MS	F-SB-6-S	72	66	71	79	74	56	95	91
200-44098-3 MSD	F-SB-6-S	65	62	66	76	71	51	85	75
200-44098-4	F-SB-6-WT	80	79	74	81	78	67	84	92
200-44098-6	B-SB-7-S	70	78	43	45	43	42	71	75
200-44098-7	B-SB-7-4FT	59	57	64	75	67	49	89	84
200-44098-8	B-SB-7-6FT	84	77	86	95	88	76	84	90
200-44098-9	B-SB-7-WT	77	77	81	92	84	65	77	88
200-44098-13	B-SB-7-TOR	84	87	53	61	59	58	90	94
200-44098-15	B-SB-8-S	77	72	75	84	74	63	110	108
200-44098-15 - DL	B-SB-8-S								
200-44098-17	B-SB-8-WT	75	80	80	88	82	62	75	84
200-44098-18	B-SB-9-S	74	63	70	75	70	59	106	112
200-44098-18 - DL	B-SB-9-S								
200-44098-19	B-SB-9-WT	73	71	77	88	82	69	77	88
200-44098-26	DUP-1	62	60	69	76	71	57	79	78
200-44098-27	DUP-2	73	73	78	80	75	71	68	75
200-44098-28	B-SB-10-S	92	82	75	80	82	79	97	93
200-44098-28 MS	B-SB-10-S	93	81	86	89	89	81	96	90

TestAmerica Burlington

Isotope Dilution Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	3C3-PFB: (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	-NMeFOS: (25-150)	-NEtFOS: (25-150)
200-44098-28 MSD	B-SB-10-S	95	77	79	87	89	79	101	101
200-44098-29	B-SB-10-WT	88	85	84	91	88	82	76	91
200-44098-31	R-SB-11-S	91	76	80	88	86	71	115	98
200-44098-32	R-SB-11-WT	88	84	64	66	67	82	78	87
LCS 320-232219/2-A	Lab Control Sample	81	84	78	84	82	68	86	91
LCS 320-232255/2-A	Lab Control Sample	86	83	84	90	86	78	77	81
MB 320-232219/1-A	Method Blank	77	85	78	89	82	67	82	88
MB 320-232255/1-A	Method Blank	84	84	85	88	87	84	83	86

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)
200-44098-3	F-SB-6-S	235 *	174 *
200-44098-3 MS	F-SB-6-S	255 *	196 *
200-44098-3 MSD	F-SB-6-S	223 *	165 *
200-44098-4	F-SB-6-WT	74	79
200-44098-6	B-SB-7-S	39	36
200-44098-7	B-SB-7-4FT	269 *	201 *
200-44098-8	B-SB-7-6FT	87	81
200-44098-9	B-SB-7-WT	87	75
200-44098-13	B-SB-7-TOR	50	47
200-44098-15	B-SB-8-S		
200-44098-15 - DL	B-SB-8-S	94	100
200-44098-17	B-SB-8-WT	96	89
200-44098-18	B-SB-9-S		
200-44098-18 - DL	B-SB-9-S	102	96
200-44098-19	B-SB-9-WT	90	92
200-44098-26	DUP-1	233 *	179 *
200-44098-27	DUP-2	82	82
200-44098-28	B-SB-10-S	93	102
200-44098-28 MS	B-SB-10-S	102	119
200-44098-28 MSD	B-SB-10-S	111	119
200-44098-29	B-SB-10-WT	97	99
200-44098-31	R-SB-11-S	116	126
200-44098-32	R-SB-11-WT	62	70
LCS 320-232219/2-A	Lab Control Sample	80	74
LCS 320-232255/2-A	Lab Control Sample	86	100
MB 320-232219/1-A	Method Blank	87	72
MB 320-232255/1-A	Method Blank	92	96

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- PFHpA = 13C4-PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA

Isotope Dilution Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

PFTDA = 13C2-PFTeDA
 13C3-PFBS = 13C3-PFBS
 PFHxS = 18O2 PFHxS
 PFOS = 13C4 PFOS
 PFOSA = 13C8 FOSA
 d3-NMeFOSAA = d3-NMeFOSAA
 d5-NEtFOSAA = d5-NEtFOSAA
 M262FTS = M2-6:2FTS
 M282FTS = M2-8:2FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
200-44098-1	WASH-DW	52	69	76	91	92	89	85	84
200-44098-2	EQUIP BLANK-1	92	92	96	96	98	99	100	104
200-44098-11	FB-SB-6	92	91	96	96	95	97	99	96
200-44098-12	FB-SB-7	94	95	102	106	98	96	99	105
200-44098-21	FB-SB-8	95	94	96	98	95	97	99	103
200-44098-22	FB-SB-9	96	96	102	100	100	99	104	103
200-44098-23	FB-SB-10	94	94	99	98	101	98	104	100
200-44098-25	EQUIP BLANK-2	94	94	103	99	100	99	111	113
LCS 320-232919/2-A	Lab Control Sample	95	92	98	103	99	100	99	104
LCSD 320-232919/3-A	Lab Control Sample Dup	94	91	98	104	104	96	98	100
MB 320-232919/1-A	Method Blank	105	103	110	107	112	106	115	121

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDaA (25-150)	PFTDA (25-150)	3C3-PFB (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	-NMeFOS (25-150)	-NEtFOS (25-150)
200-44098-1	WASH-DW	71	67	77	85	81	76	78	80
200-44098-2	EQUIP BLANK-1	102	106	87	91	92	88	103	105
200-44098-11	FB-SB-6	96	99	87	93	91	89	97	100
200-44098-12	FB-SB-7	98	101	93	93	95	92	106	109
200-44098-21	FB-SB-8	94	93	91	97	94	90	98	107
200-44098-22	FB-SB-9	100	103	93	97	94	90	100	104
200-44098-23	FB-SB-10	95	99	92	97	95	91	101	105
200-44098-25	EQUIP BLANK-2	107	116	94	94	95	92	101	115
LCS 320-232919/2-A	Lab Control Sample	96	106	93	95	95	91	100	110
LCSD 320-232919/3-A	Lab Control Sample Dup	96	94	89	93	95	87	100	101
MB 320-232919/1-A	Method Blank	110	123	101	103	105	103	114	121

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)	
		M262FTS (25-150)	M282FTS (25-150)
200-44098-1	WASH-DW	113	79
200-44098-2	EQUIP BLANK-1	92	92
200-44098-11	FB-SB-6	87	85
200-44098-12	FB-SB-7	94	91
200-44098-21	FB-SB-8	96	84
200-44098-22	FB-SB-9	98	86
200-44098-23	FB-SB-10	92	88
200-44098-25	EQUIP BLANK-2	93	94
LCS 320-232919/2-A	Lab Control Sample	91	88
LCSD 320-232919/3-A	Lab Control Sample Dup	93	83

TestAmerica Burlington

Isotope Dilution Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M262FTS	M282FTS
		(25-150)	(25-150)
MB 320-232919/1-A	Method Blank	102	102

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
PFHpA = 13C4-PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDaA = 13C2 PFDaA
PFTDA = 13C2-PFTeDA
13C3-PFBS = 13C3-PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2FTS
M282FTS = M2-8:2FTS

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-232219/1-A
Matrix: Solid
Analysis Batch: 234583

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 232219

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.50	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.20	0.20	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.0	2.0	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.0	2.0	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
6:2 FTS	ND		2.0	2.0	ug/Kg		07/03/18 08:22	07/17/18 19:39	1
8:2 FTS	ND		2.0	2.0	ug/Kg		07/03/18 08:22	07/17/18 19:39	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	78		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C5 PFPeA	80		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C2 PFHxA	85		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C4-PFHpA	88		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C4 PFOA	88		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C5 PFNA	84		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C2 PFDA	86		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C2 PFUnA	80		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C2 PFDoA	77		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C2-PFTeDA	85		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C3-PFBS	78		25 - 150	07/03/18 08:22	07/17/18 19:39	1
18O2 PFHxS	89		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C4 PFOS	82		25 - 150	07/03/18 08:22	07/17/18 19:39	1
13C8 FOSA	67		25 - 150	07/03/18 08:22	07/17/18 19:39	1
d3-NMeFOSAA	82		25 - 150	07/03/18 08:22	07/17/18 19:39	1
d5-NEtFOSAA	88		25 - 150	07/03/18 08:22	07/17/18 19:39	1
M2-6:2FTS	87		25 - 150	07/03/18 08:22	07/17/18 19:39	1
M2-8:2FTS	72		25 - 150	07/03/18 08:22	07/17/18 19:39	1

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-232219/2-A
Matrix: Solid
Analysis Batch: 234583

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 232219

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	2.00	1.86		ug/Kg		93	81 - 133
Perfluoropentanoic acid (PFPeA)	2.00	1.80		ug/Kg		90	79 - 120
Perfluorohexanoic acid (PFHxA)	2.00	1.84		ug/Kg		92	75 - 125
Perfluoroheptanoic acid (PFHpA)	2.00	1.78		ug/Kg		89	76 - 124
Perfluorooctanoic acid (PFOA)	2.00	1.80		ug/Kg		90	76 - 121
Perfluorononanoic acid (PFNA)	2.00	1.89		ug/Kg		94	74 - 126
Perfluorodecanoic acid (PFDA)	2.00	1.89		ug/Kg		95	74 - 124
Perfluoroundecanoic acid (PFUnA)	2.00	1.71		ug/Kg		86	74 - 114
Perfluorododecanoic acid (PFDoA)	2.00	1.95		ug/Kg		98	75 - 123
Perfluorotridecanoic Acid (PFTriA)	2.00	2.01		ug/Kg		100	43 - 116
Perfluorotetradecanoic acid (PFTeA)	2.00	1.91		ug/Kg		96	22 - 129
Perfluorobutanesulfonic acid (PFBS)	1.77	1.69		ug/Kg		96	73 - 142
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.62		ug/Kg		89	75 - 121
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	1.86		ug/Kg		98	78 - 146
Perfluorooctanesulfonic acid (PFOS)	1.86	1.82		ug/Kg		98	69 - 131
Perfluorodecanesulfonic acid (PFDS)	1.93	1.71		ug/Kg		89	54 - 113
Perfluorooctane Sulfonamide (FOSA)	2.00	2.02		ug/Kg		101	62 - 135
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	2.00	ND		ug/Kg		91	65 - 135
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	2.00	ND		ug/Kg		88	65 - 135
6:2 FTS	1.90	ND		ug/Kg		100	65 - 135
8:2 FTS	1.92	ND		ug/Kg		89	65 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	78		25 - 150
13C5 PFPeA	79		25 - 150
13C2 PFHxA	85		25 - 150
13C4-PFHpA	89		25 - 150
13C4 PFOA	85		25 - 150
13C5 PFNA	82		25 - 150
13C2 PFDA	83		25 - 150
13C2 PFUnA	89		25 - 150
13C2 PFDoA	81		25 - 150
13C2-PFTeDA	84		25 - 150
13C3-PFBS	78		25 - 150
18O2 PFHxS	84		25 - 150
13C4 PFOS	82		25 - 150
13C8 FOSA	68		25 - 150

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-232219/2-A
Matrix: Solid
Analysis Batch: 234583

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 232219

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
d3-NMeFOSAA	86		25 - 150
d5-NEtFOSAA	91		25 - 150
M2-6:2FTS	80		25 - 150
M2-8:2FTS	74		25 - 150

Lab Sample ID: 200-44098-3 MS
Matrix: Solid
Analysis Batch: 234583

Client Sample ID: F-SB-6-S
Prep Type: Total/NA
Prep Batch: 232219

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	0.32		2.18	2.90		ug/Kg	☼	118	81 - 133
Perfluoropentanoic acid (PFPeA)	0.74		2.18	2.83		ug/Kg	☼	96	79 - 120
Perfluorohexanoic acid (PFHxA)	0.62		2.18	2.79		ug/Kg	☼	99	75 - 125
Perfluoroheptanoic acid (PFHpA)	0.63		2.18	2.78		ug/Kg	☼	98	76 - 124
Perfluorooctanoic acid (PFOA)	1.2		2.19	3.14		ug/Kg	☼	89	76 - 121
Perfluorononanoic acid (PFNA)	2.0		2.18	4.26		ug/Kg	☼	101	74 - 126
Perfluorodecanoic acid (PFDA)	0.52		2.18	2.48		ug/Kg	☼	90	74 - 124
Perfluoroundecanoic acid (PFUnA)	ND		2.18	2.43		ug/Kg	☼	111	74 - 114
Perfluorododecanoic acid (PFDoA)	ND		2.18	2.06		ug/Kg	☼	94	75 - 123
Perfluorotridecanoic Acid (PFTriA)	ND		2.18	1.95		ug/Kg	☼	89	43 - 116
Perfluorotetradecanoic acid (PFTeA)	ND		2.18	2.10		ug/Kg	☼	96	22 - 129
Perfluorobutanesulfonic acid (PFBS)	ND		1.93	1.96		ug/Kg	☼	101	73 - 142
Perfluorohexanesulfonic acid (PFHxS)	0.33		1.99	2.15		ug/Kg	☼	91	75 - 121
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.08	2.14		ug/Kg	☼	103	78 - 146
Perfluorooctanesulfonic acid (PFOS)	17		2.03	19.8	4	ug/Kg	☼	118	69 - 131
Perfluorodecanesulfonic acid (PFDS)	ND		2.10	1.96		ug/Kg	☼	93	54 - 113
Perfluorooctane Sulfonamide (FOSA)	ND		2.18	2.15		ug/Kg	☼	99	62 - 135
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	F1	2.18	ND		ug/Kg	☼	NC	65 - 135
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	F1	2.18	ND		ug/Kg	☼	NC	65 - 135
6:2 FTS	3.8	F1	2.07	5.11	F1	ug/Kg	☼	62	65 - 135
8:2 FTS	9.6		2.09	9.60	4	ug/Kg	☼	1	65 - 135

<i>Isotope Dilution</i>	<i>MS %Recovery</i>	<i>MS Qualifier</i>	<i>Limits</i>
13C4 PFBA	64		25 - 150
13C5 PFPeA	68		25 - 150
13C2 PFHxA	62		25 - 150
13C4-PFHpA	79		25 - 150
13C4 PFOA	90		25 - 150

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 200-44098-3 MS
Matrix: Solid
Analysis Batch: 234583

Client Sample ID: F-SB-6-S
Prep Type: Total/NA
Prep Batch: 232219

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
13C5 PFNA	80		25 - 150
13C2 PFDA	84		25 - 150
13C2 PFUnA	86		25 - 150
13C2 PFDoA	72		25 - 150
13C2-PFTeDA	66		25 - 150
13C3-PFBS	71		25 - 150
18O2 PFHxS	79		25 - 150
13C4 PFOS	74		25 - 150
13C8 FOSA	56		25 - 150
d3-NMeFOSAA	95		25 - 150
d5-NEtFOSAA	91		25 - 150
M2-6:2FTS	255	*	25 - 150
M2-8:2FTS	196	*	25 - 150

Lab Sample ID: 200-44098-3 MSD
Matrix: Solid
Analysis Batch: 234583

Client Sample ID: F-SB-6-S
Prep Type: Total/NA
Prep Batch: 232219

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	0.32		2.20	2.90		ug/Kg	☼	117	81 - 133	0	30
Perfluoropentanoic acid (PFPeA)	0.74		2.20	2.82		ug/Kg	☼	94	79 - 120	1	30
Perfluorohexanoic acid (PFHxA)	0.62		2.20	2.80		ug/Kg	☼	99	75 - 125	0	30
Perfluoroheptanoic acid (PFHpA)	0.63		2.20	2.58		ug/Kg	☼	88	76 - 124	8	30
Perfluorooctanoic acid (PFOA)	1.2		2.20	3.16		ug/Kg	☼	89	76 - 121	1	30
Perfluorononanoic acid (PFNA)	2.0		2.20	4.02		ug/Kg	☼	90	74 - 126	6	30
Perfluorodecanoic acid (PFDA)	0.52		2.20	2.53		ug/Kg	☼	91	74 - 124	2	30
Perfluoroundecanoic acid (PFUnA)	ND		2.20	2.45		ug/Kg	☼	111	74 - 114	1	30
Perfluorododecanoic acid (PFDoA)	ND		2.20	2.11		ug/Kg	☼	96	75 - 123	2	30
Perfluorotridecanoic Acid (PFTriA)	ND		2.20	1.90		ug/Kg	☼	86	43 - 116	3	30
Perfluorotetradecanoic acid (PFTeA)	ND		2.20	2.09		ug/Kg	☼	95	22 - 129	1	30
Perfluorobutanesulfonic acid (PFBS)	ND		1.95	1.91		ug/Kg	☼	98	73 - 142	2	30
Perfluorohexanesulfonic acid (PFHxS)	0.33		2.00	2.05		ug/Kg	☼	86	75 - 121	5	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.09	2.03		ug/Kg	☼	97	78 - 146	6	30
Perfluorooctanesulfonic acid (PFOS)	17		2.04	18.8	4	ug/Kg	☼	69	69 - 131	5	30
Perfluorodecanesulfonic acid (PFDS)	ND		2.12	1.75		ug/Kg	☼	82	54 - 113	12	30
Perfluorooctane Sulfonamide (FOSA)	ND		2.20	2.18		ug/Kg	☼	99	62 - 135	1	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	F1	2.20	ND	F1	ug/Kg	☼	0	65 - 135	NC	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	F1	2.20	ND	F1	ug/Kg	☼	0	65 - 135	NC	30

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 200-44098-3 MSD
Matrix: Solid
Analysis Batch: 234583

Client Sample ID: F-SB-6-S
Prep Type: Total/NA
Prep Batch: 232219

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
6:2 FTS	3.8	F1	2.09	4.90	F1	ug/Kg	☼	51	65 - 135	4	30
8:2 FTS	9.6		2.11	10.2	4	ug/Kg	☼	32	65 - 135	7	30
		MSD %Recovery	MSD Qualifier								
Isotope Dilution			Limits								
13C4 PFBA	61		25 - 150								
13C5 PFPeA	64		25 - 150								
13C2 PFHxA	59		25 - 150								
13C4-PFHpA	75		25 - 150								
13C4 PFOA	83		25 - 150								
13C5 PFNA	75		25 - 150								
13C2 PFDA	79		25 - 150								
13C2 PFUnA	74		25 - 150								
13C2 PFDoA	65		25 - 150								
13C2-PFTeDA	62		25 - 150								
13C3-PFBS	66		25 - 150								
18O2 PFHxS	76		25 - 150								
13C4 PFOS	71		25 - 150								
13C8 FOSA	51		25 - 150								
d3-NMeFOSAA	85		25 - 150								
d5-NEtFOSAA	75		25 - 150								
M2-6:2FTS	223	*	25 - 150								
M2-8:2FTS	165	*	25 - 150								

Lab Sample ID: MB 320-232255/1-A
Matrix: Solid
Analysis Batch: 235750

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 232255

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.50	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.20	0.20	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		2.0	2.0	ug/Kg		07/03/18 09:28	07/23/18 18:31	1

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-232255/1-A
Matrix: Solid
Analysis Batch: 235750

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 232255

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		2.0	2.0	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
6:2 FTS	ND		2.0	2.0	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
8:2 FTS	ND		2.0	2.0	ug/Kg		07/03/18 09:28	07/23/18 18:31	1
Isotope Dilution	%Recovery	MB Qualifier	MB Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	86		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C5 PFPeA	89		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C2 PFHxA	86		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C4-PFHpA	88		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C4 PFOA	95		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C5 PFNA	88		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C2 PFDA	90		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C2 PFUnA	93		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C2 PFDoA	84		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C2-PFTeDA	84		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C3-PFBS	85		25 - 150				07/03/18 09:28	07/23/18 18:31	1
18O2 PFHxS	88		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C4 PFOS	87		25 - 150				07/03/18 09:28	07/23/18 18:31	1
13C8 FOSA	84		25 - 150				07/03/18 09:28	07/23/18 18:31	1
d3-NMeFOSAA	83		25 - 150				07/03/18 09:28	07/23/18 18:31	1
d5-NEtFOSAA	86		25 - 150				07/03/18 09:28	07/23/18 18:31	1
M2-6:2FTS	92		25 - 150				07/03/18 09:28	07/23/18 18:31	1
M2-8:2FTS	96		25 - 150				07/03/18 09:28	07/23/18 18:31	1

Lab Sample ID: LCS 320-232255/2-A
Matrix: Solid
Analysis Batch: 235750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 232255

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	2.00	1.84		ug/Kg		92	81 - 133
Perfluoropentanoic acid (PFPeA)	2.00	1.82		ug/Kg		91	79 - 120
Perfluorohexanoic acid (PFHxA)	2.00	1.91		ug/Kg		96	75 - 125
Perfluoroheptanoic acid (PFHpA)	2.00	1.94		ug/Kg		97	76 - 124
Perfluorooctanoic acid (PFOA)	2.00	1.83		ug/Kg		92	76 - 121
Perfluorononanoic acid (PFNA)	2.00	1.82		ug/Kg		91	74 - 126
Perfluorodecanoic acid (PFDA)	2.00	1.86		ug/Kg		93	74 - 124
Perfluoroundecanoic acid (PFUnA)	2.00	1.82		ug/Kg		91	74 - 114
Perfluorododecanoic acid (PFDoA)	2.00	1.82		ug/Kg		91	75 - 123
Perfluorotridecanoic Acid (PFTriA)	2.00	1.77		ug/Kg		89	43 - 116
Perfluorotetradecanoic acid (PFTeA)	2.00	1.98		ug/Kg		99	22 - 129
Perfluorobutanesulfonic acid (PFBS)	1.77	1.68		ug/Kg		95	73 - 142
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.52		ug/Kg		83	75 - 121

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-232255/2-A
Matrix: Solid
Analysis Batch: 235750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 232255

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	1.79		ug/Kg		94	78 - 146
Perfluorooctanesulfonic acid (PFOS)	1.86	1.82		ug/Kg		98	69 - 131
Perfluorodecanesulfonic acid (PFDS)	1.93	1.72		ug/Kg		89	54 - 113
Perfluorooctane Sulfonamide (FOSA)	2.00	1.85		ug/Kg		92	62 - 135
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	2.00	ND		ug/Kg		97	65 - 135
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	2.00	ND		ug/Kg		90	65 - 135
6:2 FTS	1.90	ND		ug/Kg		95	65 - 135
8:2 FTS	1.92	ND		ug/Kg		91	65 - 135

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	87		25 - 150
13C5 PFPeA	90		25 - 150
13C2 PFHxA	86		25 - 150
13C4-PFHpA	87		25 - 150
13C4 PFOA	89		25 - 150
13C5 PFNA	88		25 - 150
13C2 PFDA	91		25 - 150
13C2 PFUnA	86		25 - 150
13C2 PFDoA	86		25 - 150
13C2-PFTeDA	83		25 - 150
13C3-PFBS	84		25 - 150
18O2 PFHxS	90		25 - 150
13C4 PFOS	86		25 - 150
13C8 FOSA	78		25 - 150
d3-NMeFOSAA	77		25 - 150
d5-NEtFOSAA	81		25 - 150
M2-6:2FTS	86		25 - 150
M2-8:2FTS	100		25 - 150

Lab Sample ID: 200-44098-28 MS
Matrix: Solid
Analysis Batch: 235750

Client Sample ID: B-SB-10-S
Prep Type: Total/NA
Prep Batch: 232255

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	ND		2.15	2.27		ug/Kg	☼	106	81 - 133
Perfluoropentanoic acid (PFPeA)	0.33		2.15	2.30		ug/Kg	☼	92	79 - 120
Perfluorohexanoic acid (PFHxA)	0.37		2.15	2.30		ug/Kg	☼	90	75 - 125
Perfluoroheptanoic acid (PFHpA)	ND		2.15	2.27		ug/Kg	☼	106	76 - 124
Perfluorooctanoic acid (PFOA)	ND		2.15	2.06		ug/Kg	☼	96	76 - 121
Perfluorononanoic acid (PFNA)	ND		2.15	2.00		ug/Kg	☼	93	74 - 126
Perfluorodecanoic acid (PFDA)	ND		2.15	2.01		ug/Kg	☼	94	74 - 124

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 200-44098-28 MS

Matrix: Solid

Analysis Batch: 235750

Client Sample ID: B-SB-10-S

Prep Type: Total/NA

Prep Batch: 232255

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec. Limits
	Result	Qualifier	Added	Result	Qualifier				
Perfluoroundecanoic acid (PFUnA)	ND		2.15	1.82		ug/Kg	☼	85	74 - 114
Perfluorododecanoic acid (PFDoA)	ND		2.15	2.00		ug/Kg	☼	93	75 - 123
Perfluorotridecanoic Acid (PFTriA)	ND		2.15	1.81		ug/Kg	☼	84	43 - 116
Perfluorotetradecanoic acid (PFTeA)	ND		2.15	2.12		ug/Kg	☼	99	22 - 129
Perfluorobutanesulfonic acid (PFBS)	ND		1.90	1.75		ug/Kg	☼	92	73 - 142
Perfluorohexanesulfonic acid (PFHxS)	ND		1.95	1.73		ug/Kg	☼	88	75 - 121
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.04	1.85		ug/Kg	☼	91	78 - 146
Perfluorooctanesulfonic acid (PFOS)	ND		1.99	2.00		ug/Kg	☼	101	69 - 131
Perfluorodecanesulfonic acid (PFDS)	ND		2.07	1.66		ug/Kg	☼	80	54 - 113
Perfluorooctane Sulfonamide (FOSA)	ND		2.15	2.04		ug/Kg	☼	95	62 - 135
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	F1	2.15	ND	F1	ug/Kg	☼	0	65 - 135
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	F1	2.15	ND	F1	ug/Kg	☼	0	65 - 135
6:2 FTS	ND		2.03	ND		ug/Kg	☼	NC	65 - 135
8:2 FTS	ND		2.06	ND		ug/Kg	☼	NC	65 - 135
		MS MS							
Isotope Dilution		%Recovery	Qualifier	Limits					
13C4 PFBA		91		25 - 150					
13C5 PFPeA		93		25 - 150					
13C2 PFHxA		79		25 - 150					
13C4-PFHpA		91		25 - 150					
13C4 PFOA		96		25 - 150					
13C5 PFNA		96		25 - 150					
13C2 PFDA		104		25 - 150					
13C2 PFUnA		98		25 - 150					
13C2 PFDoA		93		25 - 150					
13C2-PFTeDA		81		25 - 150					
13C3-PFBS		86		25 - 150					
18O2 PFHxS		89		25 - 150					
13C4 PFOS		89		25 - 150					
13C8 FOSA		81		25 - 150					
d3-NMeFOSAA		96		25 - 150					
d5-NEtFOSAA		90		25 - 150					
M2-6:2FTS		102		25 - 150					
M2-8:2FTS		119		25 - 150					

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 200-44098-28 MSD

Matrix: Solid
Analysis Batch: 235750

Client Sample ID: B-SB-10-S

Prep Type: Total/NA
Prep Batch: 232255

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	ND		2.15	2.19		ug/Kg	☼	102	81 - 133	3	30
Perfluoropentanoic acid (PFPeA)	0.33		2.15	2.16		ug/Kg	☼	85	79 - 120	6	30
Perfluorohexanoic acid (PFHxA)	0.37		2.15	2.15		ug/Kg	☼	83	75 - 125	7	30
Perfluoroheptanoic acid (PFHpA)	ND		2.15	2.25		ug/Kg	☼	105	76 - 124	1	30
Perfluorooctanoic acid (PFOA)	ND		2.15	2.07		ug/Kg	☼	96	76 - 121	1	30
Perfluorononanoic acid (PFNA)	ND		2.15	1.97		ug/Kg	☼	92	74 - 126	1	30
Perfluorodecanoic acid (PFDA)	ND		2.15	2.06		ug/Kg	☼	96	74 - 124	3	30
Perfluoroundecanoic acid (PFUnA)	ND		2.15	1.88		ug/Kg	☼	87	74 - 114	3	30
Perfluorododecanoic acid (PFDoA)	ND		2.15	2.02		ug/Kg	☼	94	75 - 123	1	30
Perfluorotridecanoic Acid (PFTriA)	ND		2.15	1.71		ug/Kg	☼	79	43 - 116	6	30
Perfluorotetradecanoic acid (PFTeA)	ND		2.15	2.16		ug/Kg	☼	101	22 - 129	2	30
Perfluorobutanesulfonic acid (PFBS)	ND		1.90	1.84		ug/Kg	☼	97	73 - 142	5	30
Perfluorohexanesulfonic acid (PFHxS)	ND		1.96	1.69		ug/Kg	☼	86	75 - 121	2	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.05	1.80		ug/Kg	☼	88	78 - 146	3	30
Perfluorooctanesulfonic acid (PFOS)	ND		2.00	2.06		ug/Kg	☼	103	69 - 131	3	30
Perfluorodecanesulfonic acid (PFDS)	ND		2.07	1.76		ug/Kg	☼	85	54 - 113	6	30
Perfluorooctane Sulfonamide (FOSA)	ND		2.15	2.14		ug/Kg	☼	99	62 - 135	5	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	F1	2.15	2.10	F1	ug/Kg	☼	0	65 - 135	NC	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	F1	2.15	ND	F1	ug/Kg	☼	0	65 - 135	NC	30
6:2 FTS	ND		2.04	2.21		ug/Kg	☼	NC	65 - 135	NC	30
8:2 FTS	ND		2.06	ND		ug/Kg	☼	NC	65 - 135	NC	30

Isotope Dilution	MSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	93		25 - 150
13C5 PFPeA	93		25 - 150
13C2 PFHxA	79		25 - 150
13C4-PFHpA	86		25 - 150
13C4 PFOA	95		25 - 150
13C5 PFNA	96		25 - 150
13C2 PFDA	104		25 - 150
13C2 PFUnA	103		25 - 150
13C2 PFDoA	95		25 - 150
13C2-PFTeDA	77		25 - 150
13C3-PFBS	79		25 - 150
18O2 PFHxS	87		25 - 150
13C4 PFOS	89		25 - 150
13C8 FOSA	79		25 - 150

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 200-44098-28 MSD
Matrix: Solid
Analysis Batch: 235750

Client Sample ID: B-SB-10-S
Prep Type: Total/NA
Prep Batch: 232255

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MSD MSD Qualifier</i>	<i>Limits</i>
d3-NMeFOSAA	101		25 - 150
d5-NEtFOSAA	101		25 - 150
M2-6:2FTS	111		25 - 150
M2-8:2FTS	119		25 - 150

Lab Sample ID: MB 320-232919/1-A
Matrix: Water
Analysis Batch: 234268

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 232919

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorooctanoic acid (PFOA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorononanoic acid (PFNA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorodecanoic acid (PFDA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
Perfluorooctane Sulfonamide (FOSA)	ND		2.0	2.0	ng/L		07/09/18 06:43	07/15/18 17:25	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	20	ng/L		07/09/18 06:43	07/15/18 17:25	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	20	ng/L		07/09/18 06:43	07/15/18 17:25	1
4:2 FTS	ND		20	20	ng/L		07/09/18 06:43	07/15/18 17:25	1
6:2 FTS	ND		20	20	ng/L		07/09/18 06:43	07/15/18 17:25	1
8:2 FTS	ND		20	20	ng/L		07/09/18 06:43	07/15/18 17:25	1

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MB MB Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	105		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C5 PFPeA	103		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C2 PFHxA	110		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C4-PFHpA	107		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C4 PFOA	112		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C5 PFNA	106		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C2 PFDA	115		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C2 PFUnA	121		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C2 PFDoA	110		25 - 150	07/09/18 06:43	07/15/18 17:25	1

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-232919/1-A
Matrix: Water
Analysis Batch: 234268

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 232919

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2-PFTeDA	123		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C3-PFBS	101		25 - 150	07/09/18 06:43	07/15/18 17:25	1
18O2 PFHxS	103		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C4 PFOS	105		25 - 150	07/09/18 06:43	07/15/18 17:25	1
13C8 FOSA	103		25 - 150	07/09/18 06:43	07/15/18 17:25	1
d3-NMeFOSAA	114		25 - 150	07/09/18 06:43	07/15/18 17:25	1
d5-NEtFOSAA	121		25 - 150	07/09/18 06:43	07/15/18 17:25	1
M2-6:2FTS	102		25 - 150	07/09/18 06:43	07/15/18 17:25	1
M2-8:2FTS	102		25 - 150	07/09/18 06:43	07/15/18 17:25	1

Lab Sample ID: LCS 320-232919/2-A
Matrix: Water
Analysis Batch: 234268

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 232919

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	Limits
Perfluoropentanoic acid (PFPeA)	40.0	36.9		ng/L		92	66 - 126	
Perfluorohexanoic acid (PFHxA)	40.0	36.8		ng/L		92	66 - 126	
Perfluoroheptanoic acid (PFHpA)	40.0	36.1		ng/L		90	66 - 126	
Perfluorooctanoic acid (PFOA)	40.0	35.2		ng/L		88	64 - 124	
Perfluorononanoic acid (PFNA)	40.0	36.0		ng/L		90	68 - 128	
Perfluorodecanoic acid (PFDA)	40.0	35.8		ng/L		89	69 - 129	
Perfluoroundecanoic acid (PFUnA)	40.0	36.0		ng/L		90	60 - 120	
Perfluorododecanoic acid (PFDoA)	40.0	35.9		ng/L		90	71 - 131	
Perfluorotridecanoic Acid (PFTriA)	40.0	38.7		ng/L		97	72 - 132	
Perfluorotetradecanoic acid (PFTeA)	40.0	34.1		ng/L		85	68 - 128	
Perfluorobutanesulfonic acid (PFBS)	35.4	32.3		ng/L		91	73 - 133	
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.5		ng/L		94	70 - 130	
Perfluorohexanesulfonic acid (PFHxS)	36.4	31.6		ng/L		87	63 - 123	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	34.8		ng/L		92	68 - 128	
Perfluorooctanesulfonic acid (PFOS)	37.1	34.5		ng/L		93	67 - 127	
Perfluorononanesulfonic acid (PFNS)	38.4	34.6		ng/L		90	70 - 130	
Perfluorodecanesulfonic acid (PFDS)	38.6	35.8		ng/L		93	68 - 128	
Perfluorooctane Sulfonamide (FOSA)	40.0	36.2		ng/L		91	70 - 130	
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	37.9		ng/L		95	67 - 127	
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	33.8		ng/L		85	65 - 125	

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-232919/2-A
Matrix: Water
Analysis Batch: 234268

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 232919

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
4:2 FTS	37.4	35.5		ng/L		95	70 - 130
6:2 FTS	37.9	35.5		ng/L		94	66 - 126
8:2 FTS	38.3	35.2		ng/L		92	67 - 127

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	95		25 - 150
13C5 PFPeA	92		25 - 150
13C2 PFHxA	98		25 - 150
13C4-PFHpA	103		25 - 150
13C4 PFOA	99		25 - 150
13C5 PFNA	100		25 - 150
13C2 PFDA	99		25 - 150
13C2 PFUnA	104		25 - 150
13C2 PFDoA	96		25 - 150
13C2-PFTeDA	106		25 - 150
13C3-PFBS	93		25 - 150
18O2 PFHxS	95		25 - 150
13C4 PFOS	95		25 - 150
13C8 FOSA	91		25 - 150
d3-NMeFOSAA	100		25 - 150
d5-NEtFOSAA	110		25 - 150
M2-6:2FTS	91		25 - 150
M2-8:2FTS	88		25 - 150

Lab Sample ID: LCSD 320-232919/3-A
Matrix: Water
Analysis Batch: 234268

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 232919

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	38.1		ng/L		95	70 - 130	7	30
Perfluoropentanoic acid (PFPeA)	40.0	36.3		ng/L		91	66 - 126	1	30
Perfluorohexanoic acid (PFHxA)	40.0	37.8		ng/L		95	66 - 126	3	30
Perfluoroheptanoic acid (PFHpA)	40.0	35.5		ng/L		89	66 - 126	2	30
Perfluorooctanoic acid (PFOA)	40.0	34.7		ng/L		87	64 - 124	1	30
Perfluorononanoic acid (PFNA)	40.0	39.0		ng/L		98	68 - 128	8	30
Perfluorodecanoic acid (PFDA)	40.0	38.1		ng/L		95	69 - 129	6	30
Perfluoroundecanoic acid (PFUnA)	40.0	37.9		ng/L		95	60 - 120	5	30
Perfluorododecanoic acid (PFDoA)	40.0	36.8		ng/L		92	71 - 131	2	30
Perfluorotridecanoic Acid (PFTriA)	40.0	39.6		ng/L		99	72 - 132	2	30
Perfluorotetradecanoic acid (PFTeA)	40.0	39.3		ng/L		98	68 - 128	14	30
Perfluorobutanesulfonic acid (PFBS)	35.4	34.8		ng/L		98	73 - 133	7	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	37.7		ng/L		101	70 - 130	6	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.0		ng/L		93	63 - 123	7	30

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-232919/3-A
Matrix: Water
Analysis Batch: 234268

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 232919

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	35.8		ng/L		94	68 - 128	3	30
Perfluorooctanesulfonic acid (PFOS)	37.1	34.8		ng/L		94	67 - 127	1	30
Perfluorononanesulfonic acid (PFNS)	38.4	37.2		ng/L		97	70 - 130	7	30
Perfluorodecanesulfonic acid (PFDS)	38.6	34.3		ng/L		89	68 - 128	4	30
Perfluorooctane Sulfonamide (FOSA)	40.0	38.6		ng/L		96	70 - 130	6	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	37.1		ng/L		93	67 - 127	2	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	38.3		ng/L		96	65 - 125	12	30
4:2 FTS	37.4	39.1		ng/L		105	70 - 130	10	30
6:2 FTS	37.9	37.6		ng/L		99	66 - 126	6	30
8:2 FTS	38.3	36.8		ng/L		96	67 - 127	5	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	94		25 - 150
13C5 PFPeA	91		25 - 150
13C2 PFHxA	98		25 - 150
13C4-PFHpA	104		25 - 150
13C4 PFOA	104		25 - 150
13C5 PFNA	96		25 - 150
13C2 PFDA	98		25 - 150
13C2 PFUnA	100		25 - 150
13C2 PFDoA	96		25 - 150
13C2-PFTeDA	94		25 - 150
13C3-PFBS	89		25 - 150
18O2 PFHxS	93		25 - 150
13C4 PFOS	95		25 - 150
13C8 FOSA	87		25 - 150
d3-NMeFOSAA	100		25 - 150
d5-NEtFOSAA	101		25 - 150
M2-6:2FTS	93		25 - 150
M2-8:2FTS	83		25 - 150

Method: D 2216 - Percent Moisture

Lab Sample ID: 200-44098-3 DU
Matrix: Solid
Analysis Batch: 232151

Client Sample ID: F-SB-6-S
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	9.8		9.7		%		0.9	20
Percent Solids	90.2		90.3		%		0.1	20

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Method: Lloyd Kahn - Organic Carbon, Total (TOC)

Lab Sample ID: MB 200-131420/5
Matrix: Solid
Analysis Batch: 131420

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1000	380	mg/Kg			07/02/18 10:39	1

Lab Sample ID: LCS 200-131420/6
Matrix: Solid
Analysis Batch: 131420

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	9260	10600		mg/Kg		114	75 - 125



QC Association Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

LCMS

Prep Batch: 232219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-3	F-SB-6-S	Total/NA	Solid	SHAKE	
200-44098-4	F-SB-6-WT	Total/NA	Solid	SHAKE	
200-44098-6	B-SB-7-S	Total/NA	Solid	SHAKE	
200-44098-7	B-SB-7-4FT	Total/NA	Solid	SHAKE	
200-44098-8	B-SB-7-6FT	Total/NA	Solid	SHAKE	
200-44098-9	B-SB-7-WT	Total/NA	Solid	SHAKE	
200-44098-13	B-SB-7-TOR	Total/NA	Solid	SHAKE	
200-44098-15	B-SB-8-S	Total/NA	Solid	SHAKE	
200-44098-15 - DL	B-SB-8-S	Total/NA	Solid	SHAKE	
200-44098-17	B-SB-8-WT	Total/NA	Solid	SHAKE	
200-44098-18	B-SB-9-S	Total/NA	Solid	SHAKE	
200-44098-18 - DL	B-SB-9-S	Total/NA	Solid	SHAKE	
200-44098-19	B-SB-9-WT	Total/NA	Solid	SHAKE	
200-44098-26	DUP-1	Total/NA	Solid	SHAKE	
MB 320-232219/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-232219/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
200-44098-3 MS	F-SB-6-S	Total/NA	Solid	SHAKE	
200-44098-3 MSD	F-SB-6-S	Total/NA	Solid	SHAKE	

Prep Batch: 232255

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-27	DUP-2	Total/NA	Solid	SHAKE	
200-44098-28	B-SB-10-S	Total/NA	Solid	SHAKE	
200-44098-29	B-SB-10-WT	Total/NA	Solid	SHAKE	
200-44098-31	R-SB-11-S	Total/NA	Solid	SHAKE	
200-44098-32	R-SB-11-WT	Total/NA	Solid	SHAKE	
MB 320-232255/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-232255/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
200-44098-28 MS	B-SB-10-S	Total/NA	Solid	SHAKE	
200-44098-28 MSD	B-SB-10-S	Total/NA	Solid	SHAKE	

Prep Batch: 232919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-1	WASH-DW	Total/NA	Water	3535	
200-44098-2	EQUIP BLANK-1	Total/NA	Water	3535	
200-44098-11	FB-SB-6	Total/NA	Water	3535	
200-44098-12	FB-SB-7	Total/NA	Water	3535	
200-44098-21	FB-SB-8	Total/NA	Water	3535	
200-44098-22	FB-SB-9	Total/NA	Water	3535	
200-44098-23	FB-SB-10	Total/NA	Water	3535	
200-44098-25	EQUIP BLANK-2	Total/NA	Water	3535	
MB 320-232919/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-232919/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-232919/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 234268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-1	WASH-DW	Total/NA	Water	537 (modified)	232919
200-44098-2	EQUIP BLANK-1	Total/NA	Water	537 (modified)	232919
200-44098-11	FB-SB-6	Total/NA	Water	537 (modified)	232919
200-44098-12	FB-SB-7	Total/NA	Water	537 (modified)	232919

TestAmerica Burlington

QC Association Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

LCMS (Continued)

Analysis Batch: 234268 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-21	FB-SB-8	Total/NA	Water	537 (modified)	232919
200-44098-22	FB-SB-9	Total/NA	Water	537 (modified)	232919
200-44098-23	FB-SB-10	Total/NA	Water	537 (modified)	232919
200-44098-25	EQUIP BLANK-2	Total/NA	Water	537 (modified)	232919
MB 320-232919/1-A	Method Blank	Total/NA	Water	537 (modified)	232919
LCS 320-232919/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	232919
LCS 320-232919/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	232919

Analysis Batch: 234583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-3	F-SB-6-S	Total/NA	Solid	537 (modified)	232219
200-44098-4	F-SB-6-WT	Total/NA	Solid	537 (modified)	232219
200-44098-6	B-SB-7-S	Total/NA	Solid	537 (modified)	232219
200-44098-7	B-SB-7-4FT	Total/NA	Solid	537 (modified)	232219
200-44098-8	B-SB-7-6FT	Total/NA	Solid	537 (modified)	232219
200-44098-9	B-SB-7-WT	Total/NA	Solid	537 (modified)	232219
200-44098-13	B-SB-7-TOR	Total/NA	Solid	537 (modified)	232219
MB 320-232219/1-A	Method Blank	Total/NA	Solid	537 (modified)	232219
LCS 320-232219/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	232219
200-44098-3 MS	F-SB-6-S	Total/NA	Solid	537 (modified)	232219
200-44098-3 MSD	F-SB-6-S	Total/NA	Solid	537 (modified)	232219

Analysis Batch: 234588

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-15	B-SB-8-S	Total/NA	Solid	537 (modified)	232219
200-44098-17	B-SB-8-WT	Total/NA	Solid	537 (modified)	232219
200-44098-18	B-SB-9-S	Total/NA	Solid	537 (modified)	232219
200-44098-19	B-SB-9-WT	Total/NA	Solid	537 (modified)	232219
200-44098-26	DUP-1	Total/NA	Solid	537 (modified)	232219

Analysis Batch: 234846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-15 - DL	B-SB-8-S	Total/NA	Solid	537 (modified)	232219
200-44098-18 - DL	B-SB-9-S	Total/NA	Solid	537 (modified)	232219

Analysis Batch: 235750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-27	DUP-2	Total/NA	Solid	537 (modified)	232255
200-44098-28	B-SB-10-S	Total/NA	Solid	537 (modified)	232255
200-44098-29	B-SB-10-WT	Total/NA	Solid	537 (modified)	232255
200-44098-31	R-SB-11-S	Total/NA	Solid	537 (modified)	232255
200-44098-32	R-SB-11-WT	Total/NA	Solid	537 (modified)	232255
MB 320-232255/1-A	Method Blank	Total/NA	Solid	537 (modified)	232255
LCS 320-232255/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	232255
200-44098-28 MS	B-SB-10-S	Total/NA	Solid	537 (modified)	232255
200-44098-28 MSD	B-SB-10-S	Total/NA	Solid	537 (modified)	232255

QC Association Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

General Chemistry

Analysis Batch: 131420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-5	F-SB-6-TOC	Total/NA	Solid	Lloyd Kahn	
200-44098-10	B-SB-7-TOC	Total/NA	Solid	Lloyd Kahn	
200-44098-16	B-SB-8-TOC	Total/NA	Solid	Lloyd Kahn	
200-44098-20	B-SB-9-TOC	Total/NA	Solid	Lloyd Kahn	
200-44098-30	B-SB-10-TOC	Total/NA	Solid	Lloyd Kahn	
200-44098-33	R-SB-11-TOC	Total/NA	Solid	Lloyd Kahn	
MB 200-131420/5	Method Blank	Total/NA	Solid	Lloyd Kahn	
LCS 200-131420/6	Lab Control Sample	Total/NA	Solid	Lloyd Kahn	

Analysis Batch: 232151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-3	F-SB-6-S	Total/NA	Solid	D 2216	
200-44098-4	F-SB-6-WT	Total/NA	Solid	D 2216	
200-44098-6	B-SB-7-S	Total/NA	Solid	D 2216	
200-44098-7	B-SB-7-4FT	Total/NA	Solid	D 2216	
200-44098-8	B-SB-7-6FT	Total/NA	Solid	D 2216	
200-44098-9	B-SB-7-WT	Total/NA	Solid	D 2216	
200-44098-13	B-SB-7-TOR	Total/NA	Solid	D 2216	
200-44098-15	B-SB-8-S	Total/NA	Solid	D 2216	
200-44098-17	B-SB-8-WT	Total/NA	Solid	D 2216	
200-44098-18	B-SB-9-S	Total/NA	Solid	D 2216	
200-44098-19	B-SB-9-WT	Total/NA	Solid	D 2216	
200-44098-26	DUP-1	Total/NA	Solid	D 2216	
200-44098-27	DUP-2	Total/NA	Solid	D 2216	
200-44098-28	B-SB-10-S	Total/NA	Solid	D 2216	
200-44098-29	B-SB-10-WT	Total/NA	Solid	D 2216	
200-44098-31	R-SB-11-S	Total/NA	Solid	D 2216	
200-44098-32	R-SB-11-WT	Total/NA	Solid	D 2216	
200-44098-3 DU	F-SB-6-S	Total/NA	Solid	D 2216	

Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: WASH-DW

Date Collected: 06/26/18 07:40

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			232919	07/09/18 06:43	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	234268	07/15/18 19:14	S1M	TAL SAC

Client Sample ID: EQUIP BLANK-1

Date Collected: 06/26/18 10:15

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			232919	07/09/18 06:43	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	234268	07/15/18 19:22	S1M	TAL SAC

Client Sample ID: F-SB-6-S

Date Collected: 06/26/18 12:10

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: F-SB-6-S

Date Collected: 06/26/18 12:10

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-3

Matrix: Solid

Percent Solids: 90.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234583	07/17/18 20:50	CBW	TAL SAC

Client Sample ID: F-SB-6-WT

Date Collected: 06/26/18 12:40

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: F-SB-6-WT

Date Collected: 06/26/18 12:40

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-4

Matrix: Solid

Percent Solids: 75.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234583	07/17/18 21:21	CBW	TAL SAC

Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: F-SB-6-TOC

Lab Sample ID: 200-44098-5

Date Collected: 06/26/18 12:41

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	131420	07/02/18 12:20	MJZ	TAL BUR

Client Sample ID: B-SB-7-S

Lab Sample ID: 200-44098-6

Date Collected: 06/26/18 14:04

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: B-SB-7-S

Lab Sample ID: 200-44098-6

Date Collected: 06/26/18 14:04

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234583	07/17/18 21:29	CBW	TAL SAC

Client Sample ID: B-SB-7-4FT

Lab Sample ID: 200-44098-7

Date Collected: 06/26/18 14:20

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: B-SB-7-4FT

Lab Sample ID: 200-44098-7

Date Collected: 06/26/18 14:20

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 55.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234583	07/17/18 21:37	CBW	TAL SAC

Client Sample ID: B-SB-7-6FT

Lab Sample ID: 200-44098-8

Date Collected: 06/26/18 14:22

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-7-6FT

Date Collected: 06/26/18 14:22
 Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-8

Matrix: Solid
 Percent Solids: 85.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234583	07/17/18 21:45	CBW	TAL SAC

Client Sample ID: B-SB-7-WT

Date Collected: 06/26/18 14:24
 Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-9

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: B-SB-7-WT

Date Collected: 06/26/18 14:24
 Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-9

Matrix: Solid
 Percent Solids: 82.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234583	07/17/18 21:53	CBW	TAL SAC

Client Sample ID: B-SB-7-TOC

Date Collected: 06/26/18 14:25
 Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-10

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	131420	07/02/18 12:26	MJZ	TAL BUR

Client Sample ID: FB-SB-6

Date Collected: 06/26/18 12:30
 Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			232919	07/09/18 06:43	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	234268	07/15/18 19:30	S1M	TAL SAC

Client Sample ID: FB-SB-7

Date Collected: 06/26/18 14:23
 Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			232919	07/09/18 06:43	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	234268	07/15/18 19:38	S1M	TAL SAC

Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-7-TOR

Lab Sample ID: 200-44098-13

Date Collected: 06/26/18 15:10

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: B-SB-7-TOR

Lab Sample ID: 200-44098-13

Date Collected: 06/26/18 15:10

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 92.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234583	07/17/18 22:00	CBW	TAL SAC

Client Sample ID: B-SB-8-S

Lab Sample ID: 200-44098-15

Date Collected: 06/27/18 08:50

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: B-SB-8-S

Lab Sample ID: 200-44098-15

Date Collected: 06/27/18 08:50

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 89.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234588	07/18/18 08:49	CBW	TAL SAC
Total/NA	Prep	SHAKE	DL		232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10	234846	07/19/18 09:15	CBW	TAL SAC

Client Sample ID: B-SB-8-TOC

Lab Sample ID: 200-44098-16

Date Collected: 06/27/18 08:55

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	131420	07/02/18 12:33	MJZ	TAL BUR

Client Sample ID: B-SB-8-WT

Lab Sample ID: 200-44098-17

Date Collected: 06/27/18 08:54

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-8-WT

Lab Sample ID: 200-44098-17

Date Collected: 06/27/18 08:54

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 78.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234588	07/18/18 08:56	CBW	TAL SAC

Client Sample ID: B-SB-9-S

Lab Sample ID: 200-44098-18

Date Collected: 06/27/18 09:50

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: B-SB-9-S

Lab Sample ID: 200-44098-18

Date Collected: 06/27/18 09:50

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 90.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234588	07/18/18 09:04	CBW	TAL SAC
Total/NA	Prep	SHAKE	DL		232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10	234846	07/19/18 09:23	CBW	TAL SAC

Client Sample ID: B-SB-9-WT

Lab Sample ID: 200-44098-19

Date Collected: 06/27/18 10:00

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: B-SB-9-WT

Lab Sample ID: 200-44098-19

Date Collected: 06/27/18 10:00

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 81.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234588	07/18/18 09:12	CBW	TAL SAC

Client Sample ID: B-SB-9-TOC

Lab Sample ID: 200-44098-20

Date Collected: 06/27/18 10:02

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	131420	07/02/18 12:39	MJZ	TAL BUR

TestAmerica Burlington

Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: FB-SB-8

Lab Sample ID: 200-44098-21

Date Collected: 06/27/18 08:52

Matrix: Water

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			232919	07/09/18 06:43	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	234268	07/15/18 19:46	S1M	TAL SAC

Client Sample ID: FB-SB-9

Lab Sample ID: 200-44098-22

Date Collected: 06/27/18 10:04

Matrix: Water

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			232919	07/09/18 06:43	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	234268	07/15/18 19:54	S1M	TAL SAC

Client Sample ID: FB-SB-10

Lab Sample ID: 200-44098-23

Date Collected: 06/27/18 11:18

Matrix: Water

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			232919	07/09/18 06:43	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	234268	07/15/18 20:01	S1M	TAL SAC

Client Sample ID: EQUIP BLANK-2

Lab Sample ID: 200-44098-25

Date Collected: 06/27/18 10:06

Matrix: Water

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			232919	07/09/18 06:43	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	234268	07/15/18 20:25	S1M	TAL SAC

Client Sample ID: DUP-1

Lab Sample ID: 200-44098-26

Date Collected: 06/26/18 12:00

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: DUP-1

Lab Sample ID: 200-44098-26

Date Collected: 06/26/18 12:00

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 91.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232219	07/03/18 08:22	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	234588	07/18/18 09:20	CBW	TAL SAC

TestAmerica Burlington

Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: DUP-2

Date Collected: 06/27/18 12:00

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-27

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: DUP-2

Date Collected: 06/27/18 12:00

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-27

Matrix: Solid

Percent Solids: 87.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232255	07/03/18 09:28	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	235750	07/23/18 18:47	S1M	TAL SAC

Client Sample ID: B-SB-10-S

Date Collected: 06/27/18 11:15

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-28

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: B-SB-10-S

Date Collected: 06/27/18 11:15

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-28

Matrix: Solid

Percent Solids: 93.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232255	07/03/18 09:28	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	235750	07/23/18 18:55	S1M	TAL SAC

Client Sample ID: B-SB-10-WT

Date Collected: 06/27/18 11:20

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-29

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: B-SB-10-WT

Date Collected: 06/27/18 11:20

Date Received: 06/28/18 13:45

Lab Sample ID: 200-44098-29

Matrix: Solid

Percent Solids: 80.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232255	07/03/18 09:28	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	235750	07/23/18 19:18	S1M	TAL SAC

TestAmerica Burlington

Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Client Sample ID: B-SB-10-TOC

Lab Sample ID: 200-44098-30

Date Collected: 06/27/18 11:21

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	131420	07/02/18 12:58	MJZ	TAL BUR

Client Sample ID: R-SB-11-S

Lab Sample ID: 200-44098-31

Date Collected: 06/27/18 13:20

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: R-SB-11-S

Lab Sample ID: 200-44098-31

Date Collected: 06/27/18 13:20

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232255	07/03/18 09:28	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	235750	07/23/18 19:26	S1M	TAL SAC

Client Sample ID: R-SB-11-WT

Lab Sample ID: 200-44098-32

Date Collected: 06/27/18 13:25

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Client Sample ID: R-SB-11-WT

Lab Sample ID: 200-44098-32

Date Collected: 06/27/18 13:25

Matrix: Solid

Date Received: 06/28/18 13:45

Percent Solids: 88.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			232255	07/03/18 09:28	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	235750	07/23/18 19:34	S1M	TAL SAC

Client Sample ID: R-SB-11-TOC

Lab Sample ID: 200-44098-33

Date Collected: 06/27/18 13:26

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	131420	07/02/18 13:05	MJZ	TAL BUR

Laboratory References:

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

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

TestAmerica Burlington

Accreditation/Certification Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
 SDG: 200-44098-1

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD ELAP		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-19
Kansas	NELAP	7	E-10375	10-31-18
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-18-19
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	03-31-19
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-19
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-19
Vermont	State Program	1	VT-4040	04-30-19
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-19
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

Method Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
Lloyd Kahn	Organic Carbon, Total (TOC)	EPA	TAL BUR
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

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



Sample Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-1
SDG: 200-44098-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-44098-1	WASH-DW	Water	06/26/18 07:40	06/28/18 13:45
200-44098-2	EQUIP BLANK-1	Water	06/26/18 10:15	06/28/18 13:45
200-44098-3	F-SB-6-S	Solid	06/26/18 12:10	06/28/18 13:45
200-44098-4	F-SB-6-WT	Solid	06/26/18 12:40	06/28/18 13:45
200-44098-5	F-SB-6-TOC	Solid	06/26/18 12:41	06/28/18 13:45
200-44098-6	B-SB-7-S	Solid	06/26/18 14:04	06/28/18 13:45
200-44098-7	B-SB-7-4FT	Solid	06/26/18 14:20	06/28/18 13:45
200-44098-8	B-SB-7-6FT	Solid	06/26/18 14:22	06/28/18 13:45
200-44098-9	B-SB-7-WT	Solid	06/26/18 14:24	06/28/18 13:45
200-44098-10	B-SB-7-TOC	Solid	06/26/18 14:25	06/28/18 13:45
200-44098-11	FB-SB-6	Water	06/26/18 12:30	06/28/18 13:45
200-44098-12	FB-SB-7	Water	06/26/18 14:23	06/28/18 13:45
200-44098-13	B-SB-7-TOR	Solid	06/26/18 15:10	06/28/18 13:45
200-44098-15	B-SB-8-S	Solid	06/27/18 08:50	06/28/18 13:45
200-44098-16	B-SB-8-TOC	Solid	06/27/18 08:55	06/28/18 13:45
200-44098-17	B-SB-8-WT	Solid	06/27/18 08:54	06/28/18 13:45
200-44098-18	B-SB-9-S	Solid	06/27/18 09:50	06/28/18 13:45
200-44098-19	B-SB-9-WT	Solid	06/27/18 10:00	06/28/18 13:45
200-44098-20	B-SB-9-TOC	Solid	06/27/18 10:02	06/28/18 13:45
200-44098-21	FB-SB-8	Water	06/27/18 08:52	06/28/18 13:45
200-44098-22	FB-SB-9	Water	06/27/18 10:04	06/28/18 13:45
200-44098-23	FB-SB-10	Water	06/27/18 11:18	06/28/18 13:45
200-44098-25	EQUIP BLANK-2	Water	06/27/18 10:06	06/28/18 13:45
200-44098-26	DUP-1	Solid	06/26/18 12:00	06/28/18 13:45
200-44098-27	DUP-2	Solid	06/27/18 12:00	06/28/18 13:45
200-44098-28	B-SB-10-S	Solid	06/27/18 11:15	06/28/18 13:45
200-44098-29	B-SB-10-WT	Solid	06/27/18 11:20	06/28/18 13:45
200-44098-30	B-SB-10-TOC	Solid	06/27/18 11:21	06/28/18 13:45
200-44098-31	R-SB-11-S	Solid	06/27/18 13:20	06/28/18 13:45
200-44098-32	R-SB-11-WT	Solid	06/27/18 13:25	06/28/18 13:45
200-44098-33	R-SB-11-TOC	Solid	06/27/18 13:26	06/28/18 13:45

TestAmerica Burlington

30 Community Drive
Suite 11
South Burlington, VT 05403-6809
phone 802.660.1990 fax 802.660.1919

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>James Gascoyne</u>		Site Contact: <u>Kris P.</u>		Date: <u>6/28/18</u>		COC No: <u>2</u>	
Your Company Name here <u>ATC Group Services</u>		Tel/Fax: <u>802-241-4131</u>		Lab Contact: <u>↓</u>		Carrier:		1 of <u>3</u> COCs	
Address <u>1 Elm St. Suite 3</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) <u>PFAB 537-21151</u> <u>Lloyd Kahn TOC</u> <u>* Field Blanks *</u>				Sampler: <u>Jo Palmer</u> For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
City/State/Zip <u>Waterbury VT 05674</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS							
(xxx) xxx-xxxx Phone <u>802 241 4131</u>		TAT if different from Below _____							
(xxx) xxx-xxxx FAX _____		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Project Name: <u>Andover SVRA</u>		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix	
Site:		# of Cont.		Matrix		# of Cont.		Sample Specific Notes:	
P O # <u>280EM00212</u>		Wash - DW		6/26/18 0740		G DW 2		N N X	
		Equip Blank - 1		1005		G DI 1		X	
		F-SB-6-S		1210		C So 1		X	
		F-SB-6-WT		1240		C 1		X	
		F-SB-6-TOC		1241		C 1		X	
		B-SB-7-S		1404		C 1		X	
		B-SB-7-4H		1420		C 1		X	
		B-SB-7-6H		1422		C 1		X	
		B-SB-7-WT		1424		C 1		X	
		B-SB-7-TOC		1425		C ↓ 1		X	
		FB-SB-6		1230		G DI 1		X X	
		FB-SB-7		1423		G ↓ 1		X X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<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"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: <u>* Please extract + hold all field blanks (FB-) until soils are reported - contact James Gascoyne</u>									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C):		Obs'd:		Therm ID No.:	
Relinquished by: <u>John R</u>		Company: <u>ATC</u>		Date/Time: <u>6/28/18 1300</u>		Received by: <u>John R</u>		Company: <u>TASR</u>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	



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TestAmerica Burlington

30 Community Drive
Suite 11
South Burlington, VT 05403-6809
phone 802.660.1990 fax 802.660.1919

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact Your Company Name here ATC Group Services		Project Manager: James Gaseoyne		Site Contact:		Date: 6/28/18		COC No: 2 of 3 COCs	
Address: 1 Elm St. Suite 3		Tel/Fax: 802 241 4131		Lab Contact: Kris D.		Carrier:		Sampler: Jo Palmer	
City/State/Zip: Waterbury VT		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) PEAB 537-2115H Lead/Kaha-TOC PEAS TOP ASSAY * Field Blanks*				For Lab Use Only: Walk-in Client: Lab Sampling:	
(xxx) xxx-xxxx Phone: 802 241 4131		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS							
(xxx) xxx-xxxx FAX:		TAT if different from Below							
Project Name: Rutland SVRA		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Site:		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix	
P O # 280EM00212									
Sample Identification									
B-SB-7-TOR		6/26/18		1510		C		So	
B-SB-7-TA		↓		1426		 		 	
B-SB-8-S		6/27/18		0850		 		 	
B-SB-8-TOC		 		0855		 		 	
B-SB-8-WT		 		0857		 		 	
B-SB-9-S		 		0950		 		 	
B-SB-9-WT		 		1000		 		 	
B-SB-9-TOC		 		1002		↓		↓	
FB-SB-8		 		0852		G		DI	
FB-SB-9		 		1004		G		DI	
FB-SB-10		 		1118		G		DI	
FB-SB-11		↓		1324		G		DI	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<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"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: * Please extract + hold all field blanks (FB-) until soils are reported - contact James Gaseoyne									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Cor'd:		Therm ID No.:	
Relinquished by: [Signature]		Company: ATC		Date/Time: 6/28/18 1300		Received by: [Signature]		Company: TASK	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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TestAmerica Burlington

30 Community Drive
Suite 11
South Burlington, VT 05403-6809
phone 802.660.1990 fax 802.660.1919

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>James Gascoyne</u>		Site Contact:		Date: <u>6/28/18</u>		COC No:		
Your Company Name here: <u>ARC Comp Services</u>		Tel/Fax: <u>802 241 4131</u>		Lab Contact: <u>Kris D.</u>		Carrier:		<u>3</u> of <u>3</u> COCs		
Address: <u>1 Elm St. Suite 3</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y / N) <u>PEAS 537-21151</u> <u>Lloyd Kahn - TOC</u>				Sampler: <u>Am Palmer</u>		
City/State/Zip: <u>Waterbury VT 05676</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS						For Lab Use Only:		
(xxx) xxx-xxxx Phone: <u>802 241 4131</u>		TAT if different from Below _____						Walk-in Client:		
(xxx) xxx-xxxx FAX:		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Lab Sampling:		
Project Name: <u>Rustland SVRA</u>								Job / SDG No.:		
Site:										
P O #: <u>280 EM 00212</u>										
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered	MS	MSD	Sample Specific Notes:
<u>Equip Blank - 2</u>		<u>6/27/18</u>	<u>1000</u>	<u>B</u>	<u>DI</u>	<u>1</u>	<u>N</u>	<u>X</u>		
<u>Dup - 1</u>		<u>6/26/18</u>	<u>1200</u>	<u>C</u>	<u>So</u>	<u>1</u>	<u>N</u>	<u>X</u>		
<u>Dup - 2</u>		<u>6/27/18</u>	<u>1200</u>	<u>C</u>	<u>So</u>	<u>1</u>	<u>N</u>	<u>X</u>		
<u>B-SB-10-S</u>			<u>1115</u>			<u>1</u>	<u>N</u>	<u>X</u>		
<u>B-SB-10-WT</u>			<u>1120</u>			<u>1</u>	<u>N</u>	<u>X</u>		
<u>B-SB-10-TOC</u>			<u>1121</u>			<u>1</u>	<u>N</u>	<u>X</u>		
<u>R-SB-11-S</u>			<u>1320</u>			<u>1</u>	<u>N</u>	<u>X</u>		
<u>R-SB-11-WT</u>			<u>1325</u>			<u>1</u>	<u>N</u>	<u>X</u>		
<u>R-SB-11-TOC</u>		<u>✓</u>	<u>1326</u>	<u>✓</u>	<u>✓</u>	<u>1</u>	<u>N</u>	<u>X</u>		
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other										
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<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"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments:										
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:		
Relinquished by: <u>[Signature]</u>		Company: <u>ARC</u>		Date/Time: <u>6/28/18 1300</u>		Received by: <u>[Signature]</u>		Company: <u>TASU</u>		Date/Time: <u>6/28/18 1345</u>
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:

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Chain of Custody Record



Client Information (Sub Contract Lab)	Sampler:	Lab PM: Dusablon, Kristine A	Carrier Tracking No(s):	COC No: 200-35835.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kris.dusablon@testamericainc.com	State of Origin: Vermont	Page: Page 1 of 3

Company: TestAmerica Laboratories, Inc.	Accreditations Required (See note):	Job #: 200-44098-1
--	-------------------------------------	-----------------------

Address: 880 Riverside Parkway, City: West Sacramento State, Zip: CA, 95605 Phone: 916-373-5600(Tel) 916-372-1059(Fax) Email:	Due Date Requested: 7/11/2018 TAT Requested (days):	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 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)							
Project Name: PFAS, SVRA (21/24 analytes) Site:	PO #: WO #: Project #: 20008078 SSOW#:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/5355_PFC PFAS, Standard List (24 Analytes)	PFC_IDA/Shake_Bath_14D PFAS, Standard List (21 Analytes)	PFC_IDA/5355_PFC PFAS, Standard List (24 Analytes) (Hold)	PFC_IDA/TOPS_PostPrep_S PFAS, Standard List (21 Analytes)											Total Number of containers	Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/5355_PFC PFAS, Standard List (24 Analytes)	PFC_IDA/Shake_Bath_14D PFAS, Standard List (21 Analytes)	PFC_IDA/5355_PFC PFAS, Standard List (24 Analytes) (Hold)	PFC_IDA/TOPS_PostPrep_S PFAS, Standard List (21 Analytes)									Special Instructions/Note:
WASH-DW (200-44098-1)	6/26/18	07:40 Eastern		Water		X												2	Samples are from AFFF site
EQUIP BLANK-1 (200-44098-2)	6/26/18	10:15 Eastern		Water		X												1	Samples are from AFFF site
F-SB-6-S (200-44098-3)	6/26/18	12:10 Eastern		Solid			X											1	Samples are from AFFF site
F-SB-6-WT (200-44098-4)	6/26/18	12:40 Eastern		Solid			X											1	Samples are from AFFF site
B-SB-7-S (200-44098-6)	6/26/18	14:04 Eastern		Solid			X											1	Samples are from AFFF site
B-SB-7-4FT (200-44098-7)	6/26/18	14:20 Eastern		Solid			X											1	Samples are from AFFF site
B-SB-7-6FT (200-44098-8)	6/26/18	14:22 Eastern		Solid			X											1	Samples are from AFFF site
B-SB-7-WT (200-44098-9)	6/26/18	14:24 Eastern		Solid			X											1	Samples are from AFFF site
FB-SB-6 (200-44098-11)	6/26/18	12:30 Eastern		Water				X										1	Samples are from AFFF site

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out 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/tests/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) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Special Instructions/QC Requirements:			

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>Taylor/John</i>	Date/Time: 6/28/18 1545	Company: TIA-132	Received by: <i>[Signature]</i>
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: 52277	Cooler Temperature(s) °C and Other Remarks: 6.7 °C
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Chain of Custody Record

Client Information (Sub Contract Lab)		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact:		Phone:		E-Mail:		State of Origin:		Page:	
Shipping/Receiving				kris.dusablon@testamericainc.com		Vermont		Page 3 of 3	
Company: TestAmerica Laboratories, Inc.				Accreditations Required (See note):				Job #: 200-44098-1	
Address: 880 Riverside Parkway,		Due Date Requested: 7/11/2018		Analysis Requested				Preservation Codes:	
City: West Sacramento		TAT Requested (days):							
State, Zip: CA, 95605		PO #:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		WO #:							
Email:		Project #: 20008078		PFC_IDA/3535_PFC PFAS, Standard List (24 Analytes)		PFC_IDA/3535_PFC PFAS, Standard List (21 Analytes)		PFC_IDA/3535_PFC PFAS, Standard List (24 Analytes)	
Project Name: PFAS, SVRA (21/24 analytes)		SSOW#:							
Site:				PFC_IDA/3535_PFC PFAS, Standard List (24 Analytes)		PFC_IDA/3535_PFC PFAS, Standard List (21 Analytes)		PFC_IDA/3535_PFC PFAS, Standard List (24 Analytes)	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	
								Preservation Code:	
FB-SB-10 (200-44098-23)		6/27/18		11:18 Eastern		Water			
FB-SB-11 (200-44098-24)		6/27/18		13:24 Eastern		Water			
EQUIP BLANK-2 (200-44098-25)		6/27/18		10:06 Eastern		Water		X	
DUP-1 (200-44098-26)		6/26/18		12:00 Eastern		Solid		X	
DUP-2 (200-44098-27)		6/27/18		12:00 Eastern		Solid		X	
B-SB-10-S (200-44098-28)		6/27/18		11:15 Eastern		Solid		X	
B-SB-10-WT (200-44098-29)		6/27/18		11:20 Eastern		Solid		X	
R-SB-11-S (200-44098-31)		6/27/18		13:20 Eastern		Solid		X	
R-SB-11-WT (200-44098-32)		6/27/18		13:25 Eastern		Solid		X	
<p>Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out 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/tests/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>									
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Unconfirmed				<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)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:			
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:		
Relinquished by: <i>Taylor Johnson</i>		Date/Time: <i>6/28/18 1545</i>		Company: <i>TA-132</i>		Received by: <i>[Signature]</i>		Date/Time: <i>29 June 18 900</i>	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.: <i>522771</i>		Cooler Temperature(s) °C and Other Remarks: <i>0.7°C</i>					

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8/6/2018



Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 200-44098-1
SDG Number: 200-44098-1

Login Number: 44098
List Number: 1
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington

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	Not present
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	5.9°C
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.	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").	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: 200-44098-1

SDG Number: 200-44098-1

Login Number: 44098

List Number: 2

Creator: Gooch, Mayce

List Source: TestAmerica Sacramento

List Creation: 07/02/18 10:33 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	522771
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	0.7c
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?	False	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.	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").	N/A	
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 Burlington

30 Community Drive

Suite 11

South Burlington, VT 05403

Tel: (802)660-1990

TestAmerica Job ID: 200-44098-2

TestAmerica Sample Delivery Group: 200-44098-1

Client Project/Site: PFAS, SVRA (21/24 analytes)

For:

ATC Group Services LLC

1 Elm Street, Suite 3

Waterbury, Vermont 05676

Attn: Mr. James Gascoyne



Authorized for release by:

8/9/2018 5:10:56 PM

Kristine Dusablon, Project Manager II

(802)660-1990

kris.dusablon@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: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
SDG: 200-44098-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
*	LCS or LCSD is outside acceptance limits.
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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
SDG: 200-44098-1

Job ID: 200-44098-2

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: ATC Group Services LLC

Project: PFAS, SVRA (21/24 analytes)

Report Number: 200-44098-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 06/28/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 5.9° C.

PERFLUORINATED HYDROCARBONS

Sample B-SB-7-TA (200-44098-14) was analyzed for Perfluorinated Hydrocarbons in accordance with A Laboratory Defined Procedure. The samples were prepared on 07/10/2018 and analyzed on 07/25/2018.

Samples were initially extracted on July 10, 2018 for both the pre- and post-oxidation fractions for the TOP assay. The method blank for the post-oxidation fraction contained labeled 4:2 FTS, which would indicate an insufficient oxidation of the method blank itself. The field sample and the laboratory control sample and duplicate (LCS/LCSD) demonstrated complete oxidation as labeled 4:2 FTS was not detected in these samples. This post-oxidation method blank also contained 3 analytes above the reporting limit. The results in the post-oxidation field sample should be considered estimated as a result of the method blank detections.

The samples were re-extracted on July 27, 2018 for confirmation. The re-extracted set displayed similar results. As the initial set of data is within the recommended extraction holding time, the initial set of data is reported.

The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample.

Zero percent recovery of precursor analytes (6:2FTS, 8:2FTS, FOSA, NMeFOSAA, and NeFOSAA) and enhanced recoveries of PFCAs is observed in the Post-Treatment Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) associated with these samples, consistent with the expected oxidation of precursor analytes.

The labeled analyte M2-4:2FTS is converted to PFBA during the oxidation step of the TOP assay. The PFBA result in the Post-Treatment Method Blank (MB) indicates how much of a field sample's Post-Treatment PFBA result is contributed by the Reverse Surrogate, when adjusted for dilution factors.

The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit for 13C4 PFBA: B-SB-7-TA (200-44098-14), (LCS 320-233134/2-A), (LCSD 320-233134/3-A) and (MB 320-233134/1-A). Re-analysis was performed with concurring results. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1,

Case Narrative

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
SDG: 200-44098-1

Job ID: 200-44098-2 (Continued)

Laboratory: TestAmerica Burlington (Continued)

which is achieved for all IDA in the samples.

Perfluorobutanoic acid (PFBA), Perfluorohexanoic acid (PFHxA) and Perfluoropentanoic acid (PFPeA) were detected in method blank MB 320-233115/1-A at levels exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

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

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Detection Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Client Sample ID: B-SB-7-TA

Lab Sample ID: 200-44098-14

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.52		0.50	ug/Kg	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPeA)	1.7		0.50	ug/Kg	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	0.85		0.50	ug/Kg	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	2.3	B *	0.50	ug/Kg	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPeA)	2.7	B *	0.50	ug/Kg	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	1.8	B *	0.50	ug/Kg	1		537 (modified)	Post-Treatment
PFBA	1.7			ug/Kg	1		Total PFCA-Dif	Total/NA
PFPA	0.94			ug/Kg	1		Total PFCA-Dif	Total/NA
PFHxA	0.95			ug/Kg	1		Total PFCA-Dif	Total/NA
PFHpA	0.00			ug/Kg	1		Total PFCA-Dif	Total/NA
PFOA	0.00			ug/Kg	1		Total PFCA-Dif	Total/NA
PFNA	0.00			ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	3.7			ug/Kg	1		Total PFCA-Dif	Total/NA
PFBA	0.52			ug/Kg	1		Total PFCA-Sum	Pre-Treatment
PFPA	1.7			ug/Kg	1		Total PFCA-Sum	Pre-Treatment
PFHxA	0.85			ug/Kg	1		Total PFCA-Sum	Pre-Treatment
PFHpA	0.00			ug/Kg	1		Total PFCA-Sum	Pre-Treatment
PFOA	0.00			ug/Kg	1		Total PFCA-Sum	Pre-Treatment
PFNA	0.00			ug/Kg	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	3.1			ug/Kg	1		Total PFCA-Sum	Pre-Treatment
PFBA	2.3			ug/Kg	1		Total PFCA-Sum	Post-Treatment
PFPA	2.7			ug/Kg	1		Total PFCA-Sum	Post-Treatment
PFHxA	1.8			ug/Kg	1		Total PFCA-Sum	Post-Treatment
PFHpA	0.00			ug/Kg	1		Total PFCA-Sum	Post-Treatment
PFOA	0.00			ug/Kg	1		Total PFCA-Sum	Post-Treatment
PFNA	0.00			ug/Kg	1		Total PFCA-Sum	Post-Treatment
Total PFCA	6.8			ug/Kg	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Client Sample ID: B-SB-7-TA

Lab Sample ID: 200-44098-14

Date Collected: 06/26/18 14:26

Matrix: Solid

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.52		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluoropentanoic acid (PFPeA)	1.7		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorohexanoic acid (PFHxA)	0.85		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluoroheptanoic acid (PFHpA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorooctanoic acid (PFOA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorononanoic acid (PFNA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorodecanoic acid (PFDA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluoroundecanoic acid (PFUnA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorododecanoic acid (PFDoA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.3	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
6:2 FTS	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 02:11	1
8:2 FTS	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 02:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	18	*	25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C5 PFPeA	74		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C2 PFHxA	80		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C4-PFHpA	77		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C4 PFOA	74		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C5 PFNA	83		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C2 PFDA	85		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C2 PFUnA	83		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C2 PFDoA	81		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C2-PFTeDA	85		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C3-PFBS	77		25 - 150	07/10/18 19:00	07/25/18 02:11	1
18O2 PFHxS	84		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C4 PFOS	80		25 - 150	07/10/18 19:00	07/25/18 02:11	1
13C8 FOSA	78		25 - 150	07/10/18 19:00	07/25/18 02:11	1
d3-NMeFOSAA	86		25 - 150	07/10/18 19:00	07/25/18 02:11	1
d5-NEtFOSAA	91		25 - 150	07/10/18 19:00	07/25/18 02:11	1
M2-6:2FTS	73		25 - 150	07/10/18 19:00	07/25/18 02:11	1
M2-8:2FTS	97		25 - 150	07/10/18 19:00	07/25/18 02:11	1
M2-4:2FTS	84		0 - 150	07/10/18 19:00	07/25/18 02:11	1

Method: 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.3	B *	0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluoropentanoic acid (PFPeA)	2.7	B *	0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorohexanoic acid (PFHxA)	1.8	B *	0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Client Sample ID: B-SB-7-TA

Lab Sample ID: 200-44098-14

Date Collected: 06/26/18 14:26

Matrix: Solid

Date Received: 06/28/18 13:45

Method: 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorooctanoic acid (PFOA)	ND	*	0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorononanoic acid (PFNA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorodecanoic acid (PFDA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluoroundecanoic acid (PFUnA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorododecanoic acid (PFDoA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.3	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
Perfluorooctane Sulfonamide (FOSA)	ND	*	0.50	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	*	5.0	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	*	5.0	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
6:2 FTS	ND	*	5.0	ug/Kg		07/10/18 19:00	07/25/18 02:42	1
8:2 FTS	ND	*	5.0	ug/Kg		07/10/18 19:00	07/25/18 02:42	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	81		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C5 PFPeA	81		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C2 PFHxA	79		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C4-PFHpA	77		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C4 PFOA	82		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C5 PFNA	96		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C2 PFDA	94		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C2 PFUnA	86		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C2 PFDoA	84		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C2-PFTeDA	81		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C3-PFBS	85		25 - 150	07/10/18 19:00	07/25/18 02:42	1
18O2 PFHxS	84		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C4 PFOS	82		25 - 150	07/10/18 19:00	07/25/18 02:42	1
13C8 FOSA	71		25 - 150	07/10/18 19:00	07/25/18 02:42	1
d3-NMeFOSAA	82		25 - 150	07/10/18 19:00	07/25/18 02:42	1
d5-NEtFOSAA	86		25 - 150	07/10/18 19:00	07/25/18 02:42	1
M2-6:2FTS	120		25 - 150	07/10/18 19:00	07/25/18 02:42	1
M2-8:2FTS	128		25 - 150	07/10/18 19:00	07/25/18 02:42	1
M2-4:2FTS	0		0 - 150	07/10/18 19:00	07/25/18 02:42	1

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	1.7			ug/Kg			08/07/18 14:46	1
PFPA	0.94			ug/Kg			08/07/18 14:46	1
PFHxA	0.95			ug/Kg			08/07/18 14:46	1
PFHpA	0.00			ug/Kg			08/07/18 14:46	1
PFOA	0.00			ug/Kg			08/07/18 14:46	1
PFNA	0.00			ug/Kg			08/07/18 14:46	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Client Sample ID: B-SB-7-TA

Lab Sample ID: 200-44098-14

Date Collected: 06/26/18 14:26

Matrix: Solid

Date Received: 06/28/18 13:45

Method: Total PFCA-Dif - Total PFCA (Treatment Difference) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	3.7			ug/Kg			08/07/18 14:46	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	0.52			ug/Kg			08/07/18 14:37	1
PFPA	1.7			ug/Kg			08/07/18 14:37	1
PFHxA	0.85			ug/Kg			08/07/18 14:37	1
PFHpA	0.00			ug/Kg			08/07/18 14:37	1
PFOA	0.00			ug/Kg			08/07/18 14:37	1
PFNA	0.00			ug/Kg			08/07/18 14:37	1
Total PFCA	3.1			ug/Kg			08/07/18 14:37	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	2.3			ug/Kg			08/07/18 14:43	1
PFPA	2.7			ug/Kg			08/07/18 14:43	1
PFHxA	1.8			ug/Kg			08/07/18 14:43	1
PFHpA	0.00			ug/Kg			08/07/18 14:43	1
PFOA	0.00			ug/Kg			08/07/18 14:43	1
PFNA	0.00			ug/Kg			08/07/18 14:43	1
Total PFCA	6.8			ug/Kg			08/07/18 14:43	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19.6		0.1	0.1 %			07/02/18 17:10	1
Percent Solids	80.4		0.1	0.1 %			07/02/18 17:10	1

Isotope Dilution Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Pre-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
200-44098-14	B-SB-7-TA	18 *	74	80	77	74	83	85	83
LCS 320-233134/2-A	Lab Control Sample	20 *	80	79	82	84	91	91	87
LCSD 320-233134/3-A	Lab Control Sample Dup	22 *	87	84	87	87	95	97	96
MB 320-233134/1-A	Method Blank	20 *	84	82	88	86	94	99	93

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	3C3-PFBs (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	d3-NMeFOSAA (25-150)	d5-NEtFOSAA (25-150)
200-44098-14	B-SB-7-TA	81	85	77	84	80	78	86	91
LCS 320-233134/2-A	Lab Control Sample	87	88	82	85	85	84	95	90
LCSD 320-233134/3-A	Lab Control Sample Dup	92	93	86	93	92	85	97	101
MB 320-233134/1-A	Method Blank	91	89	86	90	88	85	96	99

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)	M242FTS (0-150)
200-44098-14	B-SB-7-TA	73	97	84
LCS 320-233134/2-A	Lab Control Sample	78	102	78
LCSD 320-233134/3-A	Lab Control Sample Dup	87	108	91
MB 320-233134/1-A	Method Blank	84	106	79

Surrogate Legend

PFBA = 13C4 PFBA
 PFPeA = 13C5 PFPeA
 PFHxA = 13C2 PFHxA
 PFHpA = 13C4-PFHpA
 PFOA = 13C4 PFOA
 PFNA = 13C5 PFNA
 PFDA = 13C2 PFDA
 PFUnA = 13C2 PFUnA
 PFDoA = 13C2 PFDoA
 PFTDA = 13C2-PFTeDA
 13C3-PFBs = 13C3-PFBs
 PFHxS = 18O2 PFHxS
 PFOS = 13C4 PFOS
 PFOSA = 13C8 FOSA
 d3-NMeFOSAA = d3-NMeFOSAA
 d5-NEtFOSAA = d5-NEtFOSAA
 M262FTS = M2-6:2FTS
 M282FTS = M2-8:2FTS
 M242FTS = M2-4:2FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
200-44098-14	B-SB-7-TA	81	81	79	77	82	96	94	86
LCS 320-233115/2-A	Lab Control Sample	65	67	65	64	70	77	75	73
LCSD 320-233115/3-A	Lab Control Sample Dup	81	81	80	74	87	98	99	93

TestAmerica Burlington

Isotope Dilution Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Solid

Prep Type: Post-Treatment

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
MB 320-233115/1-A	Method Blank	72	74	73	69	81	88	87	81

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	3C3-PFB (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	d3-NMeFOS (25-150)	d5-NEtFOS (25-150)
200-44098-14	B-SB-7-TA	84	81	85	84	82	71	82	86
LCS 320-233115/2-A	Lab Control Sample	69	69	72	70	68	57	71	77
LCS 320-233115/3-A	Lab Control Sample Dup	85	85	85	84	84	77	87	101
MB 320-233115/1-A	Method Blank	75	77	81	77	76	67	78	85

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)	M242FTS (0-150)
200-44098-14	B-SB-7-TA	120	128	0
LCS 320-233115/2-A	Lab Control Sample	99	103	0
LCS 320-233115/3-A	Lab Control Sample Dup	133	132	0
MB 320-233115/1-A	Method Blank	127	126	118

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- PFHpA = 13C4-PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2-PFTeDA
- 13C3-PFBS = 13C3-PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3-NMeFOSAA = d3-NMeFOSAA
- d5-NEtFOSAA = d5-NEtFOSAA
- M262FTS = M2-6:2FTS
- M282FTS = M2-8:2FTS
- M242FTS = M2-4:2FTS

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-233134/1-A
Matrix: Solid
Analysis Batch: 235947

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 233134

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluoropentanoic acid (PFPeA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorohexanoic acid (PFHxA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluoroheptanoic acid (PFHpA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorooctanoic acid (PFOA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorononanoic acid (PFNA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorodecanoic acid (PFDA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluoroundecanoic acid (PFUnA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorododecanoic acid (PFDoA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.3	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
6:2 FTS	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 01:48	1
8:2 FTS	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 01:48	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	20	*	25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C5 PFPeA	84		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C2 PFHxA	82		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C4-PFHpA	88		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C4 PFOA	86		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C5 PFNA	94		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C2 PFDA	99		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C2 PFUnA	93		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C2 PFDoA	91		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C2-PFTeDA	89		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C3-PFBS	86		25 - 150	07/10/18 19:00	07/25/18 01:48	1
18O2 PFHxS	90		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C4 PFOS	88		25 - 150	07/10/18 19:00	07/25/18 01:48	1
13C8 FOSA	85		25 - 150	07/10/18 19:00	07/25/18 01:48	1
d3-NMeFOSAA	96		25 - 150	07/10/18 19:00	07/25/18 01:48	1
d5-NEtFOSAA	99		25 - 150	07/10/18 19:00	07/25/18 01:48	1
M2-6:2FTS	84		25 - 150	07/10/18 19:00	07/25/18 01:48	1
M2-8:2FTS	106		25 - 150	07/10/18 19:00	07/25/18 01:48	1
M2-4:2FTS	79		0 - 150	07/10/18 19:00	07/25/18 01:48	1

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-233134/2-A

Matrix: Solid

Analysis Batch: 235947

Client Sample ID: Lab Control Sample

Prep Type: Pre-Treatment

Prep Batch: 233134

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	5.00	5.03		ug/Kg		101	81 - 133
Perfluoropentanoic acid (PFPeA)	5.00	4.79		ug/Kg		96	79 - 120
Perfluorohexanoic acid (PFHxA)	5.00	4.70		ug/Kg		94	75 - 125
Perfluoroheptanoic acid (PFHpA)	5.00	4.94		ug/Kg		99	76 - 124
Perfluorooctanoic acid (PFOA)	5.01	4.50		ug/Kg		90	76 - 121
Perfluorononanoic acid (PFNA)	5.00	4.57		ug/Kg		91	74 - 126
Perfluorodecanoic acid (PFDA)	5.00	5.02		ug/Kg		100	74 - 124
Perfluoroundecanoic acid (PFUnA)	5.00	4.48		ug/Kg		90	74 - 114
Perfluorododecanoic acid (PFDoA)	5.00	4.88		ug/Kg		98	75 - 123
Perfluorotridecanoic Acid (PFTriA)	5.00	5.08		ug/Kg		102	43 - 116
Perfluorotetradecanoic acid (PFTeA)	5.00	4.73		ug/Kg		95	22 - 129
Perfluorobutanesulfonic acid (PFBS)	4.42	4.39		ug/Kg		99	73 - 142
Perfluorohexanesulfonic acid (PFHxS)	4.55	4.15		ug/Kg		91	75 - 121
Perfluoroheptanesulfonic Acid (PFHpS)	4.76	4.72		ug/Kg		99	78 - 146
Perfluorooctanesulfonic acid (PFOS)	4.64	4.53		ug/Kg		98	69 - 131
Perfluorodecanesulfonic acid (PFDS)	4.82	4.47		ug/Kg		93	54 - 113
Perfluorooctane Sulfonamide (FOSA)	5.00	4.87		ug/Kg		97	62 - 135
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	5.00	ND		ug/Kg		89	65 - 135
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	5.00	ND		ug/Kg		99	65 - 135
6:2 FTS	4.74	ND		ug/Kg		99	65 - 135
8:2 FTS	4.79	ND		ug/Kg		94	65 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	20	*	25 - 150
13C5 PFPeA	80		25 - 150
13C2 PFHxA	79		25 - 150
13C4-PFHpA	82		25 - 150
13C4 PFOA	84		25 - 150
13C5 PFNA	91		25 - 150
13C2 PFDA	91		25 - 150
13C2 PFUnA	87		25 - 150
13C2 PFDoA	87		25 - 150
13C2-PFTeDA	88		25 - 150
13C3-PFBS	82		25 - 150
18O2 PFHxS	85		25 - 150
13C4 PFOS	85		25 - 150
13C8 FOSA	84		25 - 150

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-233134/2-A
Matrix: Solid
Analysis Batch: 235947

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 233134

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
d3-NMeFOSAA	95		25 - 150
d5-NEtFOSAA	90		25 - 150
M2-6:2FTS	78		25 - 150
M2-8:2FTS	102		25 - 150
M2-4:2FTS	78		0 - 150

Lab Sample ID: LCSD 320-233134/3-A
Matrix: Solid
Analysis Batch: 235947

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 233134

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec. Limits</i>	<i>RPD</i>	<i>RPD</i>
									<i>Limit</i>
Perfluorobutanoic acid (PFBA)	5.00	4.97		ug/Kg		99	81 - 133	1	30
Perfluoropentanoic acid (PFPeA)	5.00	4.63		ug/Kg		93	79 - 120	3	30
Perfluorohexanoic acid (PFHxA)	5.00	4.78		ug/Kg		96	75 - 125	2	30
Perfluoroheptanoic acid (PFHpA)	5.00	4.86		ug/Kg		97	76 - 124	2	30
Perfluorooctanoic acid (PFOA)	5.01	4.68		ug/Kg		93	76 - 121	4	30
Perfluorononanoic acid (PFNA)	5.00	4.59		ug/Kg		92	74 - 126	1	30
Perfluorodecanoic acid (PFDA)	5.00	4.82		ug/Kg		96	74 - 124	4	30
Perfluoroundecanoic acid (PFUnA)	5.00	4.37		ug/Kg		87	74 - 114	3	30
Perfluorododecanoic acid (PFDoA)	5.00	4.81		ug/Kg		96	75 - 123	1	30
Perfluorotridecanoic Acid (PFTriA)	5.00	4.82		ug/Kg		96	43 - 116	5	30
Perfluorotetradecanoic acid (PFTeA)	5.00	4.89		ug/Kg		98	22 - 129	3	30
Perfluorobutanesulfonic acid (PFBS)	4.42	4.38		ug/Kg		99	73 - 142	0	30
Perfluorohexanesulfonic acid (PFHxS)	4.55	4.06		ug/Kg		89	75 - 121	2	30
Perfluoroheptanesulfonic Acid (PFHpS)	4.76	4.34		ug/Kg		91	78 - 146	8	30
Perfluorooctanesulfonic acid (PFOS)	4.64	4.36		ug/Kg		94	69 - 131	4	30
Perfluorodecanesulfonic acid (PFDS)	4.82	4.25		ug/Kg		88	54 - 113	5	30
Perfluorooctane Sulfonamide (FOSA)	5.00	4.84		ug/Kg		97	62 - 135	1	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	5.00	5.12		ug/Kg		102	65 - 135	13	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	5.00	ND		ug/Kg		98	65 - 135	1	30
6:2 FTS	4.74	ND		ug/Kg		95	65 - 135	3	30
8:2 FTS	4.79	ND		ug/Kg		92	65 - 135	3	30

<i>Isotope Dilution</i>	<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
13C4 PFBA	22	*	25 - 150
13C5 PFPeA	87		25 - 150
13C2 PFHxA	84		25 - 150
13C4-PFHpA	87		25 - 150

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-233134/3-A
Matrix: Solid
Analysis Batch: 235947

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 233134

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFOA	87		25 - 150
13C5 PFNA	95		25 - 150
13C2 PFDA	97		25 - 150
13C2 PFUnA	96		25 - 150
13C2 PFDoA	92		25 - 150
13C2-PFTeDA	93		25 - 150
13C3-PFBS	86		25 - 150
18O2 PFHxS	93		25 - 150
13C4 PFOS	92		25 - 150
13C8 FOSA	85		25 - 150
d3-NMeFOSAA	97		25 - 150
d5-NEtFOSAA	101		25 - 150
M2-6:2FTS	87		25 - 150
M2-8:2FTS	108		25 - 150
M2-4:2FTS	91		0 - 150

Lab Sample ID: MB 320-233115/1-A
Matrix: Solid
Analysis Batch: 235947

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 233115

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Perfluorobutanoic acid (PFBA)	1.68		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluoropentanoic acid (PFPeA)	1.39		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorohexanoic acid (PFHxA)	1.19		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluoroheptanoic acid (PFHpA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorooctanoic acid (PFOA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorononanoic acid (PFNA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorodecanoic acid (PFDA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluoroundecanoic acid (PFUnA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorododecanoic acid (PFDoA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorotridecanoic Acid (PFTriA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.3	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
Perfluorooctane Sulfonamide (FOSA)	ND		0.50	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
6:2 FTS	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 02:19	1
8:2 FTS	ND		5.0	ug/Kg		07/10/18 19:00	07/25/18 02:19	1

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	72		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C5 PFPeA	74		25 - 150	07/10/18 19:00	07/25/18 02:19	1

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-233115/1-A
Matrix: Solid
Analysis Batch: 235947

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 233115

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFHxA	73		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C4-PFHpA	69		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C4 PFOA	81		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C5 PFNA	88		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C2 PFDA	87		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C2 PFUnA	81		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C2 PFDoA	75		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C2-PFTeDA	77		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C3-PFBS	81		25 - 150	07/10/18 19:00	07/25/18 02:19	1
18O2 PFHxS	77		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C4 PFOS	76		25 - 150	07/10/18 19:00	07/25/18 02:19	1
13C8 FOSA	67		25 - 150	07/10/18 19:00	07/25/18 02:19	1
d3-NMeFOSAA	78		25 - 150	07/10/18 19:00	07/25/18 02:19	1
d5-NEtFOSAA	85		25 - 150	07/10/18 19:00	07/25/18 02:19	1
M2-6:2FTS	127		25 - 150	07/10/18 19:00	07/25/18 02:19	1
M2-8:2FTS	126		25 - 150	07/10/18 19:00	07/25/18 02:19	1
M2-4:2FTS	118		0 - 150	07/10/18 19:00	07/25/18 02:19	1

Lab Sample ID: LCS 320-233115/2-A
Matrix: Solid
Analysis Batch: 235947

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 233115

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	5.00	9.83	*	ug/Kg		197	70 - 130
Perfluoropentanoic acid (PFPeA)	5.00	6.61	*	ug/Kg		132	70 - 130
Perfluorohexanoic acid (PFHxA)	5.00	6.54	*	ug/Kg		131	70 - 130
Perfluoroheptanoic acid (PFHpA)	5.00	5.65		ug/Kg		113	70 - 130
Perfluorooctanoic acid (PFOA)	5.01	12.1	*	ug/Kg		241	70 - 130
Perfluorononanoic acid (PFNA)	5.00	4.22		ug/Kg		84	70 - 130
Perfluorodecanoic acid (PFDA)	5.00	4.45		ug/Kg		89	70 - 130
Perfluoroundecanoic acid (PFUnA)	5.00	3.98		ug/Kg		80	70 - 130
Perfluorododecanoic acid (PFDoA)	5.00	4.44		ug/Kg		89	70 - 130
Perfluorotridecanoic Acid (PFTriA)	5.00	4.36		ug/Kg		87	70 - 130
Perfluorotetradecanoic acid (PFTeA)	5.00	4.48		ug/Kg		90	70 - 130
Perfluorobutanesulfonic acid (PFBS)	4.42	3.90		ug/Kg		88	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	4.55	3.70		ug/Kg		81	70 - 130
Perfluoroheptanesulfonic Acid (PFHpS)	4.76	3.94		ug/Kg		83	70 - 130
Perfluorooctanesulfonic acid (PFOS)	4.64	5.16		ug/Kg		111	70 - 130
Perfluorodecanesulfonic acid (PFDS)	4.82	3.76		ug/Kg		78	70 - 130
Perfluorooctane Sulfonamide (FOSA)	5.00	ND	*	ug/Kg		0	70 - 130

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-233115/2-A
Matrix: Solid
Analysis Batch: 235947

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 233115

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	5.00	ND	*	ug/Kg		0	70 - 130
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	5.00	ND	*	ug/Kg		0	70 - 130
6:2 FTS	4.74	ND	*	ug/Kg		0	70 - 130
8:2 FTS	4.79	ND	*	ug/Kg		0	70 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	65		25 - 150
13C5 PFPeA	67		25 - 150
13C2 PFHxA	65		25 - 150
13C4-PFHpA	64		25 - 150
13C4 PFOA	70		25 - 150
13C5 PFNA	77		25 - 150
13C2 PFDA	75		25 - 150
13C2 PFUnA	73		25 - 150
13C2 PFDoA	69		25 - 150
13C2-PFTeDA	69		25 - 150
13C3-PFBS	72		25 - 150
18O2 PFHxS	70		25 - 150
13C4 PFOS	68		25 - 150
13C8 FOSA	57		25 - 150
d3-NMeFOSAA	71		25 - 150
d5-NEtFOSAA	77		25 - 150
M2-6:2FTS	99		25 - 150
M2-8:2FTS	103		25 - 150
M2-4:2FTS	0		0 - 150

Lab Sample ID: LCSD 320-233115/3-A
Matrix: Solid
Analysis Batch: 235947

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 233115

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	5.00	9.62	*	ug/Kg		192	70 - 130	2	30
Perfluoropentanoic acid (PFPeA)	5.00	6.92	*	ug/Kg		138	70 - 130	5	30
Perfluorohexanoic acid (PFHxA)	5.00	6.72	*	ug/Kg		134	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	5.00	5.78		ug/Kg		116	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	5.01	11.7	*	ug/Kg		233	70 - 130	3	30
Perfluorononanoic acid (PFNA)	5.00	4.18		ug/Kg		84	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	5.00	4.25		ug/Kg		85	70 - 130	5	30
Perfluoroundecanoic acid (PFUnA)	5.00	4.12		ug/Kg		82	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	5.00	4.39		ug/Kg		88	70 - 130	1	30
Perfluorotridecanoic Acid (PFTriA)	5.00	4.15		ug/Kg		83	70 - 130	5	30
Perfluorotetradecanoic acid (PFTeA)	5.00	4.33		ug/Kg		87	70 - 130	3	30

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-233115/3-A
Matrix: Solid
Analysis Batch: 235947

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 233115

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	4.42	3.82		ug/Kg		86	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	4.55	3.74		ug/Kg		82	70 - 130	1	30
Perfluoroheptanesulfonic Acid (PFHpS)	4.76	3.99		ug/Kg		84	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	4.64	5.48		ug/Kg		118	70 - 130	6	30
Perfluorodecanesulfonic acid (PFDS)	4.82	4.02		ug/Kg		83	70 - 130	7	30
Perfluorooctane Sulfonamide (FOSA)	5.00	ND	*	ug/Kg		0	70 - 130	NC	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	5.00	ND	*	ug/Kg		0	70 - 130	NC	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	5.00	ND	*	ug/Kg		0	70 - 130	NC	30
6:2 FTS	4.74	ND	*	ug/Kg		0	70 - 130	NC	30
8:2 FTS	4.79	ND	*	ug/Kg		0	70 - 130	NC	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	81		25 - 150
13C5 PFPeA	81		25 - 150
13C2 PFHxA	80		25 - 150
13C4-PFHpA	74		25 - 150
13C4 PFOA	87		25 - 150
13C5 PFNA	98		25 - 150
13C2 PFDA	99		25 - 150
13C2 PFUnA	93		25 - 150
13C2 PFDoA	85		25 - 150
13C2-PFTeDA	85		25 - 150
13C3-PFBS	85		25 - 150
18O2 PFHxS	84		25 - 150
13C4 PFOS	84		25 - 150
13C8 FOSA	77		25 - 150
d3-NMeFOSAA	87		25 - 150
d5-NEtFOSAA	101		25 - 150
M2-6:2FTS	133		25 - 150
M2-8:2FTS	132		25 - 150
M2-4:2FTS	0		0 - 150

QC Association Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

LCMS

Prep Batch: 233115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-14	B-SB-7-TA	Post-Treatment	Solid	TOPS Post-Prep	
MB 320-233115/1-A	Method Blank	Post-Treatment	Solid	TOPS Post-Prep	
LCS 320-233115/2-A	Lab Control Sample	Post-Treatment	Solid	TOPS Post-Prep	
LCSD 320-233115/3-A	Lab Control Sample Dup	Post-Treatment	Solid	TOPS Post-Prep	

Prep Batch: 233134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-14	B-SB-7-TA	Pre-Treatment	Solid	TOPS Pre-Prep	
MB 320-233134/1-A	Method Blank	Pre-Treatment	Solid	TOPS Pre-Prep	
LCS 320-233134/2-A	Lab Control Sample	Pre-Treatment	Solid	TOPS Pre-Prep	
LCSD 320-233134/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	TOPS Pre-Prep	

Analysis Batch: 235947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-14	B-SB-7-TA	Post-Treatment	Solid	537 (modified)	233115
200-44098-14	B-SB-7-TA	Pre-Treatment	Solid	537 (modified)	233134
MB 320-233115/1-A	Method Blank	Post-Treatment	Solid	537 (modified)	233115
MB 320-233134/1-A	Method Blank	Pre-Treatment	Solid	537 (modified)	233134
LCS 320-233115/2-A	Lab Control Sample	Post-Treatment	Solid	537 (modified)	233115
LCS 320-233134/2-A	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	233134
LCSD 320-233115/3-A	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	233115
LCSD 320-233134/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	233134

Analysis Batch: 238502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-14	B-SB-7-TA	Pre-Treatment	Solid	Total PFCA-Sum	

Analysis Batch: 238510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-14	B-SB-7-TA	Post-Treatment	Solid	Total PFCA-Sum	

Analysis Batch: 238512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-14	B-SB-7-TA	Total/NA	Solid	Total PFCA-Dif	

General Chemistry

Analysis Batch: 232151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44098-14	B-SB-7-TA	Total/NA	Solid	D 2216	

Lab Chronicle

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
SDG: 200-44098-1

Client Sample ID: B-SB-7-TA

Lab Sample ID: 200-44098-14

Date Collected: 06/26/18 14:26

Matrix: Solid

Date Received: 06/28/18 13:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOPS Post-Prep			233115	07/10/18 19:00	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)		1	235947	07/25/18 02:42	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre-Prep			233134	07/10/18 19:00	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)		1	235947	07/25/18 02:11	CBW	TAL SAC
Total/NA	Analysis	Total PFCA-Dif		1	238512	08/07/18 14:46	MKW	TAL SAC
Post-Treatment	Analysis	Total PFCA-Sum		1	238510	08/07/18 14:43	MKW	TAL SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1	238502	08/07/18 14:37	MKW	TAL SAC
Total/NA	Analysis	D 2216		1	232151	07/02/18 17:10	SSS	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD ELAP		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-19
Kansas	NELAP	7	E-10375	10-31-18
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-18-19
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	03-31-19
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-19
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-19
Vermont	State Program	1	VT-4040	04-30-19
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-19
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

Method Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
SDG: 200-44098-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	TAL SAC
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
TOPS Post-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC
TOPS Pre-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
SDG: 200-44098-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-44098-14	B-SB-7-TA	Solid	06/26/18 14:26	06/28/18 13:45

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

TestAmerica Burlington

30 Community Drive
Suite 11
South Burlington, VT 05403-6809
phone 802.660.1990 fax 802.660.1919

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>James Gascoyne</u>		Site Contact: <u>Kris P.</u>		Date: <u>6/28/18</u>		COC No: <u>2</u>	
Your Company Name here <u>ATC Group Services</u>		Tel/Fax: <u>802-241-4131</u>		Lab Contact: <u>↓</u>		Carrier:		1 of <u>3</u> COCs	
Address <u>1 Elm St. Suite 3</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) <u>PFAB 537-21151</u> <u>Lloyd Kahn TOC</u> <u>* Field Blanks *</u>				Sampler: <u>Jo Palmer</u> For Lab Use Only: Walk-in Client: Lab Sampling:	
City/State/Zip <u>Waterbury VT 05674</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS							
(xxx) xxx-xxxx Phone <u>802 241 4131</u>		TAT if different from Below _____							
(xxx) xxx-xxxx FAX _____		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Project Name: <u>Andover SVRA</u>		Sample Date		Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:	
Site:		Wash - DW		6/26/18	0740	G DW	2		
P O # <u>280EM00212</u>		Equip Blank - 1			1005	G DI	1		
		F-SB-6-S			1210	C SO	1		
		F-SB-6-WT			1240	C	1		
		F-SB-6-TOC			1241	C	1		
		B-SB-7-S			1404	C	1		
		B-SB-7-4H			1420	C	1		
		B-SB-7-6H			1422	C	1		
		B-SB-7-WT			1424	C	1		
		B-SB-7-TOC			1425	C	1		
		FB-SB-6			1230	G DI	1		
		FB-SB-7			1423	G	1		
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other		Possible Hazard Identification:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.		<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"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
Special Instructions/QC Requirements & Comments:		<u>* Please extract + hold all field blanks (FB-) until soils are reported - contact James Gascoyne</u>							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C):		Obs'd:		Therm ID No.:	
Relinquished by: <u>John R</u>		Company: <u>ATC</u>		Date/Time: <u>6/28/18 1300</u>		Received by: <u>John R</u>		Company: <u>TASR</u>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	



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8/9/2018



TestAmerica Burlington

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Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>James Gaseoyne</u>		Site Contact:		Date: <u>6/28/18</u>		COC No: <u>2</u> of <u>3</u> COCs	
Your Company Name here <u>ATC Group Services</u>		Tel/Fax: <u>802 241 4131</u>		Lab Contact: <u>Kris D.</u>		Carrier:		Sampler: <u>Jo Palmer</u>	
Address <u>1 Elm St. Suite 3</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) <u>PEAB 537-2115H</u> <u>Lead/Kaha-TOC</u> <u>PEAS TOP ASSAY</u> <u>* Field Blanks*</u>				For Lab Use Only: Walk-in Client: Lab Sampling:	
City/State/Zip <u>Waterbury VT</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS							
(xxx) xxx-xxxx Phone <u>802 241 4131</u>		TAT if different from Below							
(xxx) xxx-xxxx FAX		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Project Name: <u>Rutland SVRA</u>		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix	
Site:		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix	
P O # <u>280EM00212</u>		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix	
<u>B-SB-7-TOR</u>		<u>6/26/18</u>		<u>1510</u>		<u>C</u>		<u>So</u>	
<u>B-SB-7-TA</u>		<u>↓</u>		<u>1426</u>		<u>↓</u>		<u>↓</u>	
<u>B-SB-8-S</u>		<u>6/27/18</u>		<u>0850</u>		<u>↓</u>		<u>↓</u>	
<u>B-SB-8-TOC</u>		<u>↓</u>		<u>0855</u>		<u>↓</u>		<u>↓</u>	
<u>B-SB-8-WT</u>		<u>↓</u>		<u>0857</u>		<u>↓</u>		<u>↓</u>	
<u>B-SB-9-S</u>		<u>↓</u>		<u>0950</u>		<u>↓</u>		<u>↓</u>	
<u>B-SB-9-WT</u>		<u>↓</u>		<u>1000</u>		<u>↓</u>		<u>↓</u>	
<u>B-SB-9-TOC</u>		<u>↓</u>		<u>1002</u>		<u>↓</u>		<u>↓</u>	
<u>FB-SB-8</u>		<u>↓</u>		<u>0852</u>		<u>G</u>		<u>DI</u>	
<u>FB-SB-9</u>		<u>↓</u>		<u>1004</u>		<u>G</u>		<u>DI</u>	
<u>FB-SB-10</u>		<u>↓</u>		<u>1118</u>		<u>G</u>		<u>DI</u>	
<u>FB-SB-11</u>		<u>↓</u>		<u>1324</u>		<u>G</u>		<u>DI</u>	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<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"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: <u>* Please extract + hold all field blanks (FB-) until soils are reported - contact James Gaseoyne</u>									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Cor'd:		Therm ID No.:	
Relinquished by: <u>[Signature]</u>		Company: <u>ATC</u>		Date/Time: <u>6/28/18 1300</u>		Received by: <u>[Signature]</u>		Company: <u>TASK</u>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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8/9/2018



TestAmerica Burlington

30 Community Drive
Suite 11
South Burlington, VT 05403-6809
phone 802.660.1990 fax 802.660.1919

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>James Gascoyne</u>		Site Contact:		Date: <u>6/28/18</u>		COC No:	
Your Company Name here <u>ARC Comp Services</u>		Tel/Fax: <u>802 241 4131</u>		Lab Contact: <u>Kris D.</u>		Carrier:		<u>3</u> of <u>3</u> COCs	
Address <u>1 Elm St. Suite 3</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y / N) <u>PEAS 537-21151</u> <u>Lloyd Kahn TOC</u>				Sampler: <u>Am Palmer</u>	
City/State/Zip <u>Waterbury VT 05676</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS						For Lab Use Only:	
(xxx) xxx-xxxx Phone <u>802 241 4131</u>		TAT if different from Below _____						Walk-in Client:	
(xxx) xxx-xxxx FAX _____		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Lab Sampling:	
Project Name: <u>Rustland SVRA</u>								Job / SDG No.:	
Site:									
P O # <u>280 EM 00212</u>									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
<u>Equip Blank - 2</u>		<u>6/27/18</u>	<u>1000</u>	<u>B</u>	<u>DI</u>	<u>1</u>	<u>N</u>	<u>X</u>	
<u>Dup - 1</u>		<u>6/26/18</u>	<u>1200</u>	<u>C</u>	<u>So</u>	<u>1</u>	<u>N</u>	<u>X</u>	
<u>Dup - 2</u>		<u>6/27/18</u>	<u>1200</u>	<u>C</u>	<u>So</u>	<u>1</u>	<u>N</u>	<u>X</u>	
<u>B-SB-10-S</u>			<u>1115</u>			<u>1</u>	<u>N</u>	<u>X</u>	
<u>B-SB-10-WT</u>			<u>1120</u>			<u>1</u>	<u>N</u>	<u>X</u>	
<u>B-SB-10-TOC</u>			<u>1121</u>			<u>1</u>	<u>N</u>	<u>X</u>	
<u>R-SB-11-S</u>			<u>1320</u>			<u>1</u>	<u>N</u>	<u>X</u>	
<u>R-SB-11-WT</u>			<u>1325</u>			<u>1</u>	<u>N</u>	<u>X</u>	
<u>R-SB-11-TOC</u>		<u>✓</u>	<u>1326</u>	<u>✓</u>	<u>✓</u>	<u>1</u>	<u>N</u>	<u>X</u>	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.								Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
<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"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Special Instructions/QC Requirements & Comments:									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by: <u>[Signature]</u>		Company: <u>ARC</u>		Date/Time: <u>6/28/18 1300</u>		Received by: <u>[Signature]</u>		Company: <u>TASU</u>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	



Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 200-44098-2
SDG Number: 200-44098-1

Login Number: 44098
List Number: 1
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington

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	Not present
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	5.9°C
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.	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").	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: 200-44098-2
SDG Number: 200-44098-1

Login Number: 44098
List Number: 2
Creator: Gooch, Mayce

List Source: TestAmerica Sacramento
List Creation: 07/02/18 10:33 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	522771
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	0.7c
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?	False	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.	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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Total Oxidation Precursors

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44098-2
 SDG: 200-44098-1

Client Sample ID: B-SB-7-TA

Lab Sample ID: 200-44098-14
 Matrix: Solid

Analyte	Pre - Treatment Method:			Post - Treatment Method:			Difference ¹	
	Total PFCA-Sum			Total PFCA-Sum			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
PFBA	0.52		ug/Kg	2.3		ug/Kg	1.7	ug/Kg
PFPA	1.7		ug/Kg	2.7		ug/Kg	0.94	ug/Kg
PFHxA	0.85		ug/Kg	1.8		ug/Kg	0.95	ug/Kg
PFHpA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg
PFOA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg
PFNA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg
Total PFCA	3.1		ug/Kg	6.8		ug/Kg	3.7	ug/Kg

¹ Difference = Post-Treatment - Pre-Treatment

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Burlington

30 Community Drive

Suite 11

South Burlington, VT 05403

Tel: (802)660-1990

TestAmerica Job ID: 200-44306-1

TestAmerica Sample Delivery Group: 200-44306-1

Client Project/Site: PFAS, SVRA (21/24 analytes)

For:

ATC Group Services LLC

1 Elm Street, Suite 3

Waterbury, Vermont 05676

Attn: Mr. James Gascoyne



Authorized for release by:

8/24/2018 11:48:59 AM

Lori Arnold, Manager of Project Management

(802)923-1043

lori.arnold@testamericainc.com

Designee for

Kristine Dusablon, Project Manager II

(802)660-1990

kris.dusablon@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.

LINKS

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results through

TotalAccess

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www.testamericainc.com

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Definitions/Glossary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
SDG: 200-44306-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
*	LCS or LCSD is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time

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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
SDG: 200-44306-1

Job ID: 200-44306-1

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: ATC Group Services LLC

Project: PFAS, SVRA (21/24 analytes)

Report Number: 200-44306-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 07/12/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 3.8° C.

PERFLUORINATED HYDROCARBONS

Samples MW-1S, MW-2S, MW-2D, MS-3S, MW-4S, MW-5S, DUP, FB-1S, FB-2S/2D, FB-3S, FB-4S and FB-5S were analyzed for Perfluorinated Hydrocarbons in accordance with Method 537Mod. The samples were prepared on 07/20/2018 and 08/20/2018 and analyzed on 07/24/2018, 08/05/2018 and 08/22/2018.

Samples MW-1S[20X], MW-2S[10X], MS-3S[100X], MS-3S[20X], MW-5S[2X] and DUP[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Samples FB-1S, FB-2S/2D, FB-3S, FB-4S and FB-5S were prepped and analyzed outside of holding time. These samples were all field blanks associated with other samples that weren't queued for analysis until after the holding time had expired.

Perfluorooctane Sulfonamide (PFOSA) recovered above the acceptance criteria for LCS 200-131985/2-A. Refer to the QC report for details.

The low level continuing calibration verification (CCVL) associated with batch 200-132133 recovered above the upper control limit for Perfluoropentanoic acid (PFPeA) and 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2). The CCVIS passes criteria for these analytes and all results are above the CCVIS concentration; therefore, the data have been reported.

Isotope Dilution Analyte (IDA) recoveries for several IDAs were above the method recommended limits for the continuing calibration standards, CCVIS 200-132133/6, CCVL 200-132133/7, and CCV 200-132133/18. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries. None of the affected IDAs are being reported in the associated sample windows.

Isotope Dilution Analyte (IDA) recovery for certain IDAs were above the method recommended limit for the following samples: MW-1S, MW-2S, MW-2D, MS-3S, MW-4S, MW-5S and DUP. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries. Refer to the Form III summary for more details.

Internal standard responses were outside of acceptance limits for the samples, MW-1S, MW-2S, MS-3S, MW-4S, MW-5S, and DUP. The

Case Narrative

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
SDG: 200-44306-1

Job ID: 200-44306-1 (Continued)

Laboratory: TestAmerica Burlington (Continued)

samples show evidence of matrix interference. There are high concentrations of Perfluorooctanoic acid (PFOA) and other PFAS targets in these samples that required additional dilution analyses, which likely contributed to source suppression.

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

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Detection Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: MW-1S

Lab Sample ID: 200-44306-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	740		37	37	ng/L	20		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2900		37	37	ng/L	20		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1700		37	37	ng/L	20		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1100		37	37	ng/L	20		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	340		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	6.1		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	9.9		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	460		37	37	ng/L	20		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	69		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	760		37	37	ng/L	20		537 (modified)	Total/NA
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	1200		370	370	ng/L	20		537 (modified)	Total/NA

Client Sample ID: MW-2S

Lab Sample ID: 200-44306-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1100		20	20	ng/L	10		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3900		20	20	ng/L	10		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1400		20	20	ng/L	10		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	760		20	20	ng/L	10		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	460		20	20	ng/L	10		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	23		2.0	2.0	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	22		2.0	2.0	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	3.0		2.0	2.0	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	34		2.0	2.0	ng/L	1		537 (modified)	Total/NA
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	810		200	200	ng/L	10		537 (modified)	Total/NA

Client Sample ID: MW-2D

Lab Sample ID: 200-44306-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	18		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	83		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	25		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	16		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	22		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	9.7		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	2.7		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.6		1.9	1.9	ng/L	1		537 (modified)	Total/NA
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	91		19	19	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MS-3S

Lab Sample ID: 200-44306-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1200		36	36	ng/L	20		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4300		180	180	ng/L	100		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2500		36	36	ng/L	20		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1200		36	36	ng/L	20		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	500		36	36	ng/L	20		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Detection Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: MS-3S (Continued)

Lab Sample ID: 200-44306-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid (PFNA)	73		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.3		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	41		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	2.3		1.8	1.8	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.6		1.8	1.8	ng/L	1		537 (modified)	Total/NA
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	1100		360	360	ng/L	20		537 (modified)	Total/NA

Client Sample ID: MW-4S

Lab Sample ID: 200-44306-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	21		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	40		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	19		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	13		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.4		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	1.9		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.9		1.9	1.9	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.0		1.9	1.9	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-5S

Lab Sample ID: 200-44306-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	130		2.0	2.0	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	400		3.9	3.9	ng/L	2		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	150		2.0	2.0	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	100		2.0	2.0	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	72		2.0	2.0	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	14		2.0	2.0	ng/L	1		537 (modified)	Total/NA

Client Sample ID: DUP

Lab Sample ID: 200-44306-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1100		39	39	ng/L	20		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3700		39	39	ng/L	20		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1500		39	39	ng/L	20		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	810		39	39	ng/L	20		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	510		39	39	ng/L	20		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	25		2.0	2.0	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	23		2.0	2.0	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	2.6		2.0	2.0	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	33		2.0	2.0	ng/L	1		537 (modified)	Total/NA
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	1100		390	390	ng/L	20		537 (modified)	Total/NA

Client Sample ID: FB-1S

Lab Sample ID: 200-44306-8

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Detection Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
SDG: 200-44306-1

Client Sample ID: FB-2S/2D

Lab Sample ID: 200-44306-9

No Detections.

Client Sample ID: FB-3S

Lab Sample ID: 200-44306-10

No Detections.

Client Sample ID: FB-4S

Lab Sample ID: 200-44306-11

No Detections.

Client Sample ID: FB-5S

Lab Sample ID: 200-44306-12

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: MW-1S
Date Collected: 07/11/18 14:37
Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-1
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	740		37	37	ng/L		07/20/18 10:30	08/05/18 20:35	20
Perfluoropentanoic acid (PFPeA)	2900		37	37	ng/L		07/20/18 10:30	08/05/18 20:35	20
Perfluorohexanoic acid (PFHxA)	1700		37	37	ng/L		07/20/18 10:30	08/05/18 20:35	20
Perfluoroheptanoic acid (PFHpA)	1100		37	37	ng/L		07/20/18 10:30	08/05/18 20:35	20
Perfluorooctanoic acid (PFOA)	340		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
Perfluorononanoic acid (PFNA)	6.1		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
Perfluorodecanoic acid (PFDA)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
Perfluorobutanesulfonic acid (PFBS)	9.9		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
Perfluorohexanesulfonic acid (PFHxS)	460		37	37	ng/L		07/20/18 10:30	08/05/18 20:35	20
Perfluoroheptanesulfonic Acid (PFHpS)	69		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
Perfluorooctanesulfonic acid (PFOS)	760		37	37	ng/L		07/20/18 10:30	08/05/18 20:35	20
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
Perfluorooctane Sulfonamide (PFOSA)	ND *		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 02:42	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		18	18	ng/L		07/20/18 10:30	07/24/18 02:42	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		18	18	ng/L		07/20/18 10:30	07/24/18 02:42	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	1200		370	370	ng/L		07/20/18 10:30	08/05/18 20:35	20
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		18	18	ng/L		07/20/18 10:30	07/24/18 02:42	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	93		25 - 150	07/20/18 10:30	08/05/18 20:35	20
13C4-PFHpA	96		25 - 150	07/20/18 10:30	08/05/18 20:35	20
13C4 PFOA	102		25 - 150	07/20/18 10:30	07/24/18 02:42	1
13C4 PFOS	106		25 - 150	07/20/18 10:30	08/05/18 20:35	20
13C5 PFNA	155 *		25 - 150	07/20/18 10:30	07/24/18 02:42	1
13C4 PFBA	68		25 - 150	07/20/18 10:30	08/05/18 20:35	20
13C2 PFHxA	83		25 - 150	07/20/18 10:30	08/05/18 20:35	20
13C2 PFDA	204 *		25 - 150	07/20/18 10:30	07/24/18 02:42	1
13C2 PFUnA	149		25 - 150	07/20/18 10:30	07/24/18 02:42	1
13C2 PFDoA	118		25 - 150	07/20/18 10:30	07/24/18 02:42	1
13C8 FOSA	143		25 - 150	07/20/18 10:30	07/24/18 02:42	1
13C5-PFPeA	83		25 - 150	07/20/18 10:30	08/05/18 20:35	20
13C2-PFTeDA	128		25 - 150	07/20/18 10:30	07/24/18 02:42	1
d3-NMeFOSAA	117		25 - 150	07/20/18 10:30	07/24/18 02:42	1
d5-NEtFOSAA	133		25 - 150	07/20/18 10:30	07/24/18 02:42	1
M2-6:2FTS	1099 *		25 - 150	07/20/18 10:30	08/05/18 20:35	20
M2-8:2FTS	310 *		25 - 150	07/20/18 10:30	07/24/18 02:42	1
13C3-PFBS	123		25 - 150	07/20/18 10:30	07/24/18 02:42	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: MW-2S

Lab Sample ID: 200-44306-2

Date Collected: 07/11/18 12:30

Matrix: Water

Date Received: 07/12/18 13:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1100		20	20	ng/L		07/20/18 10:30	07/24/18 19:40	10
Perfluoropentanoic acid (PFPeA)	3900		20	20	ng/L		07/20/18 10:30	07/24/18 19:40	10
Perfluorohexanoic acid (PFHxA)	1400		20	20	ng/L		07/20/18 10:30	07/24/18 19:40	10
Perfluoroheptanoic acid (PFHpA)	760		20	20	ng/L		07/20/18 10:30	07/24/18 19:40	10
Perfluorooctanoic acid (PFOA)	460		20	20	ng/L		07/20/18 10:30	07/24/18 19:40	10
Perfluorononanoic acid (PFNA)	23		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluorodecanoic acid (PFDA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluorohexanesulfonic acid (PFHxS)	22		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluoroheptanesulfonic Acid (PFHpS)	3.0		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluorooctanesulfonic acid (PFOS)	34		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
Perfluorooctane Sulfonamide (PFOSA)	ND *		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 02:58	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	20	ng/L		07/20/18 10:30	07/24/18 02:58	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	20	ng/L		07/20/18 10:30	07/24/18 02:58	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	810		200	200	ng/L		07/20/18 10:30	07/24/18 19:40	10
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	20	ng/L		07/20/18 10:30	07/24/18 02:58	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	110		25 - 150	07/20/18 10:30	07/24/18 02:58	1
13C4-PFHpA	102		25 - 150	07/20/18 10:30	07/24/18 19:40	10
13C4 PFOA	101		25 - 150	07/20/18 10:30	07/24/18 19:40	10
13C4 PFOS	114		25 - 150	07/20/18 10:30	07/24/18 02:58	1
13C5 PFNA	111		25 - 150	07/20/18 10:30	07/24/18 02:58	1
13C4 PFBA	95		25 - 150	07/20/18 10:30	07/24/18 19:40	10
13C2 PFHxA	46		25 - 150	07/20/18 10:30	07/24/18 19:40	10
13C2 PFDA	129		25 - 150	07/20/18 10:30	07/24/18 02:58	1
13C2 PFUnA	100		25 - 150	07/20/18 10:30	07/24/18 02:58	1
13C2 PFDoA	81		25 - 150	07/20/18 10:30	07/24/18 02:58	1
13C8 FOSA	94		25 - 150	07/20/18 10:30	07/24/18 02:58	1
13C5-PFPeA	72		25 - 150	07/20/18 10:30	07/24/18 19:40	10
13C2-PFTeDA	79		25 - 150	07/20/18 10:30	07/24/18 02:58	1
d3-NMeFOSAA	84		25 - 150	07/20/18 10:30	07/24/18 02:58	1
d5-NEtFOSAA	77		25 - 150	07/20/18 10:30	07/24/18 02:58	1
M2-6:2FTS	460 *		25 - 150	07/20/18 10:30	07/24/18 19:40	10
M2-8:2FTS	141		25 - 150	07/20/18 10:30	07/24/18 02:58	1
13C3-PFBS	92		25 - 150	07/20/18 10:30	07/24/18 02:58	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: MW-2D

Lab Sample ID: 200-44306-3

Date Collected: 07/11/18 11:25

Matrix: Water

Date Received: 07/12/18 13:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	18		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluoropentanoic acid (PFPeA)	83		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorohexanoic acid (PFHxA)	25		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluoroheptanoic acid (PFHpA)	16		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorooctanoic acid (PFOA)	22		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorononanoic acid (PFNA)	9.7		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorodecanoic acid (PFDA)	2.7		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorooctanesulfonic acid (PFOS)	5.6		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
Perfluorooctane Sulfonamide (PFOSA)	ND *		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:15	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		19	19	ng/L		07/20/18 10:30	07/24/18 03:15	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		19	19	ng/L		07/20/18 10:30	07/24/18 03:15	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	91		19	19	ng/L		07/20/18 10:30	07/24/18 03:15	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	19	ng/L		07/20/18 10:30	07/24/18 03:15	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	82		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C4-PFHpA	69		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C4 PFOA	79		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C4 PFOS	74		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C5 PFNA	69		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C4 PFBA	36		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C2 PFHxA	62		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C2 PFDA	69		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C2 PFUnA	66		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C2 PFDoA	53		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C8 FOSA	48		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C5-PFPeA	37		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C2-PFTeDA	53		25 - 150	07/20/18 10:30	07/24/18 03:15	1
d3-NMeFOSAA	52		25 - 150	07/20/18 10:30	07/24/18 03:15	1
d5-NEtFOSAA	56		25 - 150	07/20/18 10:30	07/24/18 03:15	1
M2-6:2FTS	169 *		25 - 150	07/20/18 10:30	07/24/18 03:15	1
M2-8:2FTS	95		25 - 150	07/20/18 10:30	07/24/18 03:15	1
13C3-PFBS	76		25 - 150	07/20/18 10:30	07/24/18 03:15	1

Client Sample Results

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
SDG: 200-44306-1

Client Sample ID: MS-3S

Lab Sample ID: 200-44306-4

Date Collected: 07/11/18 11:46

Matrix: Water

Date Received: 07/12/18 13:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1200		36	36	ng/L		07/20/18 10:30	07/24/18 19:56	20
Perfluoropentanoic acid (PFPeA)	4300		180	180	ng/L		07/20/18 10:30	08/05/18 20:51	100
Perfluorohexanoic acid (PFHxA)	2500		36	36	ng/L		07/20/18 10:30	07/24/18 19:56	20
Perfluoroheptanoic acid (PFHpA)	1200		36	36	ng/L		07/20/18 10:30	07/24/18 19:56	20
Perfluorooctanoic acid (PFOA)	500		36	36	ng/L		07/20/18 10:30	07/24/18 19:56	20
Perfluorononanoic acid (PFNA)	73		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluorodecanoic acid (PFDA)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluorobutanesulfonic acid (PFBS)	3.3		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluorohexanesulfonic acid (PFHxS)	41		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.3		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluorooctanesulfonic acid (PFOS)	6.6		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
Perfluorooctane Sulfonamide (PFOSA)	ND *		1.8	1.8	ng/L		07/20/18 10:30	07/24/18 03:31	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		18	18	ng/L		07/20/18 10:30	07/24/18 03:31	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		18	18	ng/L		07/20/18 10:30	07/24/18 03:31	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	1100		360	360	ng/L		07/20/18 10:30	07/24/18 19:56	20
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		18	18	ng/L		07/20/18 10:30	07/24/18 03:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	127		25 - 150	07/20/18 10:30	07/24/18 03:31	1
13C4-PFHpA	118		25 - 150	07/20/18 10:30	07/24/18 19:56	20
13C4 PFOA	139		25 - 150	07/20/18 10:30	07/24/18 19:56	20
13C4 PFOS	144		25 - 150	07/20/18 10:30	07/24/18 03:31	1
13C5 PFNA	135		25 - 150	07/20/18 10:30	07/24/18 03:31	1
13C4 PFBA	126		25 - 150	07/20/18 10:30	07/24/18 19:56	20
13C2 PFHxA	56		25 - 150	07/20/18 10:30	07/24/18 19:56	20
13C2 PFDA	155 *		25 - 150	07/20/18 10:30	07/24/18 03:31	1
13C2 PFUnA	125		25 - 150	07/20/18 10:30	07/24/18 03:31	1
13C2 PFDoA	95		25 - 150	07/20/18 10:30	07/24/18 03:31	1
13C8 FOSA	112		25 - 150	07/20/18 10:30	07/24/18 03:31	1
13C5-PFPeA	8933 *		25 - 150	07/20/18 10:30	08/05/18 20:51	100
13C2-PFTeDA	101		25 - 150	07/20/18 10:30	07/24/18 03:31	1
d3-NMeFOSAA	98		25 - 150	07/20/18 10:30	07/24/18 03:31	1
d5-NEtFOSAA	113		25 - 150	07/20/18 10:30	07/24/18 03:31	1
M2-6:2FTS	1207 *		25 - 150	07/20/18 10:30	07/24/18 19:56	20
M2-8:2FTS	209 *		25 - 150	07/20/18 10:30	07/24/18 03:31	1
13C3-PFBS	96		25 - 150	07/20/18 10:30	07/24/18 03:31	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: MW-4S

Lab Sample ID: 200-44306-5

Date Collected: 07/11/18 12:56

Matrix: Water

Date Received: 07/12/18 13:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	21		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluoropentanoic acid (PFPeA)	40		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorohexanoic acid (PFHxA)	19		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluoroheptanoic acid (PFHpA)	13		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorooctanoic acid (PFOA)	9.4		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorononanoic acid (PFNA)	1.9		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorodecanoic acid (PFDA)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorohexanesulfonic acid (PFHxS)	1.9		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorooctanesulfonic acid (PFOS)	2.0		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
Perfluorooctane Sulfonamide (PFOSA)	ND *		1.9	1.9	ng/L		07/20/18 10:30	07/24/18 03:47	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		19	19	ng/L		07/20/18 10:30	07/24/18 03:47	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		19	19	ng/L		07/20/18 10:30	07/24/18 03:47	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		19	19	ng/L		07/20/18 10:30	07/24/18 03:47	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		19	19	ng/L		07/20/18 10:30	07/24/18 03:47	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	99		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C4-PFHpA	83		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C4 PFOA	92		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C4 PFOS	90		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C5 PFNA	95		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C4 PFBA	33		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C2 PFHxA	57		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C2 PFDA	99		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C2 PFUnA	84		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C2 PFDoA	67		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C8 FOSA	73		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C5-PFPeA	38		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C2-PFTeDA	71		25 - 150	07/20/18 10:30	07/24/18 03:47	1
d3-NMeFOSAA	64		25 - 150	07/20/18 10:30	07/24/18 03:47	1
d5-NEtFOSAA	80		25 - 150	07/20/18 10:30	07/24/18 03:47	1
M2-6:2FTS	162 *		25 - 150	07/20/18 10:30	07/24/18 03:47	1
M2-8:2FTS	126		25 - 150	07/20/18 10:30	07/24/18 03:47	1
13C3-PFBS	71		25 - 150	07/20/18 10:30	07/24/18 03:47	1

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: MW-5S
Date Collected: 07/11/18 12:05
Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-6
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	130		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluoropentanoic acid (PFPeA)	400		3.9	3.9	ng/L		07/20/18 10:30	07/24/18 20:12	2
Perfluorohexanoic acid (PFHxA)	150		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluoroheptanoic acid (PFHpA)	100		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorooctanoic acid (PFOA)	72		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorononanoic acid (PFNA)	14		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorodecanoic acid (PFDA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
Perfluorooctane Sulfonamide (PFOSA)	ND *		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:03	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	20	ng/L		07/20/18 10:30	07/24/18 04:03	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	20	ng/L		07/20/18 10:30	07/24/18 04:03	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20	20	ng/L		07/20/18 10:30	07/24/18 04:03	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	20	ng/L		07/20/18 10:30	07/24/18 04:03	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	103		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C4-PFHpA	81		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C4 PFOA	89		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C4 PFOS	96		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C5 PFNA	92		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C4 PFBA	52		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C2 PFHxA	65		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C2 PFDA	109		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C2 PFUnA	97		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C2 PFDoA	85		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C8 FOSA	42		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C5-PFPeA	76		25 - 150	07/20/18 10:30	07/24/18 20:12	2
13C2-PFTeDA	67		25 - 150	07/20/18 10:30	07/24/18 04:03	1
d3-NMeFOSAA	72		25 - 150	07/20/18 10:30	07/24/18 04:03	1
d5-NEtFOSAA	89		25 - 150	07/20/18 10:30	07/24/18 04:03	1
M2-6:2FTS	148		25 - 150	07/20/18 10:30	07/24/18 04:03	1
M2-8:2FTS	170 *		25 - 150	07/20/18 10:30	07/24/18 04:03	1
13C3-PFBS	103		25 - 150	07/20/18 10:30	07/24/18 04:03	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: DUP
Date Collected: 07/11/18 12:00
Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-7
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1100		39	39	ng/L		07/20/18 10:30	08/05/18 21:07	20
Perfluoropentanoic acid (PFPeA)	3700		39	39	ng/L		07/20/18 10:30	08/05/18 21:07	20
Perfluorohexanoic acid (PFHxA)	1500		39	39	ng/L		07/20/18 10:30	08/05/18 21:07	20
Perfluoroheptanoic acid (PFHpA)	810		39	39	ng/L		07/20/18 10:30	08/05/18 21:07	20
Perfluorooctanoic acid (PFOA)	510		39	39	ng/L		07/20/18 10:30	08/05/18 21:07	20
Perfluorononanoic acid (PFNA)	25		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluorodecanoic acid (PFDA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluorohexanesulfonic acid (PFHxS)	23		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.6		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluorooctanesulfonic acid (PFOS)	33		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
Perfluorooctane Sulfonamide (PFOSA)	ND *		2.0	2.0	ng/L		07/20/18 10:30	07/24/18 04:19	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	20	ng/L		07/20/18 10:30	07/24/18 04:19	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	20	ng/L		07/20/18 10:30	07/24/18 04:19	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	1100		390	390	ng/L		07/20/18 10:30	08/05/18 21:07	20
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	20	ng/L		07/20/18 10:30	07/24/18 04:19	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	112		25 - 150	07/20/18 10:30	07/24/18 04:19	1
13C4-PFHpA	97		25 - 150	07/20/18 10:30	08/05/18 21:07	20
13C4 PFOA	104		25 - 150	07/20/18 10:30	08/05/18 21:07	20
13C4 PFOS	112		25 - 150	07/20/18 10:30	07/24/18 04:19	1
13C5 PFNA	115		25 - 150	07/20/18 10:30	07/24/18 04:19	1
13C4 PFBA	75		25 - 150	07/20/18 10:30	08/05/18 21:07	20
13C2 PFHxA	79		25 - 150	07/20/18 10:30	08/05/18 21:07	20
13C2 PFDA	116		25 - 150	07/20/18 10:30	07/24/18 04:19	1
13C2 PFUnA	96		25 - 150	07/20/18 10:30	07/24/18 04:19	1
13C2 PFDoA	83		25 - 150	07/20/18 10:30	07/24/18 04:19	1
13C8 FOSA	89		25 - 150	07/20/18 10:30	07/24/18 04:19	1
13C5-PFPeA	65		25 - 150	07/20/18 10:30	08/05/18 21:07	20
13C2-PFTeDA	75		25 - 150	07/20/18 10:30	07/24/18 04:19	1
d3-NMeFOSAA	70		25 - 150	07/20/18 10:30	07/24/18 04:19	1
d5-NEtFOSAA	88		25 - 150	07/20/18 10:30	07/24/18 04:19	1
M2-6:2FTS	286 *		25 - 150	07/20/18 10:30	08/05/18 21:07	20
M2-8:2FTS	138		25 - 150	07/20/18 10:30	07/24/18 04:19	1
13C3-PFBS	94		25 - 150	07/20/18 10:30	07/24/18 04:19	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: FB-1S
Date Collected: 07/11/18 14:36
Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-8
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluoropentanoic acid (PFPeA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorohexanoic acid (PFHxA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluoroheptanoic acid (PFHpA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorooctanoic acid (PFOA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorononanoic acid (PFNA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorodecanoic acid (PFDA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorotridecanoic Acid (PFTriA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 00:35	1
Perfluorooctane Sulfonamide (PFOSA)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 00:35	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 00:35	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 00:35	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 00:35	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 00:35	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	101		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C4-PFHpA	103		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C4 PFOA	104		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C4 PFOS	94		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C5 PFNA	101		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C4 PFBA	108		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C2 PFHxA	107		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C2 PFDA	98		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C2 PFUnA	91		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C2 PFDoA	67		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C8 FOSA	42		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C5-PFPeA	113		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C2-PFTeDA	59		25 - 150				08/20/18 09:50	08/22/18 00:35	1
d3-NMeFOSAA	69		25 - 150				08/20/18 09:50	08/22/18 00:35	1
d5-NEtFOSAA	64		25 - 150				08/20/18 09:50	08/22/18 00:35	1
M2-6:2FTS	84		25 - 150				08/20/18 09:50	08/22/18 00:35	1
M2-8:2FTS	93		25 - 150				08/20/18 09:50	08/22/18 00:35	1
13C3-PFBS	116		25 - 150				08/20/18 09:50	08/22/18 00:35	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: FB-2S/2D

Lab Sample ID: 200-44306-9

Date Collected: 07/11/18 10:20

Matrix: Water

Date Received: 07/12/18 13:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluoropentanoic acid (PFPeA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorohexanoic acid (PFHxA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluoroheptanoic acid (PFHpA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorooctanoic acid (PFOA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorononanoic acid (PFNA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorodecanoic acid (PFDA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorotridecanoic Acid (PFTriA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.8	1.8	ng/L		08/20/18 09:50	08/22/18 00:51	1
Perfluorooctane Sulfonamide (PFOSA)	ND	H	18	18	ng/L		08/20/18 09:50	08/22/18 00:51	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	H	18	18	ng/L		08/20/18 09:50	08/22/18 00:51	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	H	18	18	ng/L		08/20/18 09:50	08/22/18 00:51	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND	H	18	18	ng/L		08/20/18 09:50	08/22/18 00:51	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND	H	18	18	ng/L		08/20/18 09:50	08/22/18 00:51	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	90		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C4-PFHxA	96		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C4 PFOA	94		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C4 PFOS	87		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C5 PFNA	95		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C4 PFBA	100		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C2 PFHxA	95		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C2 PFDA	96		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C2 PFUnA	86		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C2 PFDoA	65		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C8 FOSA	43		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C5-PFPeA	111		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C2-PFTeDA	53		25 - 150	08/20/18 09:50	08/22/18 00:51	1
d3-NMeFOSAA	69		25 - 150	08/20/18 09:50	08/22/18 00:51	1
d5-NEtFOSAA	62		25 - 150	08/20/18 09:50	08/22/18 00:51	1
M2-6:2FTS	83		25 - 150	08/20/18 09:50	08/22/18 00:51	1
M2-8:2FTS	82		25 - 150	08/20/18 09:50	08/22/18 00:51	1
13C3-PFBS	102		25 - 150	08/20/18 09:50	08/22/18 00:51	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: FB-3S
Date Collected: 07/11/18 11:45
Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-10
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluoropentanoic acid (PFPeA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorohexanoic acid (PFHxA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluoroheptanoic acid (PFHpA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorooctanoic acid (PFOA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorononanoic acid (PFNA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorodecanoic acid (PFDA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluoroundecanoic acid (PFUnA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorododecanoic acid (PFDoA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorotridecanoic Acid (PFTriA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	2.0	2.0	ng/L		08/20/18 09:50	08/22/18 01:07	1
Perfluorooctane Sulfonamide (PFOSA)	ND	H	20	20	ng/L		08/20/18 09:50	08/22/18 01:07	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	H	20	20	ng/L		08/20/18 09:50	08/22/18 01:07	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	H	20	20	ng/L		08/20/18 09:50	08/22/18 01:07	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND	H	20	20	ng/L		08/20/18 09:50	08/22/18 01:07	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND	H	20	20	ng/L		08/20/18 09:50	08/22/18 01:07	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	92		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C4-PFHpA	107		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C4 PFOA	107		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C4 PFOS	103		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C5 PFNA	106		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C4 PFBA	112		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C2 PFHxA	112		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C2 PFDA	103		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C2 PFUnA	90		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C2 PFDoA	70		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C8 FOSA	37		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C5-PFPeA	107		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C2-PFTeDA	55		25 - 150				08/20/18 09:50	08/22/18 01:07	1
d3-NMeFOSAA	71		25 - 150				08/20/18 09:50	08/22/18 01:07	1
d5-NEtFOSAA	66		25 - 150				08/20/18 09:50	08/22/18 01:07	1
M2-6:2FTS	91		25 - 150				08/20/18 09:50	08/22/18 01:07	1
M2-8:2FTS	95		25 - 150				08/20/18 09:50	08/22/18 01:07	1
13C3-PFBS	119		25 - 150				08/20/18 09:50	08/22/18 01:07	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: FB-4S
Date Collected: 07/11/18 12:55
Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-11
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluoropentanoic acid (PFPeA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorohexanoic acid (PFHxA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluoroheptanoic acid (PFHpA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorooctanoic acid (PFOA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorononanoic acid (PFNA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorodecanoic acid (PFDA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorotridecanoic Acid (PFTriA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:23	1
Perfluorooctane Sulfonamide (PFOSA)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 01:23	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 01:23	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 01:23	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 01:23	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 01:23	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	95		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C4-PFHxA	104		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C4 PFOA	102		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C4 PFOS	92		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C5 PFNA	100		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C4 PFBA	108		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C2 PFHxA	107		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C2 PFDA	97		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C2 PFUnA	91		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C2 PFDoA	65		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C8 FOSA	40		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C5-PFPeA	108		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C2-PFTeDA	52		25 - 150	08/20/18 09:50	08/22/18 01:23	1
d3-NMeFOSAA	73		25 - 150	08/20/18 09:50	08/22/18 01:23	1
d5-NEtFOSAA	62		25 - 150	08/20/18 09:50	08/22/18 01:23	1
M2-6:2FTS	95		25 - 150	08/20/18 09:50	08/22/18 01:23	1
M2-8:2FTS	89		25 - 150	08/20/18 09:50	08/22/18 01:23	1
13C3-PFBS	112		25 - 150	08/20/18 09:50	08/22/18 01:23	1

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: FB-5S
Date Collected: 07/11/18 13:15
Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-12
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluoropentanoic acid (PFPeA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorohexanoic acid (PFHxA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluoroheptanoic acid (PFHpA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorooctanoic acid (PFOA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorononanoic acid (PFNA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorodecanoic acid (PFDA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorotridecanoic Acid (PFTriA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.9	1.9	ng/L		08/20/18 09:50	08/22/18 01:39	1
Perfluorooctane Sulfonamide (PFOSA)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 01:39	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 01:39	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 01:39	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 01:39	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND	H	19	19	ng/L		08/20/18 09:50	08/22/18 01:39	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	99		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C4-PFHxA	105		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C4 PFOA	97		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C4 PFOS	98		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C5 PFNA	108		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C4 PFBA	109		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C2 PFHxA	113		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C2 PFDA	103		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C2 PFUnA	96		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C2 PFDoA	75		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C8 FOSA	47		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C5-PFPeA	118		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C2-PFTeDA	56		25 - 150				08/20/18 09:50	08/22/18 01:39	1
d3-NMeFOSAA	75		25 - 150				08/20/18 09:50	08/22/18 01:39	1
d5-NEtFOSAA	68		25 - 150				08/20/18 09:50	08/22/18 01:39	1
M2-6:2FTS	88		25 - 150				08/20/18 09:50	08/22/18 01:39	1
M2-8:2FTS	90		25 - 150				08/20/18 09:50	08/22/18 01:39	1
13C3-PFBS	112		25 - 150				08/20/18 09:50	08/22/18 01:39	1

Isotope Dilution Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFHxS (25-150)	PFHpA (25-150)	PFOA (25-150)	PFOS (25-150)	PFNA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFDA (25-150)
200-44306-1	MW-1S			102		155 *			204 *
200-44306-1	MW-1S	93	96		106		68	83	
200-44306-2	MW-2S	110			114	111			129
200-44306-2	MW-2S		102	101			95	46	
200-44306-3	MW-2D	82	69	79	74	69	36	62	69
200-44306-4	MS-3S	127			144	135			155 *
200-44306-4	MS-3S		118	139			126	56	
200-44306-4	MS-3S								
200-44306-5	MW-4S	99	83	92	90	95	33	57	99
200-44306-6	MW-5S	103	81	89	96	92	52	65	109
200-44306-6	MW-5S								
200-44306-7	DUP	112			112	115			116
200-44306-7	DUP		97	104			75	79	
200-44306-8	FB-1S	101	103	104	94	101	108	107	98
200-44306-9	FB-2S/2D	90	96	94	87	95	100	95	96
200-44306-10	FB-3S	92	107	107	103	106	112	112	103
200-44306-11	FB-4S	95	104	102	92	100	108	107	97
200-44306-12	FB-5S	99	105	97	98	108	109	113	103
LCS 200-131985/2-A	Lab Control Sample	76	88	90	79	79	100	87	93
LCS 200-133053/2-A	Lab Control Sample	100	102	97	91	100	104	99	100
MB 200-131985/1-A	Method Blank	78	88	93	69	80	93	88	94
MB 200-133053/1-A	Method Blank	103	105	101	96	103	114	110	104

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFUnA (25-150)	PFDoA (25-150)	PFOSA (25-150)	PFPeA (25-150)	PFTDA (25-150)	-NMeFOS/ (25-150)	-NEtFOS/ (25-150)	M262FTS (25-150)
200-44306-1	MW-1S	149	118	143		128	117	133	
200-44306-1	MW-1S				83				1099 *
200-44306-2	MW-2S	100	81	94		79	84	77	
200-44306-2	MW-2S				72				460 *
200-44306-3	MW-2D	66	53	48	37	53	52	56	169 *
200-44306-4	MS-3S	125	95	112		101	98	113	
200-44306-4	MS-3S								1207 *
200-44306-4	MS-3S				8933 *				
200-44306-5	MW-4S	84	67	73	38	71	64	80	162 *
200-44306-6	MW-5S	97	85	42		67	72	89	148
200-44306-6	MW-5S				76				
200-44306-7	DUP	96	83	89		75	70	88	
200-44306-7	DUP				65				286 *
200-44306-8	FB-1S	91	67	42	113	59	69	64	84
200-44306-9	FB-2S/2D	86	65	43	111	53	69	62	83
200-44306-10	FB-3S	90	70	37	107	55	71	66	91
200-44306-11	FB-4S	91	65	40	108	52	73	62	95
200-44306-12	FB-5S	96	75	47	118	56	75	68	88
LCS 200-131985/2-A	Lab Control Sample	84	69	39	72	61	67	74	112
LCS 200-133053/2-A	Lab Control Sample	96	72	46	109	53	106	73	91
MB 200-131985/1-A	Method Blank	85	75	46	73	64	63	80	103
MB 200-133053/1-A	Method Blank	95	81	47	112	49	100	68	106

TestAmerica Burlington

Isotope Dilution Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M282FTS (25-150)	3C3-PFB: (25-150)
200-44306-1	MW-1S	310 *	123
200-44306-1	MW-1S		
200-44306-2	MW-2S	141	92
200-44306-2	MW-2S		
200-44306-3	MW-2D	95	76
200-44306-4	MS-3S	209 *	96
200-44306-4	MS-3S		
200-44306-4	MS-3S		
200-44306-5	MW-4S	126	71
200-44306-6	MW-5S	170 *	103
200-44306-6	MW-5S		
200-44306-7	DUP	138	94
200-44306-7	DUP		
200-44306-8	FB-1S	93	116
200-44306-9	FB-2S/2D	82	102
200-44306-10	FB-3S	95	119
200-44306-11	FB-4S	89	112
200-44306-12	FB-5S	90	112
LCS 200-131985/2-A	Lab Control Sample	93	86
LCS 200-133053/2-A	Lab Control Sample	96	103
MB 200-131985/1-A	Method Blank	98	83
MB 200-133053/1-A	Method Blank	99	117

Surrogate Legend

- PFHxS = 18O2 PFHxS
- PFHpA = 13C4-PFHpA
- PFOA = 13C4 PFOA
- PFOS = 13C4 PFOS
- PFNA = 13C5 PFNA
- PFBA = 13C4 PFBA
- PFHxA = 13C2 PFHxA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFOSA = 13C8 FOSA
- PFPeA = 13C5-PFPeA
- PFTDA = 13C2-PFTeDA
- d3-NMeFOSAA = d3-NMeFOSAA
- d5-NEtFOSAA = d5-NEtFOSAA
- M262FTS = M2-6:2FTS
- M282FTS = M2-8:2FTS
- 13C3-PFBS = 13C3-PFBS

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-131985/1-A
Matrix: Water
Analysis Batch: 132086

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 131985

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorooctanoic acid (PFOA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorononanoic acid (PFNA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorodecanoic acid (PFDA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
Perfluorooctane Sulfonamide (PFOSA)	ND		2.0	2.0	ng/L		07/20/18 10:30	07/23/18 23:12	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	20	ng/L		07/20/18 10:30	07/23/18 23:12	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	20	ng/L		07/20/18 10:30	07/23/18 23:12	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20	20	ng/L		07/20/18 10:30	07/23/18 23:12	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	20	ng/L		07/20/18 10:30	07/23/18 23:12	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	78		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C4-PFHpA	88		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C4 PFOA	93		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C4 PFOS	69		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C5 PFNA	80		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C4 PFBA	93		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C2 PFHxA	88		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C2 PFDA	94		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C2 PFUnA	85		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C2 PFDoA	75		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C8 FOSA	46		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C5-PFPeA	73		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C2-PFTeDA	64		25 - 150	07/20/18 10:30	07/23/18 23:12	1
d3-NMeFOSAA	63		25 - 150	07/20/18 10:30	07/23/18 23:12	1
d5-NEtFOSAA	80		25 - 150	07/20/18 10:30	07/23/18 23:12	1
M2-6:2FTS	103		25 - 150	07/20/18 10:30	07/23/18 23:12	1
M2-8:2FTS	98		25 - 150	07/20/18 10:30	07/23/18 23:12	1
13C3-PFBS	83		25 - 150	07/20/18 10:30	07/23/18 23:12	1

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-131985/2-A
Matrix: Water
Analysis Batch: 132086

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 131985

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	40.0	52.2		ng/L		130	50 - 150
Perfluoropentanoic acid (PFPeA)	40.0	53.7		ng/L		134	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	46.7		ng/L		117	50 - 150
Perfluoroheptanoic acid (PFHpA)	40.0	53.8		ng/L		135	50 - 150
Perfluorooctanoic acid (PFOA)	40.0	56.1		ng/L		140	50 - 150
Perfluorononanoic acid (PFNA)	40.0	52.0		ng/L		130	50 - 150
Perfluorodecanoic acid (PFDA)	40.0	47.4		ng/L		119	50 - 150
Perfluoroundecanoic acid (PFUnA)	40.0	51.5		ng/L		129	50 - 150
Perfluorododecanoic acid (PFDoA)	40.0	53.5		ng/L		134	50 - 150
Perfluorotridecanoic Acid (PFTriA)	40.0	45.0		ng/L		113	50 - 150
Perfluorotetradecanoic acid (PFTeA)	40.0	46.9		ng/L		117	50 - 150
Perfluorobutanesulfonic acid (PFBS)	35.4	47.8		ng/L		135	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	36.4	46.9		ng/L		129	50 - 150
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	42.8		ng/L		112	50 - 150
Perfluorooctanesulfonic acid (PFOS)	37.1	49.1		ng/L		132	50 - 150
Perfluorodecanesulfonic acid (PFDS)	38.6	38.1		ng/L		99	50 - 150
Perfluorooctane Sulfonamide (PFOSA)	40.0	65.7 *		ng/L		164	50 - 150
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	49.3		ng/L		123	50 - 150
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	53.4		ng/L		133	50 - 150
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	37.9	44.3		ng/L		117	50 - 150
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	38.3	53.6		ng/L		140	50 - 150

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
18O2 PFHxS	76		25 - 150
13C4-PFHpA	88		25 - 150
13C4 PFOA	90		25 - 150
13C4 PFOS	79		25 - 150
13C5 PFNA	79		25 - 150
13C4 PFBA	100		25 - 150
13C2 PFHxA	87		25 - 150
13C2 PFDA	93		25 - 150
13C2 PFUnA	84		25 - 150
13C2 PFDoA	69		25 - 150
13C8 FOSA	39		25 - 150
13C5-PFPeA	72		25 - 150
13C2-PFTeDA	61		25 - 150

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-131985/2-A
Matrix: Water
Analysis Batch: 132086

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 131985

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
d3-NMeFOSAA	67		25 - 150
d5-NEtFOSAA	74		25 - 150
M2-6:2FTS	112		25 - 150
M2-8:2FTS	93		25 - 150
13C3-PFBS	86		25 - 150

Lab Sample ID: MB 200-133053/1-A
Matrix: Water
Analysis Batch: 133126

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 133053

<i>Analyte</i>	<i>MB Result</i>	<i>MB Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Perfluorobutanoic acid (PFBA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorooctanoic acid (PFOA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorononanoic acid (PFNA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorodecanoic acid (PFDA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
Perfluorooctane Sulfonamide (PFOSA)	ND		2.0	2.0	ng/L		08/20/18 09:50	08/22/18 00:04	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		20	20	ng/L		08/20/18 09:50	08/22/18 00:04	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		20	20	ng/L		08/20/18 09:50	08/22/18 00:04	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		20	20	ng/L		08/20/18 09:50	08/22/18 00:04	1
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		20	20	ng/L		08/20/18 09:50	08/22/18 00:04	1

<i>Isotope Dilution</i>	<i>MB %Recovery</i>	<i>MB Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	103		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C4-PFHpA	105		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C4 PFOA	101		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C4 PFOS	96		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C5 PFNA	103		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C4 PFBA	114		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C2 PFHxA	110		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C2 PFDA	104		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C2 PFUnA	95		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C2 PFDoA	81		25 - 150	08/20/18 09:50	08/22/18 00:04	1

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 200-133053/1-A
Matrix: Water
Analysis Batch: 133126

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 133053

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 FOSA	47		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C5-PFPeA	112		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C2-PFTeDA	49		25 - 150	08/20/18 09:50	08/22/18 00:04	1
d3-NMeFOSAA	100		25 - 150	08/20/18 09:50	08/22/18 00:04	1
d5-NEtFOSAA	68		25 - 150	08/20/18 09:50	08/22/18 00:04	1
M2-6:2FTS	106		25 - 150	08/20/18 09:50	08/22/18 00:04	1
M2-8:2FTS	99		25 - 150	08/20/18 09:50	08/22/18 00:04	1
13C3-PFBS	117		25 - 150	08/20/18 09:50	08/22/18 00:04	1

Lab Sample ID: LCS 200-133053/2-A
Matrix: Water
Analysis Batch: 133126

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 133053

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoropentanoic acid (PFPeA)	40.0	40.3		ng/L		101	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	42.8		ng/L		107	50 - 150
Perfluoroheptanoic acid (PFHpA)	40.0	39.8		ng/L		99	50 - 150
Perfluorooctanoic acid (PFOA)	40.0	40.1		ng/L		100	50 - 150
Perfluorononanoic acid (PFNA)	40.0	39.2		ng/L		98	50 - 150
Perfluorodecanoic acid (PFDA)	40.0	37.7		ng/L		94	50 - 150
Perfluoroundecanoic acid (PFUnA)	40.0	38.6		ng/L		96	50 - 150
Perfluorododecanoic acid (PFDoA)	40.0	37.3		ng/L		93	50 - 150
Perfluorotridecanoic Acid (PFTriA)	40.0	24.7		ng/L		62	50 - 150
Perfluorotetradecanoic acid (PFTeA)	40.0	33.5		ng/L		84	50 - 150
Perfluorobutanesulfonic acid (PFBS)	40.0	41.2		ng/L		103	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	40.0	37.0		ng/L		92	50 - 150
Perfluoroheptanesulfonic Acid (PFHpS)	40.0	40.9		ng/L		102	50 - 150
Perfluorooctanesulfonic acid (PFOS)	40.0	42.5		ng/L		106	50 - 150
Perfluorodecanesulfonic acid (PFDS)	40.0	31.7		ng/L		79	50 - 150
Perfluorooctane Sulfonamide (PFOSA)	40.0	36.2		ng/L		91	50 - 150
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	37.4		ng/L		93	50 - 150
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	38.4		ng/L		96	50 - 150
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	40.0	42.5		ng/L		106	50 - 150
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	40.0	44.9		ng/L		112	50 - 150

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

<i>Isotope Dilution</i>	<i>LCS LCS</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>18O2 PFHxS</i>	100		25 - 150
<i>13C4-PFHpA</i>	102		25 - 150
<i>13C4 PFOA</i>	97		25 - 150
<i>13C4 PFOS</i>	91		25 - 150
<i>13C5 PFNA</i>	100		25 - 150
<i>13C4 PFBA</i>	104		25 - 150
<i>13C2 PFHxA</i>	99		25 - 150
<i>13C2 PFDA</i>	100		25 - 150
<i>13C2 PFUnA</i>	96		25 - 150
<i>13C2 PFDoA</i>	72		25 - 150
<i>13C8 FOSA</i>	46		25 - 150
<i>13C5-PFPeA</i>	109		25 - 150
<i>13C2-PFTeDA</i>	53		25 - 150
<i>d3-NMeFOSAA</i>	106		25 - 150
<i>d5-NEtFOSAA</i>	73		25 - 150
<i>M2-6:2FTS</i>	91		25 - 150
<i>M2-8:2FTS</i>	96		25 - 150
<i>13C3-PFBS</i>	103		25 - 150

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QC Association Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

LCMS

Prep Batch: 131985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-1	MW-1S	Total/NA	Water	3535	
200-44306-2	MW-2S	Total/NA	Water	3535	
200-44306-3	MW-2D	Total/NA	Water	3535	
200-44306-4	MS-3S	Total/NA	Water	3535	
200-44306-5	MW-4S	Total/NA	Water	3535	
200-44306-6	MW-5S	Total/NA	Water	3535	
200-44306-7	DUP	Total/NA	Water	3535	
MB 200-131985/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-131985/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 132086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-1	MW-1S	Total/NA	Water	537 (modified)	131985
200-44306-2	MW-2S	Total/NA	Water	537 (modified)	131985
200-44306-3	MW-2D	Total/NA	Water	537 (modified)	131985
200-44306-4	MS-3S	Total/NA	Water	537 (modified)	131985
200-44306-5	MW-4S	Total/NA	Water	537 (modified)	131985
200-44306-6	MW-5S	Total/NA	Water	537 (modified)	131985
200-44306-7	DUP	Total/NA	Water	537 (modified)	131985
MB 200-131985/1-A	Method Blank	Total/NA	Water	537 (modified)	131985
LCS 200-131985/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	131985

Analysis Batch: 132133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2	MW-2S	Total/NA	Water	537 (modified)	131985
200-44306-4	MS-3S	Total/NA	Water	537 (modified)	131985
200-44306-6	MW-5S	Total/NA	Water	537 (modified)	131985

Analysis Batch: 132526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-1	MW-1S	Total/NA	Water	537 (modified)	131985
200-44306-4	MS-3S	Total/NA	Water	537 (modified)	131985
200-44306-7	DUP	Total/NA	Water	537 (modified)	131985

Prep Batch: 133053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-8	FB-1S	Total/NA	Water	3535	
200-44306-9	FB-2S/2D	Total/NA	Water	3535	
200-44306-10	FB-3S	Total/NA	Water	3535	
200-44306-11	FB-4S	Total/NA	Water	3535	
200-44306-12	FB-5S	Total/NA	Water	3535	
MB 200-133053/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-133053/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 133126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-8	FB-1S	Total/NA	Water	537 (modified)	133053
200-44306-9	FB-2S/2D	Total/NA	Water	537 (modified)	133053
200-44306-10	FB-3S	Total/NA	Water	537 (modified)	133053
200-44306-11	FB-4S	Total/NA	Water	537 (modified)	133053
200-44306-12	FB-5S	Total/NA	Water	537 (modified)	133053

TestAmerica Burlington

QC Association Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
SDG: 200-44306-1

LCMS (Continued)

Analysis Batch: 133126 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 200-133053/1-A	Method Blank	Total/NA	Water	537 (modified)	133053
LCS 200-133053/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	133053

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Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: MW-1S

Date Collected: 07/11/18 14:37

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132086	07/24/18 02:42	BWC	TAL BUR
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		20	132526	08/05/18 20:35	BWC	TAL BUR

Client Sample ID: MW-2S

Date Collected: 07/11/18 12:30

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132086	07/24/18 02:58	BWC	TAL BUR
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		10	132133	07/24/18 19:40	BWC	TAL BUR

Client Sample ID: MW-2D

Date Collected: 07/11/18 11:25

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132086	07/24/18 03:15	BWC	TAL BUR

Client Sample ID: MS-3S

Date Collected: 07/11/18 11:46

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132086	07/24/18 03:31	BWC	TAL BUR
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		20	132133	07/24/18 19:56	BWC	TAL BUR
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		100	132526	08/05/18 20:51	BWC	TAL BUR

Client Sample ID: MW-4S

Date Collected: 07/11/18 12:56

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132086	07/24/18 03:47	BWC	TAL BUR

Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
 SDG: 200-44306-1

Client Sample ID: MW-5S

Date Collected: 07/11/18 12:05

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132086	07/24/18 04:03	BWC	TAL BUR
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		2	132133	07/24/18 20:12	BWC	TAL BUR

Client Sample ID: DUP

Date Collected: 07/11/18 12:00

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	132086	07/24/18 04:19	BWC	TAL BUR
Total/NA	Prep	3535			131985	07/20/18 10:30	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		20	132526	08/05/18 21:07	BWC	TAL BUR

Client Sample ID: FB-1S

Date Collected: 07/11/18 14:36

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			133053	08/20/18 09:50	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133126	08/22/18 00:35	BWC	TAL BUR

Client Sample ID: FB-2S/2D

Date Collected: 07/11/18 10:20

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			133053	08/20/18 09:50	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133126	08/22/18 00:51	BWC	TAL BUR

Client Sample ID: FB-3S

Date Collected: 07/11/18 11:45

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			133053	08/20/18 09:50	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133126	08/22/18 01:07	BWC	TAL BUR

Lab Chronicle

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
SDG: 200-44306-1

Client Sample ID: FB-4S

Date Collected: 07/11/18 12:55

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			133053	08/20/18 09:50	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133126	08/22/18 01:23	BWC	TAL BUR

Client Sample ID: FB-5S

Date Collected: 07/11/18 13:15

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			133053	08/20/18 09:50	JM1	TAL BUR
Total/NA	Analysis	537 (modified)		1	133126	08/22/18 01:39	BWC	TAL BUR

Laboratory References:

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

Accreditation/Certification Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
SDG: 200-44306-1

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Hampshire	NELAP	1	2006	12-18-18
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

Method Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
SDG: 200-44306-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL BUR
3535	Solid-Phase Extraction (SPE)	SW846	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

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: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-1
SDG: 200-44306-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-44306-1	MW-1S	Water	07/11/18 14:37	07/12/18 13:00
200-44306-2	MW-2S	Water	07/11/18 12:30	07/12/18 13:00
200-44306-3	MW-2D	Water	07/11/18 11:25	07/12/18 13:00
200-44306-4	MS-3S	Water	07/11/18 11:46	07/12/18 13:00
200-44306-5	MW-4S	Water	07/11/18 12:56	07/12/18 13:00
200-44306-6	MW-5S	Water	07/11/18 12:05	07/12/18 13:00
200-44306-7	DUP	Water	07/11/18 12:00	07/12/18 13:00
200-44306-8	FB-1S	Water	07/11/18 14:36	07/12/18 13:00
200-44306-9	FB-2S/2D	Water	07/11/18 10:20	07/12/18 13:00
200-44306-10	FB-3S	Water	07/11/18 11:45	07/12/18 13:00
200-44306-11	FB-4S	Water	07/11/18 12:55	07/12/18 13:00
200-44306-12	FB-5S	Water	07/11/18 13:15	07/12/18 13:00

Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 200-44306-1

SDG Number: 200-44306-1

Login Number: 44306

List Number: 1

Creator: Hahl, Victoria L

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
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	3.8°C
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	Jo Palmer, Chelsea F-Stanley
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").	True	
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 Burlington

30 Community Drive

Suite 11

South Burlington, VT 05403

Tel: (802)660-1990

TestAmerica Job ID: 200-44306-2

TestAmerica Sample Delivery Group: 200-44306-1

Client Project/Site: PFAS, SVRA (21/24 analytes)

For:

ATC Group Services LLC

1 Elm Street, Suite 3

Waterbury, Vermont 05676

Attn: Mr. James Gascoyne



Authorized for release by:

8/10/2018 11:55:16 AM

Kristine Dusablon, Project Manager II

(802)660-1990

kris.dusablon@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: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
SDG: 200-44306-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time
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.
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	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
SDG: 200-44306-1

Job ID: 200-44306-2

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: ATC Group Services LLC

Project: PFAS, SVRA (21/24 analytes)

Report Number: 200-44306-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 07/12/2018; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 3.8° C.

PERFLUORINATED HYDROCARBONS

Sample MW-2S (200-44306-2) was analyzed for Perfluorinated Hydrocarbons in accordance with a laboratory defined procedure. The samples were prepared on 07/19/2018 and 08/03/2018 and analyzed on 07/31/2018, 08/03/2018, 08/05/2018, and 08/07/2018.

Results for sample MW-2S (200-44306-2) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

Perfluorobutanoic acid (PFBA) was detected in method blank MB 320-235024/1-A at a level exceeding the reporting limit. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Zero percent recovery of precursor analytes (6:2FTS, 8:2FTS, FOSA, NMeFOSAA, and NEtFOSAA) and enhanced recoveries of PFCAs is observed in the Post-Treatment Laboratory Control Sample ((LCS 320-235024/2-A) and Laboratory Control Sample Duplicate (LCSD 320-235024/3-A) associated with these samples, consistent with the expected oxidation of precursor analytes. The LCSD is outside control limits for Perfluorobutanoic acid (PFBA) as a result of conversion of precursor analytes.

The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample.

The labeled analyte M2-4:2FTS is converted to PFBA during the oxidation step of the TOP assay. The PFBA result in the Post-Treatment Method Blank (MB) indicates how much of a field sample's Post-Treatment PFBA result is contributed by the Reverse Surrogate, when adjusted for dilution factors.

Results for sample MW-2S (200-44306-2) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were outside acceptance limits. Internal standard response was within acceptance limits in the undiluted extract. The ISTD is not used to quantitate target analytes; therefore, there is no impact to the data.

Case Narrative

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
SDG: 200-44306-1

Job ID: 200-44306-2 (Continued)

Laboratory: TestAmerica Burlington (Continued)

The laboratory control sample (LCS) and laboratory control sample duplicate for preparation batch 320-235021 and analytical batch 320-237231 recovered outside control limits for the following analyte: Perfluorooctane Sulfonamide (FOSA). The associated samples was re-prepared outside holding time with LCS/LCSD in control for FOSA. Both sets of data have been reported.

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

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Detection Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Client Sample ID: MW-2S

Lab Sample ID: 200-44306-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	980		5.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	810		5.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanoic acid (PFOA)	590		5.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluorononanoic acid (PFNA)	24		5.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	21		5.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	27		5.0	ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPeA) - DL	3300		50	ng/L	10		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA) - DL	1700		50	ng/L	10		537 (modified)	Pre-Treatment
6:2 FTS - DL	2700		500	ng/L	10		537 (modified)	Pre-Treatment
Perfluoroheptanoic acid (PFHpA)	740		5.0	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanoic acid (PFOA)	470		5.0	ng/L	1		537 (modified)	Post-Treatment
Perfluorononanoic acid (PFNA)	18		5.0	ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	18		5.0	ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	22		5.0	ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanoic acid (PFBA) - DL	1400	B *	50	ng/L	10		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPeA) - DL	3800		50	ng/L	10		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA) - DL	1900		50	ng/L	10		537 (modified)	Post-Treatment
PFBA	460			ng/L	1		Total PFCA-Dif	Total/NA
PFPA	520			ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	260			ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	0.00			ng/L	1		Total PFCA-Dif	Total/NA
PFOA	0.00			ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00			ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	920			ng/L	1		Total PFCA-Dif	Total/NA
PFBA	980			ng/L	1		Total PFCA-Sum	Pre-Treatment
PFPA	3300			ng/L	1		Total PFCA-Sum	Pre-Treatment
PFHxA	1700			ng/L	1		Total PFCA-Sum	Pre-Treatment
PFHpA	810			ng/L	1		Total PFCA-Sum	Pre-Treatment
PFOA	590			ng/L	1		Total PFCA-Sum	Pre-Treatment
PFNA	24			ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	7400			ng/L	1		Total PFCA-Sum	Pre-Treatment
PFBA	1400			ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Detection Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
SDG: 200-44306-1

Client Sample ID: MW-2S (Continued)

Lab Sample ID: 200-44306-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
PFPA	3800			ng/L	1		Total PFCA-Sum	Post-Treatment
PFHxA	1900			ng/L	1		Total PFCA-Sum	Post-Treatment
PFHpA	740			ng/L	1		Total PFCA-Sum	Post-Treatment
PFOA	470			ng/L	1		Total PFCA-Sum	Post-Treatment
PFNA	18			ng/L	1		Total PFCA-Sum	Post-Treatment
Total PFCA	8300			ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Client Sample ID: MW-2S
Date Collected: 07/11/18 12:30
Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-2
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	980		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluoroheptanoic acid (PFHpA)	810		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorooctanoic acid (PFOA)	590		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorononanoic acid (PFNA)	24		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorodecanoic acid (PFDA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorohexanesulfonic acid (PFHxS)	21		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorooctanesulfonic acid (PFOS)	27		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 22:31	1
Perfluorooctane Sulfonamide (FOSA)	ND *		40	ng/L		07/19/18 16:12	07/31/18 22:31	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		50	ng/L		07/19/18 16:12	07/31/18 22:31	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		50	ng/L		07/19/18 16:12	07/31/18 22:31	1
8:2 FTS	ND		50	ng/L		07/19/18 16:12	07/31/18 22:31	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFBA	91		25 - 150			07/19/18 16:12	07/31/18 22:31	1
13C4-PFHpA	91		25 - 150			07/19/18 16:12	07/31/18 22:31	1
13C4 PFOA	86		25 - 150			07/19/18 16:12	07/31/18 22:31	1
13C5 PFNA	92		25 - 150			07/19/18 16:12	07/31/18 22:31	1
13C2 PFDA	90		25 - 150			07/19/18 16:12	07/31/18 22:31	1
13C2 PFUnA	92		25 - 150			07/19/18 16:12	07/31/18 22:31	1
13C2 PFDoA	77		25 - 150			07/19/18 16:12	07/31/18 22:31	1
13C2-PFTeDA	79		25 - 150			07/19/18 16:12	07/31/18 22:31	1
13C3-PFBS	86		25 - 150			07/19/18 16:12	07/31/18 22:31	1
18O2 PFHxS	92		25 - 150			07/19/18 16:12	07/31/18 22:31	1
13C4 PFOS	85		25 - 150			07/19/18 16:12	07/31/18 22:31	1
13C8 FOSA	86		25 - 150			07/19/18 16:12	07/31/18 22:31	1
d3-NMeFOSAA	94		25 - 150			07/19/18 16:12	07/31/18 22:31	1
d5-NEtFOSAA	96		25 - 150			07/19/18 16:12	07/31/18 22:31	1
M2-8:2FTS	87		25 - 150			07/19/18 16:12	07/31/18 22:31	1
M2-4:2FTS	108		0 - 150			07/19/18 16:12	07/31/18 22:31	1

Method: 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - DL

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	3300		50	ng/L		07/19/18 16:12	08/03/18 05:53	10
Perfluorohexanoic acid (PFHxA)	1700		50	ng/L		07/19/18 16:12	08/03/18 05:53	10
6:2 FTS	2700		500	ng/L		07/19/18 16:12	08/03/18 05:53	10
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C5 PFPeA	77		25 - 150			07/19/18 16:12	08/03/18 05:53	10
13C2 PFHxA	83		25 - 150			07/19/18 16:12	08/03/18 05:53	10
M2-6:2FTS	96		25 - 150			07/19/18 16:12	08/03/18 05:53	10

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
SDG: 200-44306-1

Client Sample ID: MW-2S

Date Collected: 07/11/18 12:30

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-2

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - DL (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2FTS	107		0 - 150	07/19/18 16:12	08/03/18 05:53	10

Method: 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RE

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	ND	H	40	ng/L		08/03/18 15:59	08/05/18 07:13	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
13C8 FOSA	99		25 - 150	08/03/18 15:59	08/05/18 07:13	1		
M2-4:2FTS	105		0 - 150	08/03/18 15:59	08/05/18 07:13	1		

Method: 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	740		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorooctanoic acid (PFOA)	470		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorononanoic acid (PFNA)	18		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorodecanoic acid (PFDA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorohexanesulfonic acid (PFHxS)	18		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorooctanesulfonic acid (PFOS)	22		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 23:33	1
Perfluorooctane Sulfonamide (FOSA)	ND		40	ng/L		07/19/18 16:26	07/31/18 23:33	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		50	ng/L		07/19/18 16:26	07/31/18 23:33	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		50	ng/L		07/19/18 16:26	07/31/18 23:33	1
6:2 FTS	ND		50	ng/L		07/19/18 16:26	07/31/18 23:33	1
8:2 FTS	ND		50	ng/L		07/19/18 16:26	07/31/18 23:33	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
13C4-PFHpA	82		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
13C4 PFOA	87		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
13C5 PFNA	90		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
13C2 PFDA	86		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
13C2 PFUnA	83		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
13C2 PFDoA	67		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
13C2-PFTeDA	71		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
13C3-PFBS	71		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
18O2 PFHxS	81		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
13C4 PFOS	76		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
13C8 FOSA	74		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
d3-NMeFOSAA	74		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
d5-NEtFOSAA	87		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
M2-6:2FTS	111		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
M2-8:2FTS	87		25 - 150	07/19/18 16:26	07/31/18 23:33	1		
M2-4:2FTS	0		0 - 150	07/19/18 16:26	07/31/18 23:33	1		

TestAmerica Burlington

Client Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment - DL

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1400	B *	50	ng/L		07/19/18 16:26	08/03/18 06:01	10
Perfluoropentanoic acid (PFPeA)	3800		50	ng/L		07/19/18 16:26	08/03/18 06:01	10
Perfluorohexanoic acid (PFHxA)	1900		50	ng/L		07/19/18 16:26	08/03/18 06:01	10
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFBA	82		25 - 150			07/19/18 16:26	08/03/18 06:01	10
13C5 PFPeA	78		25 - 150			07/19/18 16:26	08/03/18 06:01	10
13C2 PFHxA	84		25 - 150			07/19/18 16:26	08/03/18 06:01	10
M2-4:2FTS	0		0 - 150			07/19/18 16:26	08/03/18 06:01	10

Method: Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	460			ng/L			08/07/18 15:07	1
PFPA	520			ng/L			08/07/18 15:07	1
PFHxA	260			ng/L			08/07/18 15:07	1
PFHpA	0.00			ng/L			08/07/18 15:07	1
PFOA	0.00			ng/L			08/07/18 15:07	1
PFNA	0.00			ng/L			08/07/18 15:07	1
Total PFCA	920			ng/L			08/07/18 15:07	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	980			ng/L			08/07/18 15:01	1
PFPA	3300			ng/L			08/07/18 15:01	1
PFHxA	1700			ng/L			08/07/18 15:01	1
PFHpA	810			ng/L			08/07/18 15:01	1
PFOA	590			ng/L			08/07/18 15:01	1
PFNA	24			ng/L			08/07/18 15:01	1
Total PFCA	7400			ng/L			08/07/18 15:01	1

Method: Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	1400			ng/L			08/07/18 15:04	1
PFPA	3800			ng/L			08/07/18 15:04	1
PFHxA	1900			ng/L			08/07/18 15:04	1
PFHpA	740			ng/L			08/07/18 15:04	1
PFOA	470			ng/L			08/07/18 15:04	1
PFNA	18			ng/L			08/07/18 15:04	1
Total PFCA	8300			ng/L			08/07/18 15:04	1

Isotope Dilution Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Pre-Treatment

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
200-44306-2	MW-2S	91			91	86	92	90	92
200-44306-2 - DL	MW-2S		77	83					
200-44306-2 - RE	MW-2S								
LCS 320-235021/2-A	Lab Control Sample	109	94	91	93	92	94	89	89
LCS 320-237910/2-A	Lab Control Sample								
LCSD 320-235021/3-A	Lab Control Sample Dup	106	96	92	95	93	91	89	86
LCSD 320-237910/3-A	Lab Control Sample Dup								
MB 320-235021/1-A	Method Blank	104	96	93	94	91	91	89	85
MB 320-237910/1-A	Method Blank								

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDaA (25-150)	PFTDA (25-150)	3C3-PFBs (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	-NMeFOS (25-150)	-NEtFOS (25-150)
200-44306-2	MW-2S	77	79	86	92	85	86	94	96
200-44306-2 - DL	MW-2S								
200-44306-2 - RE	MW-2S						99		
LCS 320-235021/2-A	Lab Control Sample	76	74	89	94	87	76	92	83
LCS 320-237910/2-A	Lab Control Sample						81		
LCSD 320-235021/3-A	Lab Control Sample Dup	77	75	88	90	87	73	90	87
LCSD 320-237910/3-A	Lab Control Sample Dup						87		
MB 320-235021/1-A	Method Blank	70	72	87	94	84	75	84	88
MB 320-237910/1-A	Method Blank						82		

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)		
		M262FTS (25-150)	M282FTS (25-150)	M242FTS (0-150)
200-44306-2	MW-2S		87	108
200-44306-2 - DL	MW-2S	96		107
200-44306-2 - RE	MW-2S			105
LCS 320-235021/2-A	Lab Control Sample	91	81	129
LCS 320-237910/2-A	Lab Control Sample			113
LCSD 320-235021/3-A	Lab Control Sample Dup	90	79	127
LCSD 320-237910/3-A	Lab Control Sample Dup			117
MB 320-235021/1-A	Method Blank	94	78	128
MB 320-237910/1-A	Method Blank			97

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- PFHpA = 13C4-PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2-PFTeDA
- 13C3-PFBS = 13C3-PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA

Isotope Dilution Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

d3-NMeFOSAA = d3-NMeFOSAA
 d5-NEtFOSAA = d5-NEtFOSAA
 M262FTS = M2-6:2FTS
 M282FTS = M2-8:2FTS
 M242FTS = M2-4:2FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFDaA (25-150)	PFTDA (25-150)	3C3-PFBs (25-150)
200-44306-2	MW-2S	82	87	90	86	83	67	71	71

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	-NMeFOS (25-150)	-NEtFOS (25-150)	M262FTS (25-150)	M282FTS (25-150)	M242FTS (0-150)
200-44306-2	MW-2S	81	76	74	74	87	111	87	0

Surrogate Legend

PFHpA = 13C4-PFHpA
 PFOA = 13C4 PFOA
 PFNA = 13C5 PFNA
 PFDA = 13C2 PFDA
 PFUnA = 13C2 PFUnA
 PFDaA = 13C2 PFDaA
 PFTDA = 13C2-PFTeDA
 13C3-PFBs = 13C3-PFBs
 PFHxS = 18O2 PFHxS
 PFOS = 13C4 PFOS
 PFOSA = 13C8 FOSA
 d3-NMeFOSAA = d3-NMeFOSAA
 d5-NEtFOSAA = d5-NEtFOSAA
 M262FTS = M2-6:2FTS
 M282FTS = M2-8:2FTS
 M242FTS = M2-4:2FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	M242FTS (0-150)
200-44306-2 - DL	MW-2S	82	78	84	0

Surrogate Legend

PFBA = 13C4 PFBA
 PFPeA = 13C5 PFPeA
 PFHxA = 13C2 PFHxA
 M242FTS = M2-4:2FTS

Isotope Dilution Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
LCS 320-235024/2-A	Lab Control Sample	95	91	94	92	95	97	96	90
LCSD 320-235024/3-A	Lab Control Sample Dup	84	82	81	83	82	86	81	79

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	3C3-PFBs (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	NMeFOSAA (25-150)	NEtFOSAA (25-150)
LCS 320-235024/2-A	Lab Control Sample	75	80	85	90	86	81	92	87
LCSD 320-235024/3-A	Lab Control Sample Dup	68	69	74	80	76	68	75	75

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)	M242FTS (0-10)
LCS 320-235024/2-A	Lab Control Sample	119	91	0
LCSD 320-235024/3-A	Lab Control Sample Dup	104	91	0

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- PFHpA = 13C4-PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2-PFTeDA
- 13C3-PFBs = 13C3-PFBs
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3-NMeFOSAA = d3-NMeFOSAA
- d5-NEtFOSAA = d5-NEtFOSAA
- M262FTS = M2-6:2FTS
- M282FTS = M2-8:2FTS
- M242FTS = M2-4:2FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
MB 320-235024/1-A	Method Blank	82	80	80	82	84	84	82	77

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	3C3-PFBs (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	NMeFOSAA (25-150)	NEtFOSAA (25-150)
MB 320-235024/1-A	Method Blank	69	64	74	81	77	71	78	79

TestAmerica Burlington

Isotope Dilution Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M262FTS	M282FTS	M242FTS
		(25-150)	(25-150)	(0-150)
MB 320-235024/1-A	Method Blank	98	84	0

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
PFHpA = 13C4-PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDaA = 13C2 PFDaA
PFTDA = 13C2-PFTeDA
13C3-PFBS = 13C3-PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2FTS
M282FTS = M2-8:2FTS
M242FTS = M2-4:2FTS

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-235021/1-A
Matrix: Water
Analysis Batch: 237231

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 235021

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluoropentanoic acid (PFPeA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorooctanoic acid (PFOA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorononanoic acid (PFNA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorodecanoic acid (PFDA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	ng/L		07/19/18 16:12	07/31/18 21:52	1
Perfluorooctane Sulfonamide (FOSA)	ND		40	ng/L		07/19/18 16:12	07/31/18 21:52	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		50	ng/L		07/19/18 16:12	07/31/18 21:52	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		50	ng/L		07/19/18 16:12	07/31/18 21:52	1
6:2 FTS	ND		50	ng/L		07/19/18 16:12	07/31/18 21:52	1
8:2 FTS	ND		50	ng/L		07/19/18 16:12	07/31/18 21:52	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	104		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C5 PFPeA	96		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C2 PFHxA	93		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C4-PFHpA	94		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C4 PFOA	91		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C5 PFNA	91		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C2 PFDA	89		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C2 PFUnA	85		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C2 PFDoA	70		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C2-PFTeDA	72		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C3-PFBS	87		25 - 150	07/19/18 16:12	07/31/18 21:52	1
18O2 PFHxS	94		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C4 PFOS	84		25 - 150	07/19/18 16:12	07/31/18 21:52	1
13C8 FOSA	75		25 - 150	07/19/18 16:12	07/31/18 21:52	1
d3-NMeFOSAA	84		25 - 150	07/19/18 16:12	07/31/18 21:52	1
d5-NEtFOSAA	88		25 - 150	07/19/18 16:12	07/31/18 21:52	1
M2-6:2FTS	94		25 - 150	07/19/18 16:12	07/31/18 21:52	1
M2-8:2FTS	78		25 - 150	07/19/18 16:12	07/31/18 21:52	1
M2-4:2FTS	128		0 - 150	07/19/18 16:12	07/31/18 21:52	1

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-235021/2-A
Matrix: Water
Analysis Batch: 237231

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 235021

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	100	84.9		ng/L		85	78 - 138
Perfluoropentanoic acid (PFPeA)	100	87.3		ng/L		87	66 - 136
Perfluorohexanoic acid (PFHxA)	100	89.9		ng/L		90	76 - 136
Perfluoroheptanoic acid (PFHpA)	100	93.8		ng/L		94	78 - 138
Perfluorooctanoic acid (PFOA)	100	89.2		ng/L		89	70 - 130
Perfluorononanoic acid (PFNA)	100	88.9		ng/L		89	77 - 137
Perfluorodecanoic acid (PFDA)	100	85.8		ng/L		86	74 - 134
Perfluoroundecanoic acid (PFUnA)	100	110		ng/L		110	68 - 128
Perfluorododecanoic acid (PFDoA)	100	88.0		ng/L		88	72 - 132
Perfluorotridecanoic Acid (PFTriA)	100	91.0		ng/L		91	56 - 163
Perfluorotetradecanoic acid (PFTeA)	100	88.7		ng/L		89	63 - 123
Perfluorobutanesulfonic acid (PFBS)	88.4	82.5		ng/L		93	79 - 139
Perfluorohexanesulfonic acid (PFHxS)	91.0	72.9		ng/L		80	77 - 137
Perfluoroheptanesulfonic Acid (PFHpS)	95.2	87.8		ng/L		92	83 - 143
Perfluorooctanesulfonic acid (PFOS)	92.8	82.9		ng/L		89	74 - 134
Perfluorodecanesulfonic acid (PFDS)	96.4	79.1		ng/L		82	75 - 135
Perfluorooctane Sulfonamide (FOSA)	100	76.6 *		ng/L		77	82 - 142
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	100	85.7		ng/L		86	77 - 137
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	100	89.3		ng/L		89	79 - 139
6:2 FTS	94.8	81.9		ng/L		86	82 - 142
8:2 FTS	95.8	86.1		ng/L		90	80 - 140

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	109		25 - 150
13C5 PFPeA	94		25 - 150
13C2 PFHxA	91		25 - 150
13C4-PFHpA	93		25 - 150
13C4 PFOA	92		25 - 150
13C5 PFNA	94		25 - 150
13C2 PFDA	89		25 - 150
13C2 PFUnA	89		25 - 150
13C2 PFDoA	76		25 - 150
13C2-PFTeDA	74		25 - 150
13C3-PFBS	89		25 - 150
18O2 PFHxS	94		25 - 150
13C4 PFOS	87		25 - 150
13C8 FOSA	76		25 - 150

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-235021/2-A
Matrix: Water
Analysis Batch: 237231

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 235021

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
d3-NMeFOSAA	92		25 - 150
d5-NEtFOSAA	83		25 - 150
M2-6:2FTS	91		25 - 150
M2-8:2FTS	81		25 - 150
M2-4:2FTS	129		0 - 150

Lab Sample ID: LCSD 320-235021/3-A
Matrix: Water
Analysis Batch: 237231

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 235021

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD
									Limit
Perfluorobutanoic acid (PFBA)	100	85.1		ng/L		85	78 - 138	0	30
Perfluoropentanoic acid (PFPeA)	100	87.7		ng/L		88	66 - 136	0	30
Perfluorohexanoic acid (PFHxA)	100	88.2		ng/L		88	76 - 136	2	30
Perfluoroheptanoic acid (PFHpA)	100	88.0		ng/L		88	78 - 138	6	30
Perfluorooctanoic acid (PFOA)	100	89.3		ng/L		89	70 - 130	0	30
Perfluorononanoic acid (PFNA)	100	91.6		ng/L		92	77 - 137	3	30
Perfluorodecanoic acid (PFDA)	100	84.0		ng/L		84	74 - 134	2	30
Perfluoroundecanoic acid (PFUnA)	100	127		ng/L		127	68 - 128	15	30
Perfluorododecanoic acid (PFDoA)	100	87.1		ng/L		87	72 - 132	1	30
Perfluorotridecanoic Acid (PFTriA)	100	96.9		ng/L		97	56 - 163	6	30
Perfluorotetradecanoic acid (PFTeA)	100	87.1		ng/L		87	63 - 123	2	30
Perfluorobutanesulfonic acid (PFBS)	88.4	83.9		ng/L		95	79 - 139	2	30
Perfluorohexanesulfonic acid (PFHxS)	91.0	76.3		ng/L		84	77 - 137	5	30
Perfluoroheptanesulfonic Acid (PFHpS)	95.2	87.3		ng/L		92	83 - 143	1	30
Perfluorooctanesulfonic acid (PFOS)	92.8	82.0		ng/L		88	74 - 134	1	30
Perfluorodecanesulfonic acid (PFDS)	96.4	82.6		ng/L		86	75 - 135	4	30
Perfluorooctane Sulfonamide (FOSA)	100	75.8	*	ng/L		76	82 - 142	1	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	100	85.2		ng/L		85	77 - 137	1	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	100	89.1		ng/L		89	79 - 139	0	30
6:2 FTS	94.8	83.0		ng/L		88	82 - 142	1	30
8:2 FTS	95.8	82.9		ng/L		87	80 - 140	4	30

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C4 PFBA	106		25 - 150
13C5 PFPeA	96		25 - 150
13C2 PFHxA	92		25 - 150
13C4-PFHpA	95		25 - 150

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-235021/3-A
Matrix: Water
Analysis Batch: 237231

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 235021

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C4 PFOA	93		25 - 150
13C5 PFNA	91		25 - 150
13C2 PFDA	89		25 - 150
13C2 PFUnA	86		25 - 150
13C2 PFDoA	77		25 - 150
13C2-PFTeDA	75		25 - 150
13C3-PFBS	88		25 - 150
18O2 PFHxS	90		25 - 150
13C4 PFOS	87		25 - 150
13C8 FOSA	73		25 - 150
d3-NMeFOSAA	90		25 - 150
d5-NEtFOSAA	87		25 - 150
M2-6:2FTS	90		25 - 150
M2-8:2FTS	79		25 - 150
M2-4:2FTS	127		0 - 150

Lab Sample ID: MB 320-237910/1-A
Matrix: Water
Analysis Batch: 238055

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 237910

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctane Sulfonamide (FOSA)	ND		40	ng/L		08/03/18 15:59	08/05/18 06:26	1

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 FOSA	82		25 - 150	08/03/18 15:59	08/05/18 06:26	1
M2-4:2FTS	97		0 - 150	08/03/18 15:59	08/05/18 06:26	1

Lab Sample ID: LCS 320-237910/2-A
Matrix: Water
Analysis Batch: 238055

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 237910

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctane Sulfonamide (FOSA)	100	101		ng/L		101	82 - 142

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C8 FOSA	81		25 - 150
M2-4:2FTS	113		0 - 150

Lab Sample ID: LCSD 320-237910/3-A
Matrix: Water
Analysis Batch: 238055

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 237910

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctane Sulfonamide (FOSA)	100	95.5		ng/L		95	82 - 142	6	30

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C8 FOSA	87		25 - 150

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-237910/3-A
Matrix: Water
Analysis Batch: 238055

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 237910

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>LCSD Qualifier</i>	<i>Limits</i>
M2-4:2FTS	117		0 - 150

Lab Sample ID: MB 320-235024/1-A
Matrix: Water
Analysis Batch: 237347

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 235024

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	28.2		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluoropentanoic acid (PFPeA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorooctanoic acid (PFOA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorononanoic acid (PFNA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorodecanoic acid (PFDA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorododecanoic acid (PFDoA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorotridecanoic Acid (PFTriA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0	ng/L		07/19/18 16:26	07/31/18 22:54	1
Perfluorooctane Sulfonamide (FOSA)	ND		40	ng/L		07/19/18 16:26	07/31/18 22:54	1
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	ND		50	ng/L		07/19/18 16:26	07/31/18 22:54	1
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	ND		50	ng/L		07/19/18 16:26	07/31/18 22:54	1
6:2 FTS	ND		50	ng/L		07/19/18 16:26	07/31/18 22:54	1
8:2 FTS	ND		50	ng/L		07/19/18 16:26	07/31/18 22:54	1

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MB Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	82		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C5 PFPeA	80		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C2 PFHxA	80		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C4-PFHpA	82		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C4 PFOA	84		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C5 PFNA	84		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C2 PFDA	82		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C2 PFUnA	77		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C2 PFDoA	69		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C2-PFTeDA	64		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C3-PFBS	74		25 - 150	07/19/18 16:26	07/31/18 22:54	1
18O2 PFHxS	81		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C4 PFOS	77		25 - 150	07/19/18 16:26	07/31/18 22:54	1
13C8 FOSA	71		25 - 150	07/19/18 16:26	07/31/18 22:54	1
d3-NMeFOSAA	78		25 - 150	07/19/18 16:26	07/31/18 22:54	1
d5-NEtFOSAA	79		25 - 150	07/19/18 16:26	07/31/18 22:54	1

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-235024/1-A
Matrix: Water
Analysis Batch: 237347

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 235024

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
M2-6:2FTS	98		25 - 150	07/19/18 16:26	07/31/18 22:54	1
M2-8:2FTS	84		25 - 150	07/19/18 16:26	07/31/18 22:54	1
M2-4:2FTS	0		0 - 150	07/19/18 16:26	07/31/18 22:54	1

Lab Sample ID: LCS 320-235024/2-A
Matrix: Water
Analysis Batch: 237347

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 235024

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	100	142		ng/L		142	93 - 153
Perfluoropentanoic acid (PFPeA)	100	101		ng/L		101	85 - 145
Perfluorohexanoic acid (PFHxA)	100	102		ng/L		102	81 - 141
Perfluoroheptanoic acid (PFHpA)	100	108		ng/L		108	104 - 171
Perfluorooctanoic acid (PFOA)	100	231		ng/L		231	158 - 454
Perfluorononanoic acid (PFNA)	100	88.9		ng/L		89	66 - 126
Perfluorodecanoic acid (PFDA)	100	77.8		ng/L		78	65 - 125
Perfluoroundecanoic acid (PFUnA)	100	115		ng/L		115	57 - 117
Perfluorododecanoic acid (PFDoA)	100	82.8		ng/L		83	66 - 126
Perfluorotridecanoic Acid (PFTriA)	100	88.0		ng/L		88	65 - 136
Perfluorotetradecanoic acid (PFTeA)	100	77.6		ng/L		78	63 - 123
Perfluorobutanesulfonic acid (PFBS)	88.4	78.6		ng/L		89	75 - 135
Perfluorohexanesulfonic acid (PFHxS)	91.0	73.4		ng/L		81	64 - 124
Perfluoroheptanesulfonic Acid (PFHpS)	95.2	82.9		ng/L		87	70 - 131
Perfluorooctanesulfonic acid (PFOS)	92.8	82.9		ng/L		89	68 - 128
Perfluorodecanesulfonic acid (PFDS)	96.4	75.4		ng/L		78	66 - 126
Perfluorooctane Sulfonamide (FOSA)	100	1.23	J	ng/L		1	0 - 10
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	100	ND		ng/L		0	0 - 10
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	100	ND		ng/L		0	0 - 10
6:2 FTS	94.8	ND		ng/L		0	0 - 10
8:2 FTS	95.8	ND		ng/L		0	0 - 10

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	95		25 - 150
13C5 PFPeA	91		25 - 150
13C2 PFHxA	94		25 - 150
13C4-PFHpA	92		25 - 150
13C4 PFOA	95		25 - 150
13C5 PFNA	97		25 - 150

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-235024/2-A
Matrix: Water
Analysis Batch: 237347

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 235024

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
13C2 PFDA	96		25 - 150
13C2 PFUnA	90		25 - 150
13C2 PFDoA	75		25 - 150
13C2-PFTeDA	80		25 - 150
13C3-PFBS	85		25 - 150
18O2 PFHxS	90		25 - 150
13C4 PFOS	86		25 - 150
13C8 FOSA	81		25 - 150
d3-NMeFOSAA	92		25 - 150
d5-NEtFOSAA	87		25 - 150
M2-6:2FTS	119		25 - 150
M2-8:2FTS	91		25 - 150
M2-4:2FTS	0		0 - 10

Lab Sample ID: LCSD 320-235024/3-A
Matrix: Water
Analysis Batch: 237347

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 235024

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	100	158	*	ng/L		158	93 - 153	10	30
Perfluoropentanoic acid (PFPeA)	100	101		ng/L		101	85 - 145	1	30
Perfluorohexanoic acid (PFHxA)	100	102		ng/L		102	81 - 141	1	30
Perfluoroheptanoic acid (PFHpA)	100	107		ng/L		107	104 - 171	1	30
Perfluorooctanoic acid (PFOA)	100	246		ng/L		245	158 - 454	6	30
Perfluorononanoic acid (PFNA)	100	91.7		ng/L		92	66 - 126	3	30
Perfluorodecanoic acid (PFDA)	100	86.8		ng/L		87	65 - 125	11	30
Perfluoroundecanoic acid (PFUnA)	100	111		ng/L		111	57 - 117	3	30
Perfluorododecanoic acid (PFDoA)	100	85.9		ng/L		86	66 - 126	4	30
Perfluorotridecanoic Acid (PFTriA)	100	92.5		ng/L		93	65 - 136	5	30
Perfluorotetradecanoic acid (PFTeA)	100	79.4		ng/L		79	63 - 123	2	30
Perfluorobutanesulfonic acid (PFBS)	88.4	79.7		ng/L		90	75 - 135	1	30
Perfluorohexanesulfonic acid (PFHxS)	91.0	74.2		ng/L		82	64 - 124	1	30
Perfluoroheptanesulfonic Acid (PFHpS)	95.2	86.8		ng/L		91	70 - 131	5	30
Perfluorooctanesulfonic acid (PFOS)	92.8	84.0		ng/L		91	68 - 128	1	30
Perfluorodecanesulfonic acid (PFDS)	96.4	77.5		ng/L		80	66 - 126	3	30
Perfluorooctane Sulfonamide (FOSA)	100	1.02	J	ng/L		1	0 - 10	19	30
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	100	ND		ng/L		0	0 - 10	NC	30
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	100	ND		ng/L		0	0 - 10	NC	30

TestAmerica Burlington

QC Sample Results

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-235024/3-A
Matrix: Water
Analysis Batch: 237347

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 235024

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
6:2 FTS	94.8	ND		ng/L		0	0 - 10	NC	30
8:2 FTS	95.8	ND		ng/L		0	0 - 10	NC	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	84		25 - 150
13C5 PFPeA	82		25 - 150
13C2 PFHxA	81		25 - 150
13C4-PFHpA	83		25 - 150
13C4 PFOA	82		25 - 150
13C5 PFNA	86		25 - 150
13C2 PFDA	81		25 - 150
13C2 PFUnA	79		25 - 150
13C2 PFDoA	68		25 - 150
13C2-PFTeDA	69		25 - 150
13C3-PFBS	74		25 - 150
18O2 PFHxS	80		25 - 150
13C4 PFOS	76		25 - 150
13C8 FOSA	68		25 - 150
d3-NMeFOSAA	75		25 - 150
d5-NEtFOSAA	75		25 - 150
M2-6:2FTS	104		25 - 150
M2-8:2FTS	91		25 - 150
M2-4:2FTS	0		0 - 10

QC Association Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

LCMS

Prep Batch: 235021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2	MW-2S	Pre-Treatment	Water	TOPS Pre - Prep	
200-44306-2 - DL	MW-2S	Pre-Treatment	Water	TOPS Pre - Prep	
MB 320-235021/1-A	Method Blank	Pre-Treatment	Water	TOPS Pre - Prep	
LCS 320-235021/2-A	Lab Control Sample	Pre-Treatment	Water	TOPS Pre - Prep	
LCSD 320-235021/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOPS Pre - Prep	

Prep Batch: 235024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2 - DL	MW-2S	Post-Treatment	Water	TOPS Post Prep	
200-44306-2	MW-2S	Post-Treatment	Water	TOPS Post Prep	
MB 320-235024/1-A	Method Blank	Post-Treatment	Water	TOPS Post Prep	
LCS 320-235024/2-A	Lab Control Sample	Post-Treatment	Water	TOPS Post Prep	
LCSD 320-235024/3-A	Lab Control Sample Dup	Post-Treatment	Water	TOPS Post Prep	

Analysis Batch: 237231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2	MW-2S	Pre-Treatment	Water	537 (modified)	235021
MB 320-235021/1-A	Method Blank	Pre-Treatment	Water	537 (modified)	235021
LCS 320-235021/2-A	Lab Control Sample	Pre-Treatment	Water	537 (modified)	235021
LCSD 320-235021/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 (modified)	235021

Analysis Batch: 237347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2	MW-2S	Post-Treatment	Water	537 (modified)	235024
MB 320-235024/1-A	Method Blank	Post-Treatment	Water	537 (modified)	235024
LCS 320-235024/2-A	Lab Control Sample	Post-Treatment	Water	537 (modified)	235024
LCSD 320-235024/3-A	Lab Control Sample Dup	Post-Treatment	Water	537 (modified)	235024

Analysis Batch: 237765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2 - DL	MW-2S	Post-Treatment	Water	537 (modified)	235024
200-44306-2 - DL	MW-2S	Pre-Treatment	Water	537 (modified)	235021

Prep Batch: 237910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2 - RE	MW-2S	Pre-Treatment	Water	TOPS Pre - Prep	
MB 320-237910/1-A	Method Blank	Pre-Treatment	Water	TOPS Pre - Prep	
LCS 320-237910/2-A	Lab Control Sample	Pre-Treatment	Water	TOPS Pre - Prep	
LCSD 320-237910/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOPS Pre - Prep	

Analysis Batch: 238055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2 - RE	MW-2S	Pre-Treatment	Water	537 (modified)	237910
MB 320-237910/1-A	Method Blank	Pre-Treatment	Water	537 (modified)	237910
LCS 320-237910/2-A	Lab Control Sample	Pre-Treatment	Water	537 (modified)	237910
LCSD 320-237910/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 (modified)	237910

Analysis Batch: 238514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2	MW-2S	Pre-Treatment	Water	Total PFCA-Sum	

TestAmerica Burlington

QC Association Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
SDG: 200-44306-1

LCMS (Continued)

Analysis Batch: 238515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2	MW-2S	Post-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 238516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-44306-2	MW-2S	Total/NA	Water	Total PFCA-Dif	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Lab Chronicle

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Client Sample ID: MW-2S

Date Collected: 07/11/18 12:30

Date Received: 07/12/18 13:00

Lab Sample ID: 200-44306-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOPS Post Prep			235024	07/19/18 16:26	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)		1	237347	07/31/18 23:33	CBW	TAL SAC
Post-Treatment	Prep	TOPS Post Prep	DL		235024	07/19/18 16:26	JER	TAL SAC
Post-Treatment	Analysis	537 (modified)	DL	10	237765	08/03/18 06:01	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep			235021	07/19/18 16:12	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)		1	237231	07/31/18 22:31	D1R	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep	DL		235021	07/19/18 16:12	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)	DL	10	237765	08/03/18 05:53	CBW	TAL SAC
Pre-Treatment	Prep	TOPS Pre - Prep	RE		237910	08/03/18 15:59	JER	TAL SAC
Pre-Treatment	Analysis	537 (modified)	RE	1	238055	08/05/18 07:13	CBW	TAL SAC
Total/NA	Analysis	Total PFCA-Dif		1	238516	08/07/18 15:07	MKW	TAL SAC
Post-Treatment	Analysis	Total PFCA-Sum		1	238515	08/07/18 15:04	MKW	TAL SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1	238514	08/07/18 15:01	MKW	TAL SAC

Laboratory References:

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



Accreditation/Certification Summary

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Laboratory: TestAmerica Burlington

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

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	DoD ELAP		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Jersey	NELAP	2	VT972	06-30-19
New York	NELAP	2	10391	04-01-19
Pennsylvania	NELAP	3	68-00489	04-30-19
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD ELAP		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-19
Kansas	NELAP	7	E-10375	10-31-18
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-18-19
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	03-31-19
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-19
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-19
Vermont	State Program	1	VT-4040	04-30-19
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-19
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

Method Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
SDG: 200-44306-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	TAL SAC
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	TAL SAC
TOPS Post Prep	Solid-Phase Extraction (SPE)	SW846	TAL SAC
TOPS Pre - Prep	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: ATC Group Services LLC
Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
SDG: 200-44306-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-44306-2	MW-2S	Water	07/11/18 12:30	07/12/18 13:00

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

Total Oxidation Precursors

Client: ATC Group Services LLC
 Project/Site: PFAS, SVRA (21/24 analytes)

TestAmerica Job ID: 200-44306-2
 SDG: 200-44306-1

Client Sample ID: MW-2S

Lab Sample ID: 200-44306-2
Matrix: Water

Analyte	Pre - Treatment Method: Total PFCA-Sum			Post - Treatment Method: Total PFCA-Sum			Difference ¹	
	Result	Qualifier	Unit	Result	Qualifier	Unit	Result	Unit
PFBA	980		ng/L	1400		ng/L	460	ng/L
Perfluorobutanoic acid (PFBA)	980		ng/L	1400		ng/L	460	ng/L
PFPA	3300		ng/L	3800		ng/L	520	ng/L
Perfluoropentanoic acid (PFPeA)	3300		ng/L	3800		ng/L	520	ng/L
PFHxA	1700		ng/L	1900		ng/L	260	ng/L
Perfluorohexanoic acid (PFHxA)	1700		ng/L	1900		ng/L	260	ng/L
PFHpA	810		ng/L	740		ng/L	0.00	ng/L
Perfluoroheptanoic acid (PFHpA)	810		ng/L	740		ng/L	0.00	ng/L
PFOA	590		ng/L	470		ng/L	0.00	ng/L
Perfluorooctanoic acid (PFOA)	590		ng/L	470		ng/L	0.00	ng/L
PFNA	24		ng/L	18		ng/L	0.00	ng/L
Perfluorononanoic acid (PFNA)	24		ng/L	18		ng/L	0.00	ng/L
Total PFCA	7400		ng/L	8300		ng/L	920	ng/L

¹ Difference = Post-Treatment - Pre-Treatment

TestAmerica Burlington


30 Community Drive Suite 11
 South Burlington, VT 05403
 Phone (802) 660-1990 Fax (802) 660-1919

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: <i>Jo Palmer/Chelsea</i>	Lab PM: Dusablom, Kristine A	Carrier Tracking No(s):	COC No: 200-20883-9098.4
Client Contact: Mr. James Gascoyne	Phone:	E-Mail: kris.dusablom@testamericainc.com		Page: 4 of 4 of 2
Company: ATC Group Services LLC	Due Date Requested:	Job #:		

Address: 1 Elm Street, Suite 3	City: Waterbury	State, Zip: VT, 05676	Phone: 802-241-4131	Email: James.Gascoyne@atcassociates.com	Project Name: 21 PFAS, SVRA (42 analytes)	Site: Rutland SVRA	Project #: 20007893	SSOW#:	Project #: 280EM00212
TAT Requested (days): 10 day			PO #: Purchase Order not required			Analysis Requested			
Preservation Codes:			200-44306 COC						

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oli, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Performs (MS/MS) (Yes or No)	PFAS_IDA - (MOD) PFAS - 42 analytes	Top Assay	Total Number of containers	Special Instructions/Note:
MW-1S	7/11/18	1437	G	Water	N	X			1	
MW-2S		1230		Water		X			4	
MW-2D		1125		Water		X			2	
MW-3S		1146				X			2	
MW-4S		1256				X			2	
MW-5S						X			2	
DUP		1200				X			1	
FB-1S		1436				X			1	
FB-2S/2D		1020				X			1	
FB-3S		1145				X			1	
FB-4S		1255				X			1	

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)	<i>Commercial B w/ case narrative</i>	Special Instructions/QC Requirements:	

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>[Signature]</i>	Date/Time: 7/12/18 1300	Company: ATC	Received by: <i>[Signature]</i>
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.: N/A	Cooler Temperature(s) °C and Other Remarks: 3.8	



Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 200-44306-2
SDG Number: 200-44306-1

Login Number: 44306
List Number: 1
Creator: Hahl, Victoria L

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
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	3.8°C
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	Jo Palmer, Chelsea F-Stanley
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").	True	
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.



Login Sample Receipt Checklist

Client: ATC Group Services LLC

Job Number: 200-44306-2
SDG Number: 200-44306-1

Login Number: 44306
List Number: 2
Creator: Hytrek, Cheryl

List Source: TestAmerica Sacramento
List Creation: 07/14/18 02:37 PM

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	0.5
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?	False	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.	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	



The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

ATC Group Services LLC.

Rutland SVRA; VT

280EM00212

SGS Job Number: FA55465

Sampling Date: 06/26/18



Report to:

**ATC Group Services LLC.
1 Elm St Suite 3
Waterbury, VT 05676
james.gascoyne@atcgs.com**

ATTN: James Gascoyne

Total number of pages in report: 49



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

**Caitlin Brice, M.S.
General Manager**

Client Service contact: Heather Wandrey 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001)
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),
AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Test results relate only to samples analyzed.

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Sample Summary

ATC Group Services LLC.

Job No: FA55465

Rutland SVRA; VT
Project No: 280EM00212

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA55465-1	06/26/18	09:04 JP	06/29/18	SO	Soil	T-SB-4-S
FA55465-2	06/26/18	09:20 JP	06/29/18	SO	Soil	T-SB-4-D
FA55465-3	06/26/18	09:12 JP	06/29/18	SO	Soil	T-SB-4-M
FA55465-4	06/26/18	09:40 JP	06/29/18	SO	Soil	T-SB-5-S
FA55465-5	06/26/18	09:50 JP	06/29/18	SO	Soil	T-SB-5-M
FA55465-6	06/26/18	10:05 JP	06/29/18	SO	Soil	T-SB-5-D
FA55465-7	06/26/18	10:20 JP	06/29/18	SO	Soil	T-SB-3-S
FA55465-8	06/26/18	10:25 JP	06/29/18	SO	Soil	T-SB-3-M
FA55465-9	06/26/18	10:30 JP	06/29/18	SO	Soil	T-SB-3-D
FA55465-10	06/26/18	09:22 JP	06/29/18	AQ	Field Blank Soil	FB-T-SB-4
FA55465-11	06/26/18	09:52 JP	06/29/18	AQ	Field Blank Soil	FB-T-SB-5
FA55465-12	06/26/18	10:28 JP	06/29/18	AQ	Field Blank Soil	FB-T-SB-3
FA55465-13	06/26/18	10:46 JP	06/29/18	SO	Soil	T-SB-2-S

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



Sample Summary

(continued)

ATC Group Services LLC.

Job No: FA55465

Rutland SVRA; VT
Project No: 280EM00212

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA55465-14	06/26/18	10:50 JP	06/29/18	SO	Soil	T-SB-2-M
FA55465-15	06/26/18	11:00 JP	06/29/18	SO	Soil	T-SB-2-D
FA55465-16	06/26/18	11:10 JP	06/29/18	SO	Soil	T-SB-1-S
FA55465-17	06/26/18	11:20 JP	06/29/18	SO	Soil	T-SB-1-M
FA55465-18	06/26/18	11:25 JP	06/29/18	SO	Soil	T-SB-1-D
FA55465-19	06/26/18	10:58 JP	06/29/18	AQ	Field Blank Soil	FB-T-SB-2
FA55465-20	06/26/18	11:22 JP	06/29/18	AQ	Field Blank Soil	FB-T-SB-1

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: ATC Group Services LLC.

Job No: FA55465

Site: Rutland SVRA; VT

Report Date: 7/10/2018 1:33:06

15 Sample(s) were collected on 06/26/2018 and were received at SGS North America Inc - Orlando on 06/29/2018 properly preserved, at 4.2 Deg. C and intact. These Samples received an SGS Orlando job number of FA55465. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Semi-volatiles By Method EPA 537M BY ID

Matrix: SO

Batch ID: OP70790

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA55465-1MS, FA55465-1MSD were used as the QC samples indicated.

Blank Spike Recovery(s) for Perfluorooctanesulfonic acid are outside control limits high. Samples were ND.

Matrix Spike Duplicate Recovery(s) for Perfluorooctanesulfonic acid are outside control limits. Probable cause is due to matrix interference.

FA55465-1 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-2 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-3 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-4 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-5 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-6 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-7 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-8 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-9 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-13 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-14 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-15 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-16 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-17 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

FA55465-18 for Perfluorooctanesulfonic acid: Associated BS outside control limits high. Sample was ND.

General Chemistry By Method SM19 2540G

Matrix: SO

Batch ID: GN79106

Sample(s) FA55465-4DUP were used as the QC samples for Solids, Percent.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

Kim Benham, Client Services (signature on file)

Summary of Hits

Job Number: FA55465
Account: ATC Group Services LLC.
Project: Rutland SVRA; VT
Collected: 06/26/18



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

FA55465-1 **T-SB-4-S**

No hits reported in this sample.

FA55465-2 **T-SB-4-D**

No hits reported in this sample.

FA55465-3 **T-SB-4-M**

No hits reported in this sample.

FA55465-4 **T-SB-5-S**

No hits reported in this sample.

FA55465-5 **T-SB-5-M**

No hits reported in this sample.

FA55465-6 **T-SB-5-D**

No hits reported in this sample.

FA55465-7 **T-SB-3-S**

No hits reported in this sample.

FA55465-8 **T-SB-3-M**

No hits reported in this sample.

FA55465-9 **T-SB-3-D**

No hits reported in this sample.

FA55465-13 **T-SB-2-S**

No hits reported in this sample.

FA55465-14 **T-SB-2-M**

No hits reported in this sample.

Summary of Hits

Job Number: FA55465
Account: ATC Group Services LLC.
Project: Rutland SVRA; VT
Collected: 06/26/18



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

FA55465-15 **T-SB-2-D**

No hits reported in this sample.

FA55465-16 **T-SB-1-S**

No hits reported in this sample.

FA55465-17 **T-SB-1-M**

No hits reported in this sample.

FA55465-18 **T-SB-1-D**

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: T-SB-4-S		Date Sampled: 06/26/18
Lab Sample ID: FA55465-1		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 70.8
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16823.D	1	07/09/18 17:08	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.02 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.4	0.35	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.4	0.28	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.4	0.28	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.4	0.35	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.4	0.35	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.4	0.35	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.4	0.35	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.4	0.35	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.4	0.35	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.4	0.35	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.4	0.35	ug/kg	
PERFLUOROALKYLSULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.4	0.35	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.4	0.35	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.4	0.35	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.4	0.35	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.4	0.35	ug/kg	
PERFLUOROCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.4	0.35	ug/kg	
PERFLUOROCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	3.5	0.70	ug/kg	
2991-50-6	EtFOSAA	ND	3.5	0.70	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.4	0.35	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.4	0.35	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: T-SB-4-S		Date Sampled: 06/26/18
Lab Sample ID: FA55465-1		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 70.8
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	72%		50-150%
	13C5-PFPeA	74%		50-150%
	13C5-PFHxA	75%		50-150%
	13C4-PFHpA	75%		50-150%
	13C8-PFOA	83%		50-150%
	13C9-PFNA	88%		50-150%
	13C6-PFDA	91%		50-150%
	13C7-PFUnDA	90%		50-150%
	13C2-PFDoDA	79%		50-150%
	13C2-PFTeDA	77%		50-150%
	13C3-PFBS	71%		50-150%
	13C3-PFHxS	74%		50-150%
	13C8-PFOS	78%		50-150%
	13C8-FOSA	74%		50-150%
	d3-MeFOSAA	76%		50-150%
	13C2-6:2FTS	78%		50-150%
	13C2-8:2FTS	93%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: T-SB-4-D		Date Sampled: 06/26/18
Lab Sample ID: FA55465-2		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 87.5
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16826.D	1	07/09/18 18:07	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.01 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.1	0.28	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.1	0.23	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.1	0.23	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.1	0.28	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.1	0.28	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.1	0.28	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.1	0.28	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.1	0.28	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.1	0.28	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.1	0.28	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.1	0.28	ug/kg	
PERFLUOROALKYL SULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.1	0.28	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.1	0.28	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.1	0.28	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.1	0.28	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.1	0.28	ug/kg	
PERFLUORO OCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.1	0.28	ug/kg	
PERFLUORO OCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.8	0.57	ug/kg	
2991-50-6	EtFOSAA	ND	2.8	0.57	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.1	0.28	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.1	0.28	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound



4.2
4

Report of Analysis

Client Sample ID: T-SB-4-D		Date Sampled: 06/26/18
Lab Sample ID: FA55465-2		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 87.5
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	92%		50-150%
	13C5-PFPeA	95%		50-150%
	13C5-PFHxA	96%		50-150%
	13C4-PFHpA	99%		50-150%
	13C8-PFOA	110%		50-150%
	13C9-PFNA	107%		50-150%
	13C6-PFDA	104%		50-150%
	13C7-PFUnDA	98%		50-150%
	13C2-PFDoDA	97%		50-150%
	13C2-PFTeDA	99%		50-150%
	13C3-PFBS	91%		50-150%
	13C3-PFHxS	99%		50-150%
	13C8-PFOS	103%		50-150%
	13C8-FOSA	107%		50-150%
	d3-MeFOSAA	94%		50-150%
	13C2-6:2FTS	99%		50-150%
	13C2-8:2FTS	95%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: T-SB-4-M		Date Sampled: 06/26/18
Lab Sample ID: FA55465-3		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 83.7
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16827.D	1	07/09/18 18:27	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.01 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.2	0.30	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.2	0.24	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.2	0.24	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.2	0.30	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.2	0.30	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.2	0.30	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.2	0.30	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.2	0.30	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.2	0.30	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.2	0.30	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.2	0.30	ug/kg	
PERFLUOROALKYL SULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.2	0.30	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.2	0.30	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.2	0.30	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.2	0.30	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.2	0.30	ug/kg	
PERFLUORO OCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.2	0.30	ug/kg	
PERFLUORO OCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	3.0	0.59	ug/kg	
2991-50-6	EtFOSAA	ND	3.0	0.59	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.2	0.30	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.2	0.30	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: T-SB-4-M		Date Sampled: 06/26/18
Lab Sample ID: FA55465-3		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 83.7
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	86%		50-150%
	13C5-PFPeA	88%		50-150%
	13C5-PFHxA	90%		50-150%
	13C4-PFHpA	92%		50-150%
	13C8-PFOA	102%		50-150%
	13C9-PFNA	107%		50-150%
	13C6-PFDA	108%		50-150%
	13C7-PFUnDA	102%		50-150%
	13C2-PFDoDA	94%		50-150%
	13C2-PFTeDA	97%		50-150%
	13C3-PFBS	84%		50-150%
	13C3-PFHxS	92%		50-150%
	13C8-PFOS	97%		50-150%
	13C8-FOSA	99%		50-150%
	d3-MeFOSAA	91%		50-150%
	13C2-6:2FTS	95%		50-150%
	13C2-8:2FTS	101%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: T-SB-5-S		Date Sampled: 06/26/18
Lab Sample ID: FA55465-4		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 88.2
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16828.D	1	07/09/18 18:47	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.03 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.1	0.28	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.1	0.22	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.1	0.22	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.1	0.28	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.1	0.28	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.1	0.28	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.1	0.28	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.1	0.28	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.1	0.28	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.1	0.28	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.1	0.28	ug/kg	
PERFLUOROALKYLSULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.1	0.28	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.1	0.28	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.1	0.28	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.1	0.28	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.1	0.28	ug/kg	
PERFLUOROCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.1	0.28	ug/kg	
PERFLUOROCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.8	0.56	ug/kg	
2991-50-6	EtFOSAA	ND	2.8	0.56	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.1	0.28	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.1	0.28	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: T-SB-5-S		Date Sampled: 06/26/18
Lab Sample ID: FA55465-4		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 88.2
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	79%		50-150%
	13C5-PFPeA	82%		50-150%
	13C5-PFHxA	83%		50-150%
	13C4-PFHpA	86%		50-150%
	13C8-PFOA	93%		50-150%
	13C9-PFNA	95%		50-150%
	13C6-PFDA	101%		50-150%
	13C7-PFUnDA	104%		50-150%
	13C2-PFDoDA	92%		50-150%
	13C2-PFTeDA	96%		50-150%
	13C3-PFBS	79%		50-150%
	13C3-PFHxS	86%		50-150%
	13C8-PFOS	87%		50-150%
	13C8-FOSA	89%		50-150%
	d3-MeFOSAA	82%		50-150%
	13C2-6:2FTS	87%		50-150%
	13C2-8:2FTS	100%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: T-SB-5-M	
Lab Sample ID: FA55465-5	Date Sampled: 06/26/18
Matrix: SO - Soil	Date Received: 06/29/18
Method: EPA 537M BY ID IN HOUSE	Percent Solids: 90.2
Project: Rutland SVRA; VT	

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	71%		50-150%
	13C5-PFPeA	74%		50-150%
	13C5-PFHxA	76%		50-150%
	13C4-PFHpA	76%		50-150%
	13C8-PFOA	83%		50-150%
	13C9-PFNA	85%		50-150%
	13C6-PFDA	86%		50-150%
	13C7-PFUnDA	81%		50-150%
	13C2-PFDoDA	79%		50-150%
	13C2-PFTeDA	83%		50-150%
	13C3-PFBS	71%		50-150%
	13C3-PFHxS	77%		50-150%
	13C8-PFOS	78%		50-150%
	13C8-FOSA	87%		50-150%
	d3-MeFOSAA	70%		50-150%
	13C2-6:2FTS	75%		50-150%
	13C2-8:2FTS	76%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: T-SB-5-D		
Lab Sample ID: FA55465-6		Date Sampled: 06/26/18
Matrix: SO - Soil		Date Received: 06/29/18
Method: EPA 537M BY ID IN HOUSE		Percent Solids: 91.6
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16832.D	1	07/09/18 20:04	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.01 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.1	0.27	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.1	0.22	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.1	0.22	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.1	0.27	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.1	0.27	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.1	0.27	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.1	0.27	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.1	0.27	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.1	0.27	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.1	0.27	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.1	0.27	ug/kg	
PERFLUOROALKYLSULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.1	0.27	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.1	0.27	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.1	0.27	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.1	0.27	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.1	0.27	ug/kg	
PERFLUOROCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.1	0.27	ug/kg	
PERFLUOROCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.7	0.54	ug/kg	
2991-50-6	EtFOSAA	ND	2.7	0.54	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.1	0.27	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.1	0.27	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.6
4

Report of Analysis

Client Sample ID: T-SB-5-D		Date Sampled: 06/26/18
Lab Sample ID: FA55465-6		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 91.6
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	82%		50-150%
	13C5-PFPeA	84%		50-150%
	13C5-PFHxA	85%		50-150%
	13C4-PFHpA	88%		50-150%
	13C8-PFOA	96%		50-150%
	13C9-PFNA	95%		50-150%
	13C6-PFDA	96%		50-150%
	13C7-PFUnDA	87%		50-150%
	13C2-PFDoDA	86%		50-150%
	13C2-PFTeDA	93%		50-150%
	13C3-PFBS	81%		50-150%
	13C3-PFHxS	88%		50-150%
	13C8-PFOS	87%		50-150%
	13C8-FOSA	98%		50-150%
	d3-MeFOSAA	76%		50-150%
	13C2-6:2FTS	86%		50-150%
	13C2-8:2FTS	86%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.6
4

Report of Analysis

Client Sample ID: T-SB-3-S		Date Sampled: 06/26/18
Lab Sample ID: FA55465-7		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 90.7
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16833.D	1	07/09/18 20:24	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.01 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.1	0.27	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.1	0.22	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.1	0.22	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.1	0.27	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.1	0.27	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.1	0.27	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.1	0.27	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.1	0.27	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.1	0.27	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.1	0.27	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.1	0.27	ug/kg	
PERFLUOROALKYL SULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.1	0.27	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.1	0.27	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.1	0.27	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.1	0.27	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.1	0.27	ug/kg	
PERFLUORO OCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.1	0.27	ug/kg	
PERFLUORO OCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.7	0.55	ug/kg	
2991-50-6	EtFOSAA	ND	2.7	0.55	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.1	0.27	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.1	0.27	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.7
4

Report of Analysis

Client Sample ID: T-SB-3-S		Date Sampled: 06/26/18
Lab Sample ID: FA55465-7		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 90.7
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	79%		50-150%
	13C5-PFPeA	81%		50-150%
	13C5-PFHxA	83%		50-150%
	13C4-PFHpA	85%		50-150%
	13C8-PFOA	93%		50-150%
	13C9-PFNA	96%		50-150%
	13C6-PFDA	101%		50-150%
	13C7-PFUnDA	99%		50-150%
	13C2-PFDoDA	90%		50-150%
	13C2-PFTeDA	89%		50-150%
	13C3-PFBS	79%		50-150%
	13C3-PFHxS	86%		50-150%
	13C8-PFOS	86%		50-150%
	13C8-FOSA	82%		50-150%
	d3-MeFOSAA	79%		50-150%
	13C2-6:2FTS	84%		50-150%
	13C2-8:2FTS	99%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: T-SB-3-M		Date Sampled: 06/26/18
Lab Sample ID: FA55465-8		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 85.2
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16834.D	1	07/09/18 20:44	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.00 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.2	0.29	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.2	0.23	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.2	0.23	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.2	0.29	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.2	0.29	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.2	0.29	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.2	0.29	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.2	0.29	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.2	0.29	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.2	0.29	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.2	0.29	ug/kg	
PERFLUOROALKYL SULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.2	0.29	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.2	0.29	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.2	0.29	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.2	0.29	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.2	0.29	ug/kg	
PERFLUORO OCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.2	0.29	ug/kg	
PERFLUORO OCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.9	0.59	ug/kg	
2991-50-6	EtFOSAA	ND	2.9	0.59	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.2	0.29	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.2	0.29	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.8
4

Report of Analysis

Client Sample ID: T-SB-3-M		Date Sampled: 06/26/18
Lab Sample ID: FA55465-8		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 85.2
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	75%		50-150%
	13C5-PFPeA	77%		50-150%
	13C5-PFHxA	78%		50-150%
	13C4-PFHpA	79%		50-150%
	13C8-PFOA	88%		50-150%
	13C9-PFNA	96%		50-150%
	13C6-PFDA	97%		50-150%
	13C7-PFUnDA	99%		50-150%
	13C2-PFDoDA	92%		50-150%
	13C2-PFTeDA	88%		50-150%
	13C3-PFBS	74%		50-150%
	13C3-PFHxS	79%		50-150%
	13C8-PFOS	86%		50-150%
	13C8-FOSA	84%		50-150%
	d3-MeFOSAA	80%		50-150%
	13C2-6:2FTS	79%		50-150%
	13C2-8:2FTS	103%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.8
4

Report of Analysis

Client Sample ID: T-SB-3-D		
Lab Sample ID: FA55465-9		Date Sampled: 06/26/18
Matrix: SO - Soil		Date Received: 06/29/18
Method: EPA 537M BY ID IN HOUSE		Percent Solids: 89.9
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16835.D	1	07/09/18 21:04	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.01 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.1	0.28	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.1	0.22	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.1	0.22	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.1	0.28	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.1	0.28	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.1	0.28	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.1	0.28	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.1	0.28	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.1	0.28	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.1	0.28	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.1	0.28	ug/kg	
PERFLUOROALKYL SULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.1	0.28	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.1	0.28	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.1	0.28	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.1	0.28	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.1	0.28	ug/kg	
PERFLUORO OCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.1	0.28	ug/kg	
PERFLUORO OCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.8	0.55	ug/kg	
2991-50-6	EtFOSAA	ND	2.8	0.55	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.1	0.28	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.1	0.28	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound



4.9
4

Report of Analysis

Client Sample ID: T-SB-3-D	
Lab Sample ID: FA55465-9	Date Sampled: 06/26/18
Matrix: SO - Soil	Date Received: 06/29/18
Method: EPA 537M BY ID IN HOUSE	Percent Solids: 89.9
Project: Rutland SVRA; VT	

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	75%		50-150%
	13C5-PFPeA	76%		50-150%
	13C5-PFHxA	78%		50-150%
	13C4-PFHpA	82%		50-150%
	13C8-PFOA	89%		50-150%
	13C9-PFNA	94%		50-150%
	13C6-PFDA	88%		50-150%
	13C7-PFUnDA	82%		50-150%
	13C2-PFDoDA	82%		50-150%
	13C2-PFTeDA	84%		50-150%
	13C3-PFBS	76%		50-150%
	13C3-PFHxS	81%		50-150%
	13C8-PFOS	83%		50-150%
	13C8-FOSA	87%		50-150%
	d3-MeFOSAA	74%		50-150%
	13C2-6:2FTS	81%		50-150%
	13C2-8:2FTS	83%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: T-SB-2-S		Date Sampled: 06/26/18
Lab Sample ID: FA55465-13		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 90.1
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16836.D	1	07/09/18 21:23	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.00 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.1	0.28	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.1	0.22	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.1	0.22	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.1	0.28	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.1	0.28	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.1	0.28	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.1	0.28	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.1	0.28	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.1	0.28	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.1	0.28	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.1	0.28	ug/kg	
PERFLUOROALKYL SULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.1	0.28	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.1	0.28	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.1	0.28	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.1	0.28	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.1	0.28	ug/kg	
PERFLUORO OCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.1	0.28	ug/kg	
PERFLUORO OCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.8	0.55	ug/kg	
2991-50-6	EtFOSAA	ND	2.8	0.55	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.1	0.28	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.1	0.28	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound



4.10
4

Report of Analysis

Client Sample ID: T-SB-2-S	Date Sampled: 06/26/18
Lab Sample ID: FA55465-13	Date Received: 06/29/18
Matrix: SO - Soil	Percent Solids: 90.1
Method: EPA 537M BY ID IN HOUSE	
Project: Rutland SVRA; VT	

4.10
4

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	74%		50-150%
	13C5-PFPeA	75%		50-150%
	13C5-PFHxA	78%		50-150%
	13C4-PFHpA	78%		50-150%
	13C8-PFOA	84%		50-150%
	13C9-PFNA	89%		50-150%
	13C6-PFDA	91%		50-150%
	13C7-PFUnDA	97%		50-150%
	13C2-PFDoDA	86%		50-150%
	13C2-PFTeDA	81%		50-150%
	13C3-PFBS	73%		50-150%
	13C3-PFHxS	79%		50-150%
	13C8-PFOS	82%		50-150%
	13C8-FOSA	83%		50-150%
	d3-MeFOSAA	78%		50-150%
	13C2-6:2FTS	80%		50-150%
	13C2-8:2FTS	92%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: T-SB-2-M		Date Sampled: 06/26/18
Lab Sample ID: FA55465-14		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 85.8
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16837.D	1	07/09/18 21:43	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.00 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.2	0.29	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.2	0.23	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.2	0.23	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.2	0.29	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.2	0.29	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.2	0.29	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.2	0.29	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.2	0.29	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.2	0.29	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.2	0.29	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.2	0.29	ug/kg	
PERFLUOROALKYL SULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.2	0.29	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.2	0.29	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.2	0.29	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.2	0.29	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.2	0.29	ug/kg	
PERFLUORO OCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.2	0.29	ug/kg	
PERFLUORO OCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.9	0.58	ug/kg	
2991-50-6	EtFOSAA	ND	2.9	0.58	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.2	0.29	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.2	0.29	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound



4.11
4

Report of Analysis

Client Sample ID: T-SB-2-M		Date Sampled: 06/26/18
Lab Sample ID: FA55465-14		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 85.8
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

4.11
4

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	75%		50-150%
	13C5-PFPeA	77%		50-150%
	13C5-PFHxA	79%		50-150%
	13C4-PFHpA	80%		50-150%
	13C8-PFOA	90%		50-150%
	13C9-PFNA	92%		50-150%
	13C6-PFDA	92%		50-150%
	13C7-PFUnDA	94%		50-150%
	13C2-PFDoDA	84%		50-150%
	13C2-PFTeDA	84%		50-150%
	13C3-PFBS	74%		50-150%
	13C3-PFHxS	80%		50-150%
	13C8-PFOS	85%		50-150%
	13C8-FOSA	82%		50-150%
	d3-MeFOSAA	82%		50-150%
	13C2-6:2FTS	80%		50-150%
	13C2-8:2FTS	94%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: T-SB-2-D		
Lab Sample ID: FA55465-15		Date Sampled: 06/26/18
Matrix: SO - Soil		Date Received: 06/29/18
Method: EPA 537M BY ID IN HOUSE		Percent Solids: 75.7
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16838.D	1	07/09/18 22:03	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.01 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYLCARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.3	0.33	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.3	0.26	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.3	0.26	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.3	0.33	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.3	0.33	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.3	0.33	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.3	0.33	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.3	0.33	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.3	0.33	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.3	0.33	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.3	0.33	ug/kg	
PERFLUOROALKYLSULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.3	0.33	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.3	0.33	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.3	0.33	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.3	0.33	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.3	0.33	ug/kg	
PERFLUOROCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.3	0.33	ug/kg	
PERFLUOROCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	3.3	0.66	ug/kg	
2991-50-6	EtFOSAA	ND	3.3	0.66	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.3	0.33	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.3	0.33	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.12
4

Report of Analysis

Client Sample ID: T-SB-2-D		Date Sampled: 06/26/18
Lab Sample ID: FA55465-15		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 75.7
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

4.12
4

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	77%		50-150%
	13C5-PFPeA	78%		50-150%
	13C5-PFHxA	81%		50-150%
	13C4-PFHpA	83%		50-150%
	13C8-PFOA	90%		50-150%
	13C9-PFNA	95%		50-150%
	13C6-PFDA	87%		50-150%
	13C7-PFUnDA	83%		50-150%
	13C2-PFDoDA	81%		50-150%
	13C2-PFTeDA	83%		50-150%
	13C3-PFBS	78%		50-150%
	13C3-PFHxS	82%		50-150%
	13C8-PFOS	83%		50-150%
	13C8-FOSA	91%		50-150%
	d3-MeFOSAA	72%		50-150%
	13C2-6:2FTS	81%		50-150%
	13C2-8:2FTS	76%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: T-SB-1-S		
Lab Sample ID: FA55465-16		Date Sampled: 06/26/18
Matrix: SO - Soil		Date Received: 06/29/18
Method: EPA 537M BY ID IN HOUSE		Percent Solids: 93.7
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16839.D	1	07/09/18 22:23	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.01 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.1	0.27	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.1	0.21	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.1	0.21	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.1	0.27	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.1	0.27	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.1	0.27	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.1	0.27	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.1	0.27	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.1	0.27	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.1	0.27	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.1	0.27	ug/kg	
PERFLUOROALKYL SULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.1	0.27	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.1	0.27	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.1	0.27	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.1	0.27	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.1	0.27	ug/kg	
PERFLUORO OCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.1	0.27	ug/kg	
PERFLUORO OCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.7	0.53	ug/kg	
2991-50-6	EtFOSAA	ND	2.7	0.53	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.1	0.27	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.1	0.27	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.13
4

Report of Analysis

Client Sample ID: T-SB-1-S		Date Sampled: 06/26/18
Lab Sample ID: FA55465-16		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 93.7
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	84%		50-150%
	13C5-PFPeA	86%		50-150%
	13C5-PFHxA	87%		50-150%
	13C4-PFHpA	90%		50-150%
	13C8-PFOA	99%		50-150%
	13C9-PFNA	108%		50-150%
	13C6-PFDA	100%		50-150%
	13C7-PFUnDA	97%		50-150%
	13C2-PFDoDA	95%		50-150%
	13C2-PFTeDA	92%		50-150%
	13C3-PFBS	84%		50-150%
	13C3-PFHxS	91%		50-150%
	13C8-PFOS	94%		50-150%
	13C8-FOSA	98%		50-150%
	d3-MeFOSAA	92%		50-150%
	13C2-6:2FTS	92%		50-150%
	13C2-8:2FTS	101%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.13
4

Report of Analysis

Client Sample ID: T-SB-1-M		
Lab Sample ID: FA55465-17		Date Sampled: 06/26/18
Matrix: SO - Soil		Date Received: 06/29/18
Method: EPA 537M BY ID IN HOUSE		Percent Solids: 84.0
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16840.D	1	07/09/18 22:42	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.05 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.2	0.29	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.2	0.23	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.2	0.23	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.2	0.29	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.2	0.29	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.2	0.29	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.2	0.29	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.2	0.29	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.2	0.29	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.2	0.29	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.2	0.29	ug/kg	
PERFLUOROALKYL SULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.2	0.29	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.2	0.29	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.2	0.29	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.2	0.29	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.2	0.29	ug/kg	
PERFLUORO OCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.2	0.29	ug/kg	
PERFLUORO OCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.9	0.58	ug/kg	
2991-50-6	EtFOSAA	ND	2.9	0.58	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.2	0.29	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.2	0.29	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.14
4

Report of Analysis

Client Sample ID: T-SB-1-M		Date Sampled: 06/26/18
Lab Sample ID: FA55465-17		Date Received: 06/29/18
Matrix: SO - Soil		Percent Solids: 84.0
Method: EPA 537M BY ID IN HOUSE		
Project: Rutland SVRA; VT		

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4

PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	78%		50-150%
	13C5-PFPeA	79%		50-150%
	13C5-PFHxA	83%		50-150%
	13C4-PFHpA	85%		50-150%
	13C8-PFOA	95%		50-150%
	13C9-PFNA	93%		50-150%
	13C6-PFDA	91%		50-150%
	13C7-PFUnDA	85%		50-150%
	13C2-PFDoDA	82%		50-150%
	13C2-PFTeDA	82%		50-150%
	13C3-PFBS	78%		50-150%
	13C3-PFHxS	84%		50-150%
	13C8-PFOS	87%		50-150%
	13C8-FOSA	88%		50-150%
	d3-MeFOSAA	84%		50-150%
	13C2-6:2FTS	85%		50-150%
	13C2-8:2FTS	85%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: T-SB-1-D		
Lab Sample ID: FA55465-18		Date Sampled: 06/26/18
Matrix: SO - Soil		Date Received: 06/29/18
Method: EPA 537M BY ID IN HOUSE		Percent Solids: 82.8
Project: Rutland SVRA; VT		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q16841.D	1	07/09/18 23:02	NG	07/09/18 08:00	OP70790	S2Q293
Run #2							

Run #	Initial Weight	Final Volume
Run #1	2.01 g	1.0 ml
Run #2		

PFAS List

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.2	0.30	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.2	0.24	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.2	0.24	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.2	0.30	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.2	0.30	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.2	0.30	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.2	0.30	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.2	0.30	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.2	0.30	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.2	0.30	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.2	0.30	ug/kg	
PERFLUOROALKYL SULFONATES						
375-73-5	Perfluorobutanesulfonic acid	ND	1.2	0.30	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.2	0.30	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.2	0.30	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid ^a	ND	1.2	0.30	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.2	0.30	ug/kg	
PERFLUORO OCTANESULFONAMIDES						
754-91-6	PFOSA	ND	1.2	0.30	ug/kg	
PERFLUORO OCTANESULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	3.0	0.60	ug/kg	
2991-50-6	EtFOSAA	ND	3.0	0.60	ug/kg	
FLUOROTELOMER SULFONATES						
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.2	0.30	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.2	0.30	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.15
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Report of Analysis

Client Sample ID: T-SB-1-D	
Lab Sample ID: FA55465-18	Date Sampled: 06/26/18
Matrix: SO - Soil	Date Received: 06/29/18
Method: EPA 537M BY ID IN HOUSE	Percent Solids: 82.8
Project: Rutland SVRA; VT	

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PFAS List

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	81%		50-150%
	13C5-PFPeA	82%		50-150%
	13C5-PFHxA	84%		50-150%
	13C4-PFHpA	86%		50-150%
	13C8-PFOA	95%		50-150%
	13C9-PFNA	92%		50-150%
	13C6-PFDA	90%		50-150%
	13C7-PFUnDA	84%		50-150%
	13C2-PFDoDA	84%		50-150%
	13C2-PFTeDA	84%		50-150%
	13C3-PFBS	81%		50-150%
	13C3-PFHxS	86%		50-150%
	13C8-PFOS	85%		50-150%
	13C8-FOSA	93%		50-150%
	d3-MeFOSAA	81%		50-150%
	13C2-6:2FTS	86%		50-150%
	13C2-8:2FTS	78%		50-150%

(a) Associated BS outside control limits high. Sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS Sample Receipt Summary

Job Number: FA55465

Client: ATC

Project: RUTLAND SVRA

Date / Time Received: 6/29/2018 10:45:00 AM

Delivery Method: FED EX

Airbill #s: 8133938417970215

Therm ID: IR 1;

Therm CF: 0.1;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (4.1);

Cooler Temps (Corrected) °C: Cooler 1: (4.2);

Cooler Information

Y or N

- 1. Custody Seals Present
- 2. Custody Seals Intact
- 3. Temp criteria achieved
- 4. Cooler temp verification IR Gun
- 5. Cooler media Ice (Bag)

Sample Information

Y or N N/A

- 1. Sample labels present on bottles
- 2. Samples preserved properly
- 3. Sufficient volume/containers recvd for analysis:
- 4. Condition of sample Intact
- 5. Sample recvd within HT
- 6. Dates/Times/IDs on COC match Sample Label
- 7. VOCs have headspace
- 8. Bottles received for unspecified tests
- 9. Compositing instructions clear
- 10. Voa Soil Kits/Jars received past 48hrs?
- 11. % Solids Jar received?
- 12. Residual Chlorine Present?

Trip Blank Information

Y or N N/A

- 1. Trip Blank present / cooler
 - 2. Trip Blank listed on COC
- W or S N/A
- 3. Type Of TB Received

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____
 Test Strip Lot #: pH 0-3 230315
 Residual Chlorine Test Strip Lot #: _____

Number of 5035 Field Kits: _____
 pH 10-12 219813A

Number of Lab Filtered Metals: _____
 Other: (Specify) _____

Comments

SM001
Rev. Date 05/24/17

Technician: SHAYLAP

Date: 6/29/2018 10:45:00 A

Reviewer: P,H

Date: 6/29/2018

FA55465: Chain of Custody

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MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FA55465
Account: ATCVTW ATC Group Services LLC.
Project: Rutland SVRA; VT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP70790-MB	2Q16822.D	1	07/09/18	NG	07/09/18	OP70790	S2Q293

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA55465-1, FA55465-2, FA55465-3, FA55465-4, FA55465-5, FA55465-6, FA55465-7, FA55465-8, FA55465-9, FA55465-13, FA55465-14, FA55465-15, FA55465-16, FA55465-17, FA55465-18

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.25	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	87% 50-150%
	13C5-PFPeA	88% 50-150%
	13C5-PFHxA	89% 50-150%
	13C4-PFHpA	89% 50-150%
	13C8-PFOA	94% 50-150%
	13C9-PFNA	97% 50-150%
	13C6-PFDA	99% 50-150%
	13C7-PFUnDA	89% 50-150%
	13C2-PFDoDA	87% 50-150%
	13C2-PFTeDA	92% 50-150%
	13C3-PFBS	85% 50-150%

Method Blank Summary

Job Number: FA55465
Account: ATCVTW ATC Group Services LLC.
Project: Rutland SVRA; VT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP70790-MB	2Q16822.D	1	07/09/18	NG	07/09/18	OP70790	S2Q293

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA55465-1, FA55465-2, FA55465-3, FA55465-4, FA55465-5, FA55465-6, FA55465-7, FA55465-8, FA55465-9, FA55465-13, FA55465-14, FA55465-15, FA55465-16, FA55465-17, FA55465-18

CAS No.	ID Standard Recoveries	Limits
	13C3-PFHxS	89% 50-150%
	13C8-PFOS	94% 50-150%
	13C8-FOSA	92% 50-150%
	d3-MeFOSAA	94% 50-150%
	13C2-6:2FTS	91% 50-150%
	13C2-8:2FTS	96% 50-150%

Blank Spike Summary

Job Number: FA55465
Account: ATCVTW ATC Group Services LLC.
Project: Rutland SVRA; VT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP70790-BS	2Q16821.D	1	07/09/18	NG	07/09/18	OP70790	S2Q293

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA55465-1, FA55465-2, FA55465-3, FA55465-4, FA55465-5, FA55465-6, FA55465-7, FA55465-8, FA55465-9, FA55465-13, FA55465-14, FA55465-15, FA55465-16, FA55465-17, FA55465-18

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	12.4	124	60-134
2706-90-3	Perfluoropentanoic acid	10	11.1	111	62-134
307-24-4	Perfluorohexanoic acid	10	10.0	100	63-130
375-85-9	Perfluoroheptanoic acid	10	11.3	113	63-122
335-67-1	Perfluorooctanoic acid	10	10.6	106	71-128
375-95-1	Perfluorononanoic acid	10	11.0	110	66-124
335-76-2	Perfluorodecanoic acid	10	10.5	105	68-127
2058-94-8	Perfluoroundecanoic acid	10	11.5	115	61-137
307-55-1	Perfluorododecanoic acid	10	11.9	119	71-126
72629-94-8	Perfluorotridecanoic acid	10	12.0	120	60-137
376-06-7	Perfluorotetradecanoic acid	10	10.9	109	61-131
375-73-5	Perfluorobutanesulfonic acid	8.85	9.86	111	70-135
355-46-4	Perfluorohexanesulfonic acid	9.1	9.45	104	72-129
375-92-8	Perfluoroheptanesulfonic acid	9.5	11.2	118	62-129
1763-23-1	Perfluorooctanesulfonic acid	9.25	12.2	132*	69-125
335-77-3	Perfluorodecanesulfonic acid	9.65	11.5	119	63-141
754-91-6	PFOSA	10	11.5	115	65-140
2355-31-9	MeFOSAA	10	11.3	113	71-124
2991-50-6	EtFOSAA	10	11.6	116	63-129
27619-97-2	6:2 Fluorotelomer sulfonate	9.5	11.2	118	76-131
39108-34-4	8:2 Fluorotelomer sulfonate	9.6	10.8	113	60-138

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	103%	50-150%
	13C5-PFPeA	101%	50-150%
	13C5-PFHxA	100%	50-150%
	13C4-PFHpA	102%	50-150%
	13C8-PFOA	129%	50-150%
	13C9-PFNA	118%	50-150%
	13C6-PFDA	109%	50-150%
	13C7-PFUnDA	88%	50-150%
	13C2-PFDoDA	86%	50-150%
	13C2-PFTeDA	90%	50-150%
	13C3-PFBS	101%	50-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA55465
Account: ATCVTW ATC Group Services LLC.
Project: Rutland SVRA; VT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP70790-BS	2Q16821.D	1	07/09/18	NG	07/09/18	OP70790	S2Q293

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA55465-1, FA55465-2, FA55465-3, FA55465-4, FA55465-5, FA55465-6, FA55465-7, FA55465-8, FA55465-9, FA55465-13, FA55465-14, FA55465-15, FA55465-16, FA55465-17, FA55465-18

CAS No.	ID Standard Recoveries	BSP	Limits
	13C3-PFHxS	119%	50-150%
	13C8-PFOS	109%	50-150%
	13C8-FOSA	110%	50-150%
	d3-MeFOSAA	111%	50-150%
	13C2-6:2FTS	135%	50-150%
	13C2-8:2FTS	129%	50-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA55465
Account: ATCVTW ATC Group Services LLC.
Project: Rutland SVRA; VT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP70790-MS	2Q16824.D	1	07/09/18	NG	07/09/18	OP70790	S2Q293
OP70790-MSD	2Q16825.D	1	07/09/18	NG	07/09/18	OP70790	S2Q293
FA55465-1	2Q16823.D	1	07/09/18	NG	07/09/18	OP70790	S2Q293

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA55465-1, FA55465-2, FA55465-3, FA55465-4, FA55465-5, FA55465-6, FA55465-7, FA55465-8, FA55465-9, FA55465-13, FA55465-14, FA55465-15, FA55465-16, FA55465-17, FA55465-18

CAS No.	Compound	FA55465-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	ND	14.1	15.3	108	14	15.4	110	1	60-134/30
2706-90-3	Perfluoropentanoic acid	ND	14.1	14.7	104	14	14.8	106	1	62-134/30
307-24-4	Perfluorohexanoic acid	ND	14.1	13.6	96	14	13.9	99	2	63-130/30
375-85-9	Perfluoroheptanoic acid	ND	14.1	15.4	109	14	15.4	110	0	63-122/30
335-67-1	Perfluorooctanoic acid	ND	14.1	15.4	109	14	15.7	112	2	71-128/30
375-95-1	Perfluorononanoic acid	ND	14.1	14.2	101	14	14.4	103	1	66-124/30
335-76-2	Perfluorodecanoic acid	ND	14.1	14.3	101	14	14.5	104	1	68-127/30
2058-94-8	Perfluoroundecanoic acid	ND	14.1	15.9	113	14	16.3	117	2	61-137/30
307-55-1	Perfluorododecanoic acid	ND	14.1	16.0	113	14	16.1	115	1	71-126/30
72629-94-8	Perfluorotridecanoic acid	ND	14.1	17.3	122	14	16.6	119	4	60-137/30
376-06-7	Perfluorotetradecanoic acid	ND	14.1	14.8	105	14	14.3	102	3	61-131/30
375-73-5	Perfluorobutanesulfonic acid	ND	12.5	13.3	106	12.4	13.4	108	1	70-135/30
355-46-4	Perfluorohexanesulfonic acid	ND	12.9	13.0	101	12.7	13.0	102	0	72-129/30
375-92-8	Perfluoroheptanesulfonic acid	ND	13.4	14.5	108	13.3	14.8	111	2	62-129/30
1763-23-1	Perfluorooctanesulfonic acid	ND	13.1	15.1	116	12.9	16.3	126*	8	69-125/30
335-77-3	Perfluorodecanesulfonic acid	ND	13.6	11.4	84	13.5	11.9	88	4	63-141/30
754-91-6	PFOSA	ND	14.1	16.0	113	14	15.8	113	1	65-140/30
2355-31-9	MeFOSAA	ND	14.1	15.6	110	14	15.1	108	3	71-124/30
2991-50-6	EtFOSAA	ND	14.1	15.5	110	14	16.6	119	7	63-129/30
27619-97-2	6:2 Fluorotelomer sulfonate	ND	13.4	14.7	110	13.3	15.3	115	4	76-131/30
39108-34-4	8:2 Fluorotelomer sulfonate	ND	13.6	14.7	108	13.4	14.5	108	1	60-138/30

CAS No.	ID Standard Recoveries	MS	MSD	FA55465-1	Limits
	13C4-PFBA	75%	79%	72%	50-150%
	13C5-PFPeA	76%	81%	74%	50-150%
	13C5-PFHxA	78%	83%	75%	50-150%
	13C4-PFHpA	79%	83%	75%	50-150%
	13C8-PFOA	85%	91%	83%	50-150%
	13C9-PFNA	93%	104%	88%	50-150%
	13C6-PFDA	96%	102%	91%	50-150%
	13C7-PFU _n DA	98%	99%	90%	50-150%
	13C2-PFD _o DA	84%	86%	79%	50-150%
	13C2-PFT _e DA	80%	85%	77%	50-150%
	13C3-PFBS	74%	77%	71%	50-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA55465
Account: ATCVTW ATC Group Services LLC.
Project: Rutland SVRA; VT

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP70790-MS	2Q16824.D	1	07/09/18	NG	07/09/18	OP70790	S2Q293
OP70790-MSD	2Q16825.D	1	07/09/18	NG	07/09/18	OP70790	S2Q293
FA55465-1	2Q16823.D	1	07/09/18	NG	07/09/18	OP70790	S2Q293

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA55465-1, FA55465-2, FA55465-3, FA55465-4, FA55465-5, FA55465-6, FA55465-7, FA55465-8, FA55465-9, FA55465-13, FA55465-14, FA55465-15, FA55465-16, FA55465-17, FA55465-18

CAS No.	ID Standard Recoveries	MS	MSD	FA55465-1	Limits
	13C3-PFHxS	78%	83%	74%	50-150%
	13C8-PFOS	82%	88%	78%	50-150%
	13C8-FOSA	79%	84%	74%	50-150%
	d3-MeFOSAA	82%	90%	76%	50-150%
	13C2-6:2FTS	86%	93%	78%	50-150%
	13C2-8:2FTS	103%	109%	93%	50-150%

* = Outside of Control Limits.

APPENDIX D
FIELD NOTES


FIELD SERVICES REQUEST

Project No.:	280EM00212	Project Manager:	James Gascoyne
Phase:	-	Home Office:	Waterbury
Client:	Vtrans	Requested By:	JG
Location:	Clarendon	Target Date for Work:	6/26 & 27/2018
Contact Phone:	Michael Nahmis 802-522-4595	Requested Personnel:	JP

#	DESCRIPTION OF WORK TASKS	Task Code	Billable Hours	Actual Hours
1	Within 2 days, complete SI soil borings and MW install at 4 distinct locations. 1. Taxiway. 2. Fire Dept. 3. Bravo FATA. 4 RABP Supply Wells - see attached packets for each location		30	
2	Day 1 (6/26/18), Meet Crawford at 7:00 Parking lot at airport at 1002 Airport Drive, Clarendon. H&S Tailgate Meeting, Drillers fill up water tank from airport well. Enter gate to airport at 8:00. Taxiway SD first off, then Fire Dept, then Bravo, then RABP Supply wells, you have 6/27/18 also to complete the work. Collect DW sample from wash water spigot and hold until we get Accutest results back.			
3	Decon, Decon, Decon very important at this site. There are two Equipment blanks planned for the drilling/auger program. See attached WPCB to review details. Mark all wells with GPS coordinates to 15' accuracy. Use bailers to purge wells and remove silts.			
4	1. Taxiway - Four borings planned to 7' bgs. hand auger to 5' bgs and finish borings to 7' bgs with drill rig. Collect composite 0-2', 4-5' and 6-7' bgs soil samples for 21 list PFAS, plus one duplicate soil sample. These 12 samples, plus dup and FBs per location (4 FBs) are going to SGS Accutest and has its own cooler. SB's are 1, 2, 3 (43.529761/-72.948656), 4 (43.533713/-72.948677) south to north. 5th flag between SB-3/SB-4 in case needed.			
5	2. Fire Dept Building - one soil boring/MW(-1S). Composite soil sample from ground surface to 2' bgs and from within 1' of water table. Also collect one soil TOC from within 1' of water table. Complete MW to straddle water table with 5' screen either side. Purge water into bucket and drum and complete "Shaker Test" with unpreserved VOAs, look for foaming, photo and record data.			
6	3. Bravo FATA - five SBs/MW(nested 2S, 2D, 3, 4, 5). Composite PFAS soil samples from ground surface to 2' bgs and from within 1' of water table in all wells, plus soil sample from top of bedrock in MW-2D. Also collect one soil TOC from within 1' of water table in all wells and one TOP Assay from MW-2 well soils at 1' of water table. Complete MW-2S, 3, 4, 5 to straddle water table with 5' screen either side. MW-2D to top of bedrock, with 5' screen at top of bedrock. use bentonite to isolate screen from upper aquifer water. Purge water in to bucket and drum, and complete "Shaker Test" with unpreserved VOAs, look for foaming, photo and record data.			
7	4. RABP Supply Wells - two SBs/MW(nested 6S, 6D). Composite soil samples from ground surface to 2' bgs and from within 1' of water table in all wells, plus soil sample from top of bedrock in MW-6D. Also collect one soil TOC from within 1' of water table in both wells, and TOP Assay from within 1' of water table. Complete MW-6S to straddle water table with 5' screen either side. MW-6D to top of bedrock, with 5' screen at top of bedrock. use bentonite to isolate screen from upper aquifer water. Purge water in to bucket and drum, and complete "Shaker Test" with unpreserved VOAs, look for foaming, photo and record data.			
8	Samples to SGS can be shipped as soon as able, samples for TestAmerica can be delivered on 6/28.			
TOTALS			30	

Equipment Required: (see expense sheet)	PFAS jars for 23+/- soil samples & 8 FB, 2 EquipBlank water for TestAmerica. PFAS jars for 12+/- soil samples & 4 FB water for SGS Accuworx. 3 coolers, ice, SOP, nitrile gloves, PID, 8 bailers, Drum, new 5-gallon bucket, 2 hand augers? Alconox, peri pump, tubing.
---	---

TECHNICIAN OBSERVATIONS WHICH REQUIRE IMMEDIATE ATTENTION!

Completed By:  Reviewed By: _____
 Date: 6/27/18 Date: _____

6/26/18

onsite 700 - JP (ATC) Andy Shively (VTRANS)
Ryan + Anthony (Crawford Drilling)

Had tailgate H+S meeting, looked over terminal from restaurant area

- keep decon drums on trailer, to be stored in FD shed

- got decon water from ^{VTRANS} train garage at show rate, collected sample from spigot

Wash - DW @ 0740 (Test America)

- met Brian at 0800, escorted onto

(Geo probe ^{runway area} #822 DT)

① Taxiway T = taxiway; SB = Soil Boring #; S = shallow (0-2)
M = mid (3-5) D = deep (5-7)

✓ T-SB-4-S @ 0904

✓ T-SB-4-M @ 0912

✓ T-SB-4-D @ 0920

✓ FB-T-SB-4 @ 0922

✓ T-SB-5-S @ 0940

✓ T-SB-5-M @ 0950

✓ T-SB-5-D @ 1005

✓ FB-T-SB-5 @ 0952

all 5 Taxiway soil boring locations follow this labeling system

(Andy S. confirmed he wanted all 5 borings marked out on taxiway)

✓ Equip Blank - 1 @ 1015 (stainless steel bowl) (to Test America)

✓ T-SB-3-S @ 1020

✓ T-SB-3-M @ 1025

✓ T-SB-3-D @ 1030

✓ FB-T-SB-3 @ 1028

(6³⁰ -

(All Taxiway samples to SGS Accutest)

6/26/18
cont.

set MW-2D (top of bedrock well) at SB-7

riser 27-0
screen 32-27
sand 32-26
chips 26-10

(to isolate from upper quarter)
- odd that 32-33.5' spoon was dry; all silty clay above was saturated;

* extract & hold field blanks per Michael Nahentas' request

install MW-2S right next to deeper well;

riser 3-0
screen 13-3
sand 13-2
chips 2-1
(no samples)

- develop these wells tomorrow

- OK to store drill rig near FD building overnight
- drums stored in sand bay of FD

1:30 offsite

6/27/18 onsite 0730 - AP, Crawford to meet Brian
(Brian not onsite until 0805)

- AP set up to develop MW-2S + 2D

2D - very silty, not developing easily
keeps going dry and/or clogging w/ silt
purged dry many times, still silty

2S - silty at first, clearing up, good recharge
purged ~ 3 gal until clear/dry
shaker test - no persistent bubbles/suds

6/27/18
cont.

SB-10 / MW-5

✓	B-SB-10-S	@	1115	(0-2')
✓	B-SB-10-WT	@	1120	(~8')
✓	B-SB-10-TOC	@	1121	(~9')
✓	FB-SB-10	@	1118	

set MW-5 - flush mount

Screen 15-5'
riser 5-0'
sand 15-4'
clips 4-3

developed MW-5 - purged ~ 3 gal, good recharge, cleared up fast, orange-color before clearing; shaker test = no bubbles

RABP area (R)

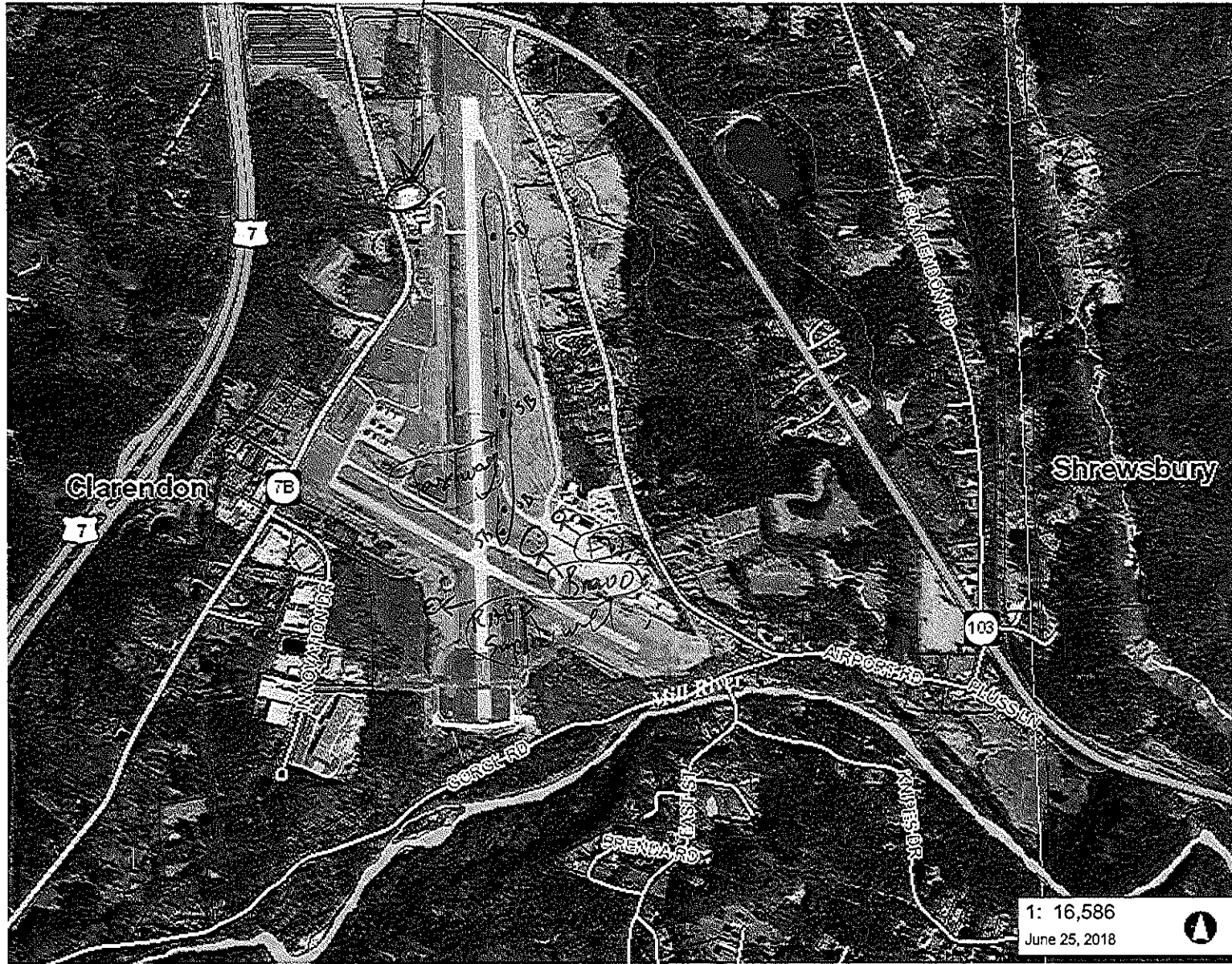
✓	R-SB-11-S	@	1320	(0-2')
✓	R-SB-11-WT	@	1325	(~9' - no water)
✓	R-SB-11-TOC	@	1326	(~10' - no water)
✓	FB-SB-11	@	1324	

did not install wells at this location -
no groundwater encountered above refusal
- maybe still at 18 ft;
- confirmed/approved by M. Nalimas & A. Shively

1530 offsite (JP + Crawford; M.N. left ~ 1430)

JP

5 of 5



LEGEND

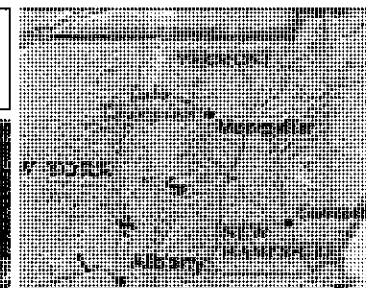
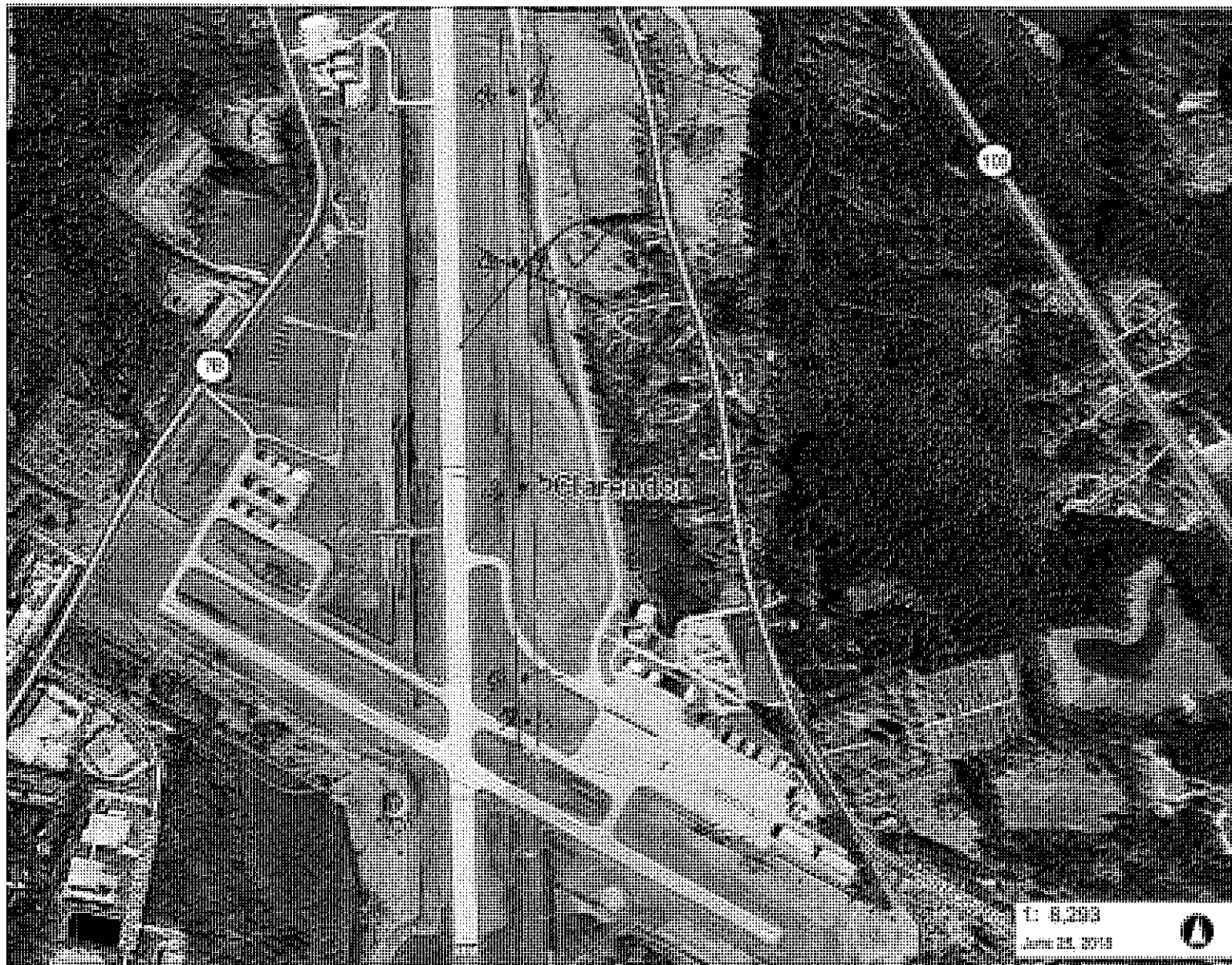
- Parcels (Standardized)
- Roads
 - Interstate
 - Principal Arterial
 - Minor Arterial
 - Major Collector
 - Minor Collector
 - Local
 - Not part of function Classification S
- Waterbody
- Stream
- Parcels (Non-Standardized)
- Town Boundary

1: 16,586
 June 25, 2018

843.0 0 422.00 843.0 Meters
 WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 1382 Ft. 1cm = 166 Meters
 © Vermont Agency of Natural Resources THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

NOTES
 Map created using ANR's Natural Resources Atlas



LEGEND

- Parcels (Standardized)
- Roads**
 - Interstate
 - Principal Arterial
 - Minor Arterial
 - Major Collector
 - Minor Collector
 - Local
 - Not part of function Classification S
- Waterbody
- Stream
- Parcels (Non-Standardized)
- Town Boundary

SB = Soil bins to 77 655
4 locations to be sampled
5 marked
SB, 1, 2, 3 + 5s should be completed.
Extra location marked

NOTES

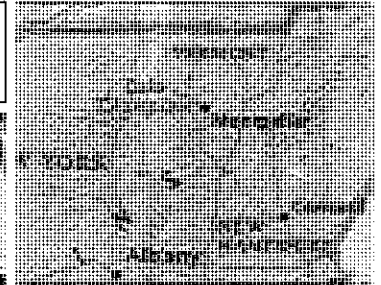
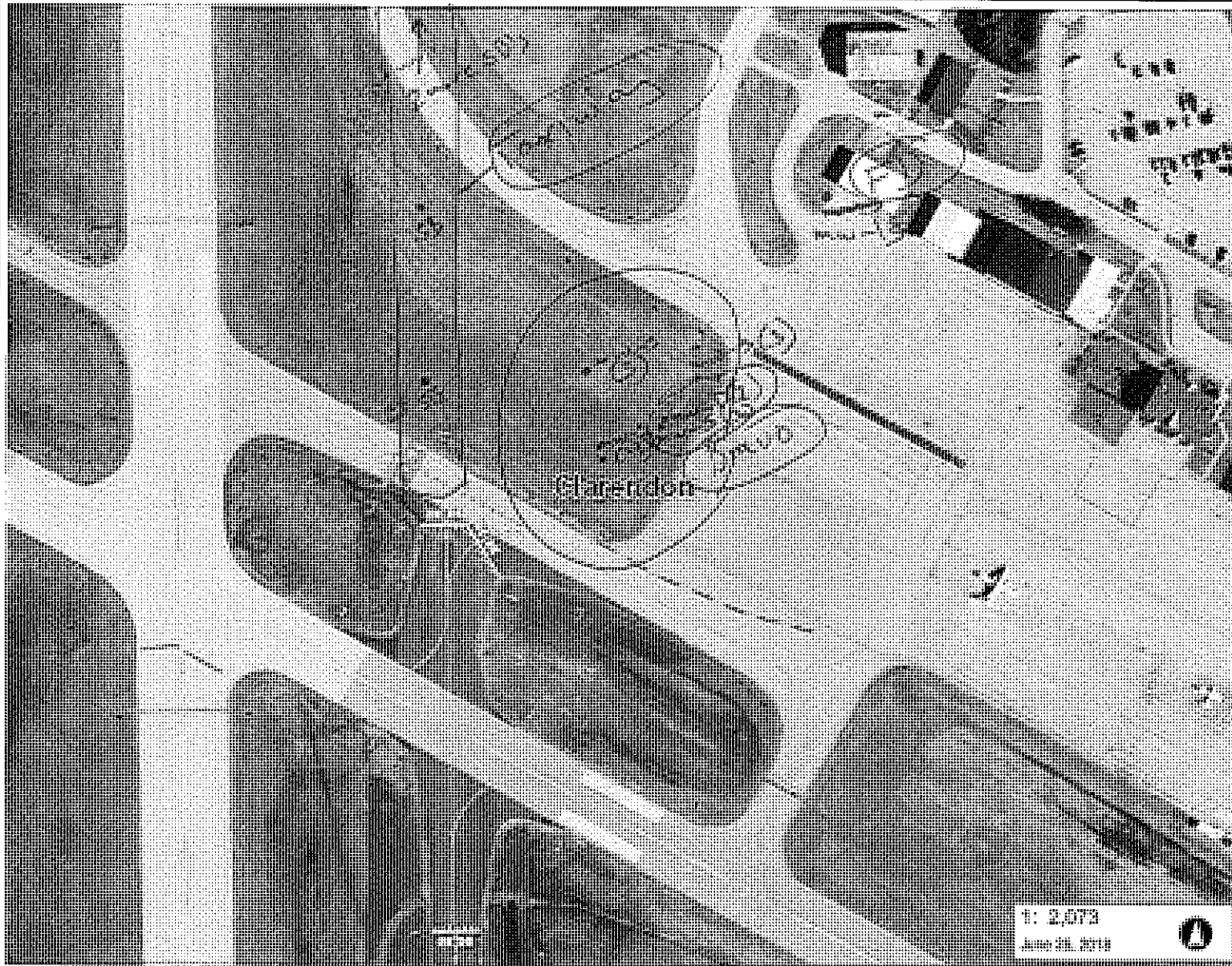
Map created using ANR's Natural Resources Atlas

421.0 0 210.00 421.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Vermont Agency of Natural Resources

1" = 691 FL 1cm = 83 Meters
THIS MAP IS NOT TO BE USED FOR NAVIGATION

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LEGEND

- Parcels (Standardized)
- Roads**
 - Interstate
 - Principal Arterial
 - Minor Arterial
 - Major Collector
 - Minor Collector
 - Local
 - Not part of function Classification S
- Waterbody
- Stream
- Parcels (Non-Standardized)
- Town Boundary

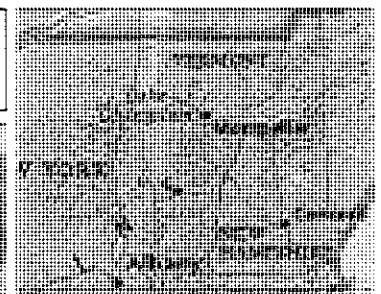
D = Deep, to Bedrock
S = Shallow, water table

1: 2,073
 June 21, 2018

105.0 0 52.00 105.0 Meters
 WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 173 Ft. 1cm = 21 Meters
 © Vermont Agency of Natural Resources THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

NOTES
 Map created using ANR's Natural Resources Atlas



LEGEND

- Parcels (Standardized)
- Roads**
 - Interstate
 - Principal Arterial
 - Minor Arterial
 - Major Collector
 - Minor Collector
 - Local
 - Not part of function Classification S
- Waterbody
- Stream
- Parcels (Non-Standardized)
- Town Boundary

1: 2,073
June 28, 2016

NOTES

Map created using ANR's Natural Resources Atlas

105.0 0 52.00 105.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 173 Ft. 1cm = 21 Meters

© Vermont Agency of Natural Resources THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

TestAmerica Burlington

30 Community Drive
Suite 11
South Burlington, VT 05403-6809
phone 802.660.1990 fax 802.660.1919

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>James Gascoyne</u>		Site Contact: <u>Kris P.</u>		Date: <u>6/28/18</u>		COC No: <u>2</u>			
Your Company Name here <u>ATC Group Services</u>		Tel/Fax: <u>802-241-4131</u>		Lab Contact: <u>✓</u>		Carrier:		1 of 2 COCs			
Address <u>1 Elm St, Suite 3</u>		Analysis Turnaround Time									
City/State/Zip <u>Waterbury VT 05670</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		TAT if different from Below _____ <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler: <u>An Palmer</u>	
(xxx) xxx-xxxx Phone <u>802 241 4131</u>										For Lab Use Only:	
(xxx) xxx-xxxx FAX										Walk-in Client:	
Project Name: <u>Rutland SVRA</u>										Lab Sampling:	
Site:								Job / SDG No.:			
PO# <u>28DEM00212</u>											

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Other	Sample Specific Notes
Wash - DW	6/26/18	0740	G	DW	2	N	X		
Equip Blank - 1		1005	G	DI	1		X		
F-SB-6-S		1210	C	So	1		X		
F-SB-6-WT		1240	C		1		X		
F-SB-6-TOC		1241	C		1		X		
B-SB-7-S		1404	C		1		X		
B-SB-7-4H		1420	C		1		X		
B-SB-7-6H		1422	C		1		X		
B-SB-7-WT		1424	C		1		X		
B-SB-7-TOC		1425	C	✓	1		X		
FB-SB-6	✓	1230	G	DI	1		X	X	
FB-SB-7	✓	1423	G	✓	1		X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other: _____

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments: Please extract + hold all field blanks (FB) until soils are reported - contact James Gascoyne

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID Nq.:
Relinquished by: <u>John R</u>	Company: <u>ATC</u>	Date/Time: <u>6/28/18 1300</u>	Received by: <u>John R</u>	Company: <u>TASA</u>
Relinquished by:	Company:	Date/Time:	Received by:	Company:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:

TestAmerica Burlington

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Suite 11

South Burlington, VT 05403-6809
phone 802.660.1990 fax 802.660.1919

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>James Gaseayne</u>		Site Contact:		Date: <u>6/28/18</u>		COC No: <u>2</u> of <u>3</u> COCs	
Your Company Name here <u>ATC Ground Services</u>		Tel/Fax: <u>802 241 4131</u>		Lab Contact: <u>Kris D.</u>		Carrier:		Sampler: <u>An Palma</u>	
Address <u>1 Elm St Suite 3</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) <u>PFAS 537-2115</u> <u>Lead/Kahn - TOC</u> <u>PFAS TOP ASSAY</u> <u>* Field Blanks*</u>				For Lab Use Only: Walk-in Client: Lab Sampling:	
City/State/Zip <u>Windsorbury VT</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS							
(xxx) xxx-xxxx Phone <u>802 241 4131</u>		TAT If different from Below							
(xxx) xxx-xxxx FAX		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Project Name: <u>Rutland SVRA</u>		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		# of Cont.	
Site:		Matrix							
P O # <u>280 EM00212</u>									
Sample Identification									
B-SB-7-TOR		<u>6/26/18</u>	<u>1510</u>	<u>C</u>	<u>So</u>	<u>1</u>	<u>W</u>	<u>X</u>	
B-SB-7-TA		<u>↓</u>	<u>1426</u>			<u>1</u>			<u>X</u>
B-SB-8-S		<u>6/27/18</u>	<u>0850</u>			<u>1</u>		<u>X</u>	
B-SB-8-TOC		<u>↓</u>	<u>0855</u>			<u>1</u>			<u>X</u>
B-SB-8-WT		<u>↓</u>	<u>0854</u>			<u>1</u>		<u>X</u>	
B-SB-9-S		<u>↓</u>	<u>0950</u>			<u>1</u>		<u>X</u>	
B-SB-9-WT		<u>↓</u>	<u>1000</u>			<u>1</u>		<u>X</u>	
B-SB-9-TOC		<u>↓</u>	<u>1002</u>	<u>↓</u>	<u>↓</u>	<u>1</u>			<u>X</u>
FB-SB-8		<u>↓</u>	<u>0852</u>	<u>G</u>	<u>DI</u>	<u>1</u>		<u>X</u>	<u>X</u>
FB-SB-9		<u>↓</u>	<u>1004</u>	<u>G</u>	<u>DI</u>	<u>1</u>		<u>X</u>	<u>X</u>
FB-SB-10		<u>↓</u>	<u>1118</u>	<u>G</u>	<u>DI</u>	<u>1</u>		<u>X</u>	<u>X</u>
FB-SB-11		<u>↓</u>	<u>1324</u>	<u>G</u>	<u>DI</u>	<u>1</u>	<u>W</u>	<u>X</u>	<u>X</u>
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<input type="checkbox"/> Non-Hazardous <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments: <u>* Please extract + hold all field blanks (FB-) until soils are reported - contact James Gaseayne</u>									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Conf'd: _____		Therm ID No.:			
Relinquished by: <u>[Signature]</u>		Company: <u>ATC</u>		Date/Time: <u>6/28/18 1300</u>		Received by: <u>[Signature]</u>		Company: <u>TASR</u>	
Relinquished by:		Company:		Date/Time:		Received by:		Date/Time: <u>6/28/18 1345</u>	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

TestAmerica Burlington

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Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>James Gascoyne</u>		Site Contact:		Date: <u>6/28/18</u>		COC No:	
Your Company Name here: <u>Arc Group Services</u>		Tel/Fax: <u>802 241 4131</u>		Lab Contact: <u>Kris D.</u>		Carrier:		3 of 3 COCs	
Address: <u>1 Elm St. Suite 3</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) <u>RFBS 537-2111st</u> <u>Lloyd Kahn - TOC</u>				Sampler: <u>Am Palmer</u>	
City/State/Zip: <u>Waterbury VT 05676</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS						For Lab Use Only:	
(xxx) xxx-xxxx Phone: <u>802 241 4131</u>		TAT If different from Below _____						Walk-in Client:	
(xxx) xxx-xxxx FAX:		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Lab Sampling:	
Project Name: <u>Rustland SVRA</u>								Job / SDG No.:	
Site:									
P O # <u>280 EM00212</u>									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.			Sample Specific Notes:
<u>Equip Blank - 2</u>		<u>6/27/18</u>	<u>1000</u>	<u>S</u>	<u>DI</u>	<u>1</u>	<u>N</u>	<u>X</u>	
<u>Dup - 1</u>		<u>6/26/18</u>	<u>1200</u>	<u>C</u>	<u>So</u>	<u>1</u>	<u>Y</u>	<u>X</u>	
<u>Dup - 2</u>		<u>6/27/18</u>	<u>1200</u>	<u>C</u>	<u>So</u>	<u>1</u>	<u>Y</u>	<u>X</u>	
<u>B-SB-10-S</u>		<u>↓</u>	<u>1115</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>Y</u>	<u>X</u>	
<u>B-SB-10-WT</u>		<u>↓</u>	<u>1120</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>Y</u>	<u>X</u>	
<u>B-SB-10-TOC</u>		<u>↓</u>	<u>1121</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>Y</u>	<u>X</u>	
<u>R-SB-11-S</u>		<u>↓</u>	<u>1320</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>Y</u>	<u>X</u>	
<u>R-SB-11-WT</u>		<u>↓</u>	<u>1325</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>Y</u>	<u>X</u>	
<u>R-SB-11-TOC</u>		<u>↓</u>	<u>1326</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>Y</u>	<u>X</u>	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other									
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
<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"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months				
Special Instructions/QC Requirements & Comments:									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____		Corr'd: _____		Therm ID No.:	
Relinquished by: <u>[Signature]</u>		Company: <u>Arc</u>		Date/Time: <u>6/28/18 1300</u>		Received by: <u>[Signature]</u>		Company: <u>TA300</u>	
Relinquished by:		Company:		Date/Time:		Received by:		Date/Time: <u>6/28/18 1345</u>	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	
								Date/Time:	



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

BORING / WELL IDENTIFICATION: **SB-1**

SITE NAME: Rutland SURA

SITE LOCATION: taxiway

INSTALLATION DATE: 6/26/18

JOB NUMBER: 280EM000212

WELL DEPTH: —	BORING DEPTH: 7 ft	ATC REPRESENTATIVE: JP
DEPTH TO WATER (DURING DRILLING): N/A ~ 7 ft	DRILLING COMPANY: Crawford	
SCREEN DIAMETER: —	DEPTH: —	SAMPLING METHOD: split spoon
SCREEN TYPE/SIZE: —		REFERENCE POINT (RP): ground
RISER DIAMETER: —	DEPTH: —	ELEVATION OF RP: —
RISER TYPE/SIZE: —		
REMARKS: hand down to 5 ft, drill 5-7'		

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-2' brown, dry, f-m sand and f-c gravel, trace silt	0.0		Concrete
1			(T-SB-1-S)			Native Material
2			2-5' light brown, f-c sand, little f. gravel, trace silt, moist at bottom			Bentonite
3						Filter Sand
4			(T-SB-1-M)			Riser
5		(2 ft)	5-6' light brown, S&A			Screen
6			6-7' light brown, moist to wet (bottom 2 inches), f. sandy silt, trace clay	✓		Water level
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 7 feet
 Well set @ 7 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-2**

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

SITE NAME: Rutland SVRA
 SITE LOCATION: Taxway
 INSTALLATION DATE: 6/26/18
 JOB NUMBER: 280EM00212

WELL DEPTH: -	BORING DEPTH: 7 ft	ATC REPRESENTATIVE: JP
DEPTH TO WATER (DURING DRILLING): -	N 7 ft	DRILLING COMPANY: Crawford
SCREEN DIAMETER: -	DEPTH: -	SAMPLING METHOD: split spoon
SCREEN TYPE/SIZE: -	DEPTH: -	REFERENCE POINT (RP): ground
RISER DIAMETER: -	DEPTH: -	ELEVATION OF RP: -
RISER TYPE/SIZE: -	DEPTH: -	
REMARKS: hand clear to 5 ft, drill 5-7'		

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-2 dry dark brown, f-c o.c			Concrete
1			send and f-c gravel; trace silt + cobbles			Native Material
2						Bentonite
3			2-5 - SAA, darker brown, more coarse angular cobbles, little silt			Filter Sand
4						Riser
5		(1' Rec.)	5-7' - lt. brown, dry to wet (bottom 2 inches), silty			Screen
6			f. sand, trace f. gravel at top, trace sand at bottom			Water level
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 7 feet
 Well set @ 7 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-3

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

SITE NAME: Rutland SVRA

SITE LOCATION: Taxidway

INSTALLATION DATE: 6-26-18

JOB NUMBER: 280EM00212

WELL DEPTH: - BORING DEPTH: 7 ft

DEPTH TO WATER (DURING DRILLING): - NA

SCREEN DIAMETER: - DEPTH: -

SCREEN TYPE/SIZE: -

RISER DIAMETER: - DEPTH: -

RISER TYPE/SIZE: -

ATC REPRESENTATIVE: JP
 DRILLING COMPANY: Crawford
 SAMPLING METHOD: Split spoon
 REFERENCE POINT (RP): ground
 ELEVATION OF RP: -

REMARKS: hard clear to 5 ft, drill 5-7

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROF ILE	LEGEND
0			0-3' - light brown, dry, f-m o.o			Concrete
1	(T-SB-3-S)		sand, trace silt, trace			Native Material
2			f. gravel			Bentonite
3	(T-SB-3-M)		3-5' - dark brown, dry, f-m			Filter Sand
4			sand and silt, trace			Riser
5	(T-SB-3-D) 2 ft		5-7' - light brown, f-c sand,			Screen
6			little silt, trace gravel (fine)			Water level
7			dry			
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

bc
8
11
13
15

End of Sampling = 7 feet
 Well set @ 7 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-4**

SITE NAME: Rutland SUR A
SITE LOCATION: Taxiway
INSTALLATION DATE: 6/26/18
JOB NUMBER: 280EM00212

WELL DEPTH: _____ BORING DEPTH: **7 ft** ATC REPRESENTATIVE: **JP**
 DEPTH TO WATER (DURING DRILLING): **NA** DRILLING COMPANY: **Crawford**
 SCREEN DIAMETER: _____ DEPTH: _____ SAMPLING METHOD: **split spoon**
 SCREEN TYPE/SIZE: _____ REFERENCE POINT (RP): **ground**
 RISER DIAMETER: _____ DEPTH: _____ ELEVATION OF RP: _____
 RISER TYPE/SIZE: _____
 REMARKS: **hand clear to 5ft, drill 5-7**

DEPTH (IN FEET)	BLOW COUNTS PER 8"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILES	LEGEND
0			0-3' dry, dark brown, f-c sand and f-c gravel, little silt	0.0		Concrete
1						Native Material
2						Bentonite
3			3-5' dry, light brown, silt and f-sand, trace clay			Filter Sand
4						Riser
5		2	5-7' light brown, moist, silt, f-m sand, trace			Screen
6		5				Water level
7		7	c sand and silt			
8		(1.4' rec)				
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = **7** 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-5

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

SITE NAME: Rutland SURT
 SITE LOCATION: taxiway
 INSTALLATION DATE: 6.26.18
 JOB NUMBER: 280EM00212

WELL DEPTH: — BORING DEPTH: 7ft ATC REPRESENTATIVE: JP
 DEPTH TO WATER (DURING DRILLING): — NA DRILLING COMPANY: —
 SCREEN DIAMETER: — DEPTH: — SAMPLING METHOD: Crawford split spoon
 SCREEN TYPE/SIZE: — REFERENCE POINT (RP): 1' ground
 RISER DIAMETER: — DEPTH: — ELEVATION OF RP: —
 RISER TYPE/SIZE: —
 REMARKS: hand clear to 5ft, drill 5-7

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-2' f-m sand, dry, brown, 0.0			Concrete
1	(T-SB-5-S)		and f-c gravel, trace silt, trace cobbles			Native Material
2						Bentonite
3			2-5' - light brown, dry, f-m sand and silt, little f-c			Filter Sand
4	(T-SB-5-M)		gravel, trace cobbles			Riser
5		17	5-7' - SAA			Screen
6	(T-SB-5-D)	22	6-7 - weathered rock or large boulder - whitish grey, crystalline (fine)			Water level
7		27				
8		(2' Rec.)	maybe sandstone			
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 7 feet
 Well set @ 7 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: Phocreek #2 Depth to water was _____ feet after four hours.
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BORING / WELL IDENTIFICATION: SB-6 / MW-13

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

SITE NAME: Rutland #5VRA
 SITE LOCATION: FD Building
 INSTALLATION DATE: 6/26/18
 JOB NUMBER: 280EM00212

WELL DEPTH:	14	BORING DEPTH:	14	ATC REPRESENTATIVE:	JJ
DEPTH TO WATER (DURING DRILLING):	N 7 ft	DRILLING COMPANY:	Crawford		
SCREEN DIAMETER:	1.5"	DEPTH:	14-4'	SAMPLING METHOD:	split spoon
SCREEN TYPE/SIZE:	0.010" slot	REFERENCE POINT (RP):	ground		
RISER DIAMETER:	1.5"	DEPTH:	4-0'	ELEVATION OF RP:	
RISER TYPE/SIZE:	PVC	REMARKS: hand clear to 5'; drill 5'			

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-5' - grey to lt. to dark brown, f-m sand and f-c gravel, trace silt, dry	0.0		Concrete
1						Native Material
2						Bentonite
3						Filter Sand
4						Riser
5	3	2 ft	5-7' - lt. brown, dry to moist, f-m sand; trace f. gravel			Screen
6	7		(auger 7-10', sample 10-12')			Water level
7	9					
8	10					
9			10-12' brown to grey, wet, f-m sand, trace c. sand, grading down to silt and f. sand	0.0		
10	5					
11	7					
12	7					
13	9					
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 12 feet
Well set @ 14 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: Phoccek Tiger 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-7

SITE NAME: Rutland SVRA MW-2D
 SITE LOCATION: Bravo MW-2B
 INSTALLATION DATE: 6/26/18
 JOB NUMBER: 280EMOOD12

WELL DEPTH:	13	BORING DEPTH:	33.5	ATC REPRESENTATIVE:	AP
DEPTH TO WATER (DURING DRILLING):			10 ft	DRILLING COMPANY:	Crowford
SCREEN DIAMETER:	1.5"	DEPTH:	13-3'	SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:	0.010" slot			REFERENCE POINT (RP):	ground
RISER DIAMETER:	1.5"	DEPTH:	3-0'	ELEVATION OF RP:	
RISER TYPE/SIZE:	PVC				
REMARKS:	hand clear to 5 ft; see next page for MW-2D specs				

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-3' dry, brown, p-c sand and p-c gravel	0.0		Concrete
1						Native Material
2			3-3.5' - black, moist, organic silty f. sand			Bentonite
3			3.5-5' - greyish brown, moist, f. sand, little silt			Filter Sand
5		5-10' 2.5' Rec.	0-2' - moist to wet, brown f. sand, trace silt + m-c sand			Riser
6			- p-c sand and p-c gravel lenses at 2 ft			Screen
7			2-2.5' - grey, wet, clayey silt			Water level
10		10-15' 5' Rec.	0-5' - SAA, grey, wet; some p-m sand lenses < 0.5" thick sticky			
11						
12						
13						
14						
15		15-20'	0-5' - SAA			
16		5' Rec.				
17						
18						
19						
20		20-25' 5' Rec.	0-5' SAA	End of Sampling = 32 feet Well set @ 37 feet		

sand 13-2'
chips 2-1'

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-7 / MW-2D

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

SITE NAME:

SITE LOCATION:

INSTALLATION DATE:

JOB NUMBER:

continued

WELL DEPTH:	32	BORING DEPTH:	33.5	ATC REPRESENTATIVE:	
DEPTH TO WATER (DURING DRILLING):			N 8 ft	DRILLING COMPANY:	
SCREEN DIAMETER:	1.5"	DEPTH:	32-27'	SAMPLING METHOD:	
SCREEN TYPE/SIZE:	0.010" slot			REFERENCE POINT (RP):	
RISER DIAMETER:	1.5"	DEPTH:	27-0'	ELEVATION OF RP:	
RISER TYPE/SIZE:	PVC				
REMARKS:	hard clear 5 ft				

DEPTH (IN FEET)	BLOW COUNTS PER 6"	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
20		-	switched to augers	-		Concrete
1		-	at 25 ft; all	-		Native Material
2		-	flight spoil is same	-		Bentonite
3		-	grey, wet, soft sticky	-		Filter Sand
4		-	silty clay as above	-		Riser
5		-		-		Screen
6		-		-		Water level
7		-		-		
8		-		-		
9		-		-		
30			Ht resistance at 30 ft	-		
11			augers wouldn't turn			
12	12	32-33.5'	pas f 32 ft; collect			
13	18	(1.5' Rec.)	split spoon			
14	31	(50 - no advance)	0-0.5' - reddish brown, f-c			
15			sand, little f-c gravel, trace			
16			sand. Dry			
17			0.5-1' - lt. brownish grey, dry			
18			f. sand and f-c gravel, some silt			
19			Top of Rock = 33.5'			
4/20						

mw-2D
 Sand up to 26'
 chips 26-10'
 to isolate from upper aquifer

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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ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

BORING / WELL IDENTIFICATION: SB-8/MW-3

SITE NAME: Rutland SVRA

SITE LOCATION: Bravo

INSTALLATION DATE: 6/27/18

JOB NUMBER: 280EM00212

WELL DEPTH:	13	BORING DEPTH:	15	ATC REPRESENTATIVE:	JP
DEPTH TO WATER (DURING DRILLING):	~ 8 ft	DRILLING COMPANY:	Crawford		
SCREEN DIAMETER:	1.5"	DEPTH:	13-3'	SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:	0.010" sleet	REFERENCE POINT (RP):	ground		
RISER DIAMETER:	1.5"	DEPTH:	3-0'	ELEVATION OF RP:	
RISER TYPE/SIZE:	PVC				
REMARKS:	hand clear				

DEPTH (IN FEET)	SAMPLE DEPTH	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-3' - light brown, dry, f-c sand, trace f. gravel			Concrete Native Material Bentonite Filter Sand Riser Screen Water Level
1	B-SB-8-3					
2			3-5' - light brown to grey, dry to moist, silty f. sand, some c. sand			
3						
4						
5		5-10'	5-2.5' brown to grey, moist to wet, c. to f. sand, little silt, trace f. gravel			
6		3.5' rec.				
7			2.5-3.5' - grey, wet, soft, silt @ w/ f. sand			
8	B-SB-8-WT					
9	B-SB-8-FOC					
10		10-15'	0-4' - grey, wet, soft, silt, some clay, coarsening downwards to f. sandy silt			
11		4' rec.				
12						
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = 15 feet
Well set @ 15 feet

Sand 13-2
chips 2-1

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: Phoccheck Tiger Depth to water was _____ feet after four hours.
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ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

BORING / WELL IDENTIFICATION: SB-9 / MW-4

SITE NAME: Rutland SVRA

SITE LOCATION: Bravo

INSTALLATION DATE: 6/27/18

JOB NUMBER: 2802M002/2

WELL DEPTH:	15	BORING DEPTH:	15'	ATC REPRESENTATIVE:	JP
DEPTH TO WATER (DURING DRILLING):			N 8 ft	DRILLING COMPANY:	Crawford
SCREEN DIAMETER:	1.5"	DEPTH:	15-5'	SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:	0.010" slot			REFERENCE POINT (RP):	ground
RISER DIAMETER:	1.5"	DEPTH:	5-0	ELEVATION OF RP:	
RISER TYPE/SIZE:	PVC				
REMARKS:	head clear to 5 ft.				

DEPTH (IN FEET)	SAMPLE DEPTH	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-1' - brown, dry, f-c			Concrete Native Material Bentonite Filter Sand Riser Screen Water Level
1			Sand / organics, trace silt			
	B2-SB-9-3		1-2' - greyish brown, dry, sandy f. gravel, little c. gravel			
3						
4						
5		5-10'	2-5' - reddish brown to tan, silty f. sand coarsening to m-c sand, trace silt + f. gravel			
6		2.5' Rec.				
7			0-1' - SAA, moist to wet			
8	B-SB-9-WT		1-2.5' - grey, wet, f. sand to f. sandy silt, little clay			
9	B-SB-9-TOC					
10		10-15'	0-4' - SAA, wet, soft, grey silt, little f. sand and clay			
11		4' Rec.	Some fine lenses of f-m sand and silt			
12						
13						
14						
15						
16						
17						
18						
19						
20						

sand 15-4
chips 4-3

End of Sampling = 15 feet
Well set @ 15 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.
---	---	--	--



ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

BORING / WELL IDENTIFICATION: **SB-10/MW-5**

SITE NAME: **Rustland SVRA**

SITE LOCATION: **Bravo**

INSTALLATION DATE: **6-27-18**

JOB NUMBER: **280PM00212**

WELL DEPTH:	15'	BORING DEPTH:	15'	ATC REPRESENTATIVE:	JR
DEPTH TO WATER (DURING DRILLING):	~ 8 ft	DRILLING COMPANY:	Crawford		
SCREEN DIAMETER:	1.5"	DEPTH:	15-5	SAMPLING METHOD:	direct push
SCREEN TYPE/SIZE:	0.010" slot	DEPTH:	5-0	REFERENCE POINT (RP):	ground
RISER DIAMETER:	1.5"	ELEVATION OF RP:			
RISER TYPE/SIZE:	PVC	REMARKS: hand clear to 5 ft.			

DEPTH (IN FEET)	SAMPLE DEPTH	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-3' brown, dry, f-m sand,			<input checked="" type="checkbox"/> Concrete <input checked="" type="checkbox"/> Native Material <input type="checkbox"/> Bentonite <input type="checkbox"/> Filter Sand <input type="checkbox"/> Riser <input type="checkbox"/> Screen <input checked="" type="checkbox"/> Water Level
1	B-SB-10-S		little silt and f-c gravel, trace cobbles.			
2			3-5' grey, brown, white (pulverized cobble), dry, f-c sandy			
3			f-c gravel, little silt and cobbles			
4						
5		5-10'				
6		3' Rec	0-2' - brown to reddish brown to grey, moist to wet, f-m sand, little c. sand and silt, trace f. gravel			
7						
8	B-SB-10-WT					
9	B-SB-10-TOC		2-3' - grey, wet, soft, f. sandy silt, some fine m-c sand lenses			
10		10-15'				
11		4' Rec.				
12			0-4' - SAA			
13						
14						
15						
16						
17						
18						
19						
20						

End of Sampling = **15** feet
Well set @ **15** feet

Sand 15-4
chips 4-3

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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ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

BORING / WELL IDENTIFICATION: SB-11/MW-65

SITE NAME: Ryland SURA

SITE LOCATION: RAB

INSTALLATION DATE: 6/27/18

JOB NUMBER: 280 EMC0212

WELL DEPTH:		BORING DEPTH:		ATC REPRESENTATIVE:	JP
DEPTH TO WATER (DURING DRILLING):		79 ft? no water		DRILLING COMPANY:	Crawford
SCREEN DIAMETER:	1.5"	DEPTH:		SAMPLING METHOD:	direct push/auger
SCREEN TYPE/SIZE:	0.010" slot		NO	REFERENCE POINT (RP):	ground
RISER DIAMETER:	1.5"	DEPTH:		ELEVATION OF RP:	
RISER TYPE/SIZE:	1.5" PVC				
REMARKS:	hard clear to 5 ft. Well				

DEPTH (IN FEET)	SAMPLE DEPTH	RECOVERY (FT)	SAMPLE DESCRIPTION AND NOTES	PID (PPM)	WELL PROFILE	LEGEND
0			0-3' - brown, dry, f-c sand, little f-c gravel + silt			Concrete
1	R-SB-11-3					Native Material
2			3-4' - brownish-grey + white, silty f-c sand and f-c gravel			Bentonite
3						Filter Sand
4			4-5' - dark grey, dry, silty f. sand, trace gravel			Riser
5		5-10'				Screen
6		3' Rec.	0-3' - lt. brownish grey, moist to wet, silty f. sand, some f-c gravel			Water Level
7						
8						
9	R-SB-11-WT					
10	R-SB-11-TOC	10-15	0-3' - SAA, slightly more grey, very light, moist			
11		3' Rec.				
12						
13						
14						
15		15-18 3' Rec.	0-3' - SAA ; refusal at 18 ft. (Till? at 18 ft.)			
16						
17						
18		18-20	0-2' - till - lt. grey, sandy silt and f-c gravel, little cobbles			
19		split spoon				
20						

*? probably lower
- did not hit GW,
no wells set

End of Sampling = 20 feet
Well set @ 2 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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PHOTOGRAPHIC LOG

ATC Group Services, LLC.
1 Elm St., Suite 3
Waterbury, Vermont 05676



Client Name:
VTrans

Site Location:
1002 Airport Drive
N. Clarendon, Vermont

Taxiway

ATC Project #:
280EM00212

Photograph #1

Description:
View SB-1 west of Bravo location. Flag is to be installed boring location. View toward the south. Red X in foreground indicates rock? SB-2 location is north of SB-1 on same grass island.



Photograph #2

Description:
Full view of flag which is to be installed SB-3 location, north of roadway. View toward the south.



over →

PHOTOGRAPHIC LOG

ATC Group Services, LLC.
1 Elm St., Suite 3
Waterbury, Vermont 05676



Client Name:
VTtrans

Site Location:
1002 Airport Drive
N. Clarendon, Vermont

Fire Dent

ATC Project #:
280EM00212

Photograph #1

Description:
View SB-5/MW-1
location at Fire
Department building.
Flag indicated SB/MW
location. View toward
the north-northeast.



Photograph #2

Description:
Additional view of SB-5/
MW-1 location
during UL. View
toward the west.



PHOTOGRAPHIC LOG

ATC Group Services, LLC.
1 Elm St., Suite 3
Waterbury, Vermont 05676



Client Name:
VTtrans

Site Location:
1002 Airport Drive
N. Clarendon, Vermont

Bravo

ATC Project #:
280EM00212

Photograph #1

Description:

View of Bravo "island" location. No good photo of final flagged SB/MW locations. Should be obvious. Nested wells shown however. SB/MW north, south and west of the nested wells. View toward the north.



Photograph #2

Description:

Additional view of SB/MW general locations, note nested wells to north. View toward the west.



PHOTOGRAPHIC LOG

ATC Group Services, LLC.
1 Elm St., Suite 3
Waterbury, Vermont 05676



Client Name: VTrans	Site Location: 1002 Airport Drive N. Clarendon, Vermont	RABP Supply wells	ATC Project #: 280EM00212
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Photograph #1
Description:
View of RABP Supply Well location. Flags for to be installed nested wells is at left, near tree line (30' East of treeline) VOR is to the right. View toward the north-northwest..



Photograph #2
Description:
View of two flags for nested wells. Supply well is south of flags in tall grass. View toward the southwest.



RABP Southans Supply well

nested wells

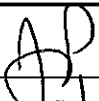
FIELD SERVICES REQUEST

Project No.:	280EM00212	Project Manager:	James Gascoyne
Phase:	--	Home Office:	Waterbury
Client:	Vtrans	Requested By:	JG
Location:	Clarendon	Target Date for Work:	7/11/2018
Contact Phone:	Michael Nahmis 802-522-4595	Requested Personnel:	JP/CFS

#	DESCRIPTION OF WORK TASKS	Task Code	Billable Hours	Actual Hours
1	Meet Otter Creek Engineering at airport parking lot on Airport Drive at 8:30. ATC and OCE will have to have some training before entering airport property. You will be meeting Brian Pinsonault of the airport(802-786-3824 office - 802-272-3450 cell). OCE will be surveying the wells and all soil borings. Please arrange with Brian to escort them to well/boring location.		30	
2	Collect groundwater samples from the six airport monitoring wells after collecting depth to water and purging wells of three to five volumes. Please use low-flow purge/sampling techniques w/peri pumps. Decon WLMs well between locations with Alcanox. Purge water should be captured and added to 55-gallon drums from drilling decon. Bring two 5-gallon bucket for purge collection.			
3	The deep well likely has low recharge and silt. Purge this well first and collect purge water samples in case recharge is low or non-existent. After purging this well, wait to collect official sample as the last well of the day to allow max recharge time. If no recharged water, submit purge water sample instead.			
4	GW samples will be for PFAS (two 250 mL Poly) and TOP Assay is also in two 250 mL. Collect FB for each location, one for nested wells is fine. Samples are for delivery to TestAmerica Burlington, probably on Thursday.			
5				
6				
TOTALS				24.20

Equipment Required: (see expense sheet)	PFAS containers for six locations (plenty in large cooler) at two samples per location & 5 FB (nested wells can use one FB), Duplicate sample from Bravo well, cooler, ice, SOP, HASP, nitrile gloves, 2 YSIs, 2 Peri-pumps, 2 WLM, 2 sets batteries, Alcorox, PFAS free tubing (by my door).
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TECHNICIAN OBSERVATIONS WHICH REQUIRE IMMEDIATE ATTENTION!

Completed By: 
 Date: 7/11/18

Reviewed By: _____
 Date: _____

FIELD SERVICES REQUEST

Project No.:	280EM00215	Project Manager:	James Gascoyne
Phase:	--	Home Office:	Waterbury
Client:	Vtrans	Requested By:	JG
Location:	Clarendon	Target Date for Work:	7/11/2018
Contact Phone:	Michael Nahmis 802-522-4595	Requested Personnel:	JP/CFS

#	DESCRIPTION OF WORK TASKS	Task Code	Billable Hours	Actual Hours
1	Meet Water System Operator at Rutland Airport Business Park at 2:30. Collect arsenic water samples from after treatment on both legs of the treatment train. Collect in 250 mL poly (for Endyne).		3	
2	Collect arsenic water samples from after treatment on both legs of the treatment train. Collect in one 250 mL poly (for Endyne). Everett is supposed to send me some pics, but I havent got them yet. He said he zip tied valves to open to run water through system. His phone is 802-598-4400			
3	Collect PFAS water samples from mid and post treatment on both legs of the treatment train. Collect in two 250 mL poly (for TestAmerica). Also collect one FB from each treatment train.			
4	Collect two bacteria samples. One from post treatment, but prior to chlorination. Collect one from after chlorination, after tanks, but prior to distribution pipe leavign the building. Peder will show you the best locations. Add PFAS free water to chlorine soaked paper towel in cooler. Use this to swipe inside and outside of taps prior to running the water for 10 minutes, prior to sample collection.			
5				
TOTALS				1.5

Equipment Required: (see expense sheet)	cooler with arsenic, total coliform bacteria and PFAS containers (grab PFAS from large cooler). Ice, chlorine soaked paper towel for tap disinfectant.
---	--

TECHNICIAN OBSERVATIONS WHICH REQUIRE IMMEDIATE ATTENTION!

Completed By: JP
 Date: 7/11/18

Reviewed By: _____
 Date: _____

7/11/18

Rutland SVRA | 280EM00212/215 GW sample

CFS/JP meet Otter Creek survey onsite 0830

weather - 60-70°, ^(Jim + Holly) sunny, light breeze

JP to show OC locations of borings in taxiway
CFS calibrated equipment

JP collect WL round

well ID	Depth to water	notes
MW-1S	4.80	-
MW-2S	4.52	-
MW-2D	5.56	-
MW-3S	4.42	-
MW-4S	4.56	-
MW-5S	5.50	-

JP met Peder @ pump house

Arsenic samples - BP = Business Park
A-train is closest to brick building

BP-As-1 @ 1445 (after A-train)

BP-As-2 @ 1447 (after B-train)

PATS samples -

BB-PFC-post A @ 1450

BP-PFC-mid A @ 1452

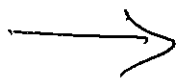
BB-PFC-post B @ 1454

BP-PFC-~~post~~ mid B @ 1456

FB-A train @ 1453

FB-B train @ 1457

280EM
00215



Rutland SURA

280EM00212/215

Bacteria samples -

Post filtration, pre-chlorination - (B-train effluent)

✓ BP-Bae-1 @ 1515

✓ BP-Bae-2 @ 1518

↳ post chlorination (inside building)

key to building is in top of second propane tank

offsite (pumphouse) @ 1530

CPS cal-checked

purge water drum completely full, left 5-gal
bucket next to drums w/ non-haz sticker

GW samples =

MW-1S @ 1437 FB @ 1436

MW-2S @ 1230 ~~FB @~~ DWP @ 1200, Top Assay

MW-2D @ 1125 FB @ > one FB @ 1020

MW-3S @ 1146 FB @ 1145

MW-4S @ 1256 FB @ 1255

MW-5S @ 1405 FB @ 1315

offsite @ 1600

AR/CPS

ATC Well Sampling Form - Page 1 of 2

Site Name/Location: Rutland Airport Date: 7/11/18

Sample I.D.: MW-15 Collection Time: 1437

Sampling Sequence: 3 Of 3

EC'S Field Staff Collecting This Sample: CFS

Climatic Conditions (Temp/Precip): Sunny, 80's

Depth To Product: NA Feet Depth To Water: 4.8 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): 0.45 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): 13.75

Well Yield: High Low _____ Pumped Dry? _____

Final Water Appearance (At Sample Collection) Clear Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) HDPE tubing

Submitted For Analysis By (Method or Methods): PPAS - 537 - 21154

Field Test Results (HACH Kits):

Alkalinity: - Chloride: -

Iron (II): - Sulfate: -

Notes: Field Blank at 1436

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form – Page 2 of 2

Location: Rutland Airport Depth To 1 Of Screen (Below RP)
 Well Id: MW-15 Top Bottom
 Field Personnel: CEJ Pump Intake Depth: 1 ft from bottom
 Reference Point (RP – TOC or other-describe): TOC Pumping Device: Peristaltic Pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged gal	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10 %	Turbidity (NTU) 10%	Comments
1344	4.80										* Begin purging, measuring drawdown and filling flow through cell
1350	4.9	175			17.58	579				119	cloudy / colorless
1355	4.95	200			15.67	589	6.77	-48.8	1.38	133	"
1400	4.97	200			16.31	563	6.71	-84.6	0.28	85.5	"
1405	4.99	200		1	16.32	557	6.47	-69.0	0.26	55.3	"
1410	5.00	"			16.61	547	6.03	-62.7	0.34	37.0	"
1415	5.01	"			16.70	546	6.62	-62.2	0.34	30.8	"
1420	5.03	"		2	16.79	545	6.61	-74.9	0.27	29.55	"
1425	5.01	"			16.84	547	6.63	-69.2	0.19	3.33	clear / colorless
1430	5.01	"			16.86	549	6.64	-73.5	0.18	2.46	"
1435	5.01	"		3	16.88	549	6.61	-78.0	0.17	1.52	"

Notes:

1437 End pump, meet stabilization criteria. Collected sample MW-15.
 Field Blank at 1430

ATC Well Sampling Form - Page 1 of 2

Site Name/Location: Rutland SURA Date: 7/11/18

Sample I.D.: MW-25 Collection Time 1230

Sampling Sequence: 2 of

EC S Field Staff Collecting This Sample: JP

Climatic Conditions (Temp/Precip): Sunny, 70°, light breeze

Depth To Product: — Feet Depth To Water: 4.56 Feet

Reference Point (TOC or other -Describe) TOC

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: —

Total Depth Of Boring (Take Measurement After Sampling): 12.90'

Well Yield: High X Low Pumped Dry? NO

Final Water Appearance (At Sample Collection) Clear X Cloudy Opaque

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): 537 - 21 list

Field Test Results (HACH Kits):

Alkalinity: — Chloride: —

Iron (II): — Sulfate: —

Notes:

* first time sampled

* RFB - 25/2D @ 1020

* Top Assay @ 1230

* DUP @ fictitious time 1200

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: Rutland SVRA Depth To 13 / 13 Of Screen (Below RP)
 Well Id: MW-25 Top Bottom
 Field Personnel: JP Pump Intake Depth: ~ 9
 Reference Point (RP - TOC or other-describe): TOC Pumping Device: peri-pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged (L)	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1145	4.56	-	-	-	-	-	-	-	-	-	START
1150	4.80	200	-	1.0	14.9	420	6.79	-62	0.25	24	
1155	4.82	200	-	2.0	15.7	420	6.71	-41	0.14	11	
1200	4.86	200	-	3.0	16.0	415	6.62	8	0.30	9	
1205	4.88	200	-	4.0	16.1	412	6.56	28	0.34	21	
1210	4.91	200	-	5.0	16.3	412	6.52	36	0.27	20	
1215	4.93	200	-	6.0	16.5	411	6.50	40	0.27	13	
1220	4.94	200	-	7.0	16.4	409	6.49	42	0.32	12	
1225	4.96	200	-	8.0	16.4	409	6.49	40	0.32	13	
1230	SAMPLED	-	-								

Notes:

* TOP ASSAY + DUP

ATC Well Sampling Form - Page 1 of 2

Site Name/Location: Rutland SURA Date: 7.11.18

Sample I.D.: MW-2D Collection Time 1125

Sampling Sequence: 1 Of

EC S Field Staff Collecting This Sample: R

Climatic Conditions (Temp/Precip): Sun, 65-70

Depth To Product: - Feet Depth To Water: 5.56 Feet

Reference Point (TOC or other -Describe) TOC

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: -

Total Depth Of Boring (Take Measurement After Sampling): 24.0' (soft bottom)

Well Yield: High Low X Pumped Dry?

Final Water Appearance (At Sample Collection) Clear X Cloudy X Opaque

started clear, got turbid while sampling

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): 537-21 list

Field Test Results (HACH Kits):

Alkalinity: - Chloride: -

Iron (II): - Sulfate: -

Notes:

* first time sampled since installation (see other side for notes)

* FB-25/2D @ 1020

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: AP MW - Rutland SVRA Depth To: 30 1.32 Of Screen (Below RP)
 Well Id: MW-2D Top Bottom
 Field Personnel: AP Pump Intake Depth: 30.5'
 Reference Point (RP - TOC or other-describe): TOC Pumping Device: peri-pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged (L)	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1040	5.56	-	-	-	-	-	-	-	-	-	START
1045	9.28	200	-	1.0	14.8	332	7.67	-157	0.32	40	
1050	11.45	200	-	2.0	14.8	329	7.49	-184	0.17	24	
1055	12.52	200	-	3.0	14.8	330	7.49	-189	0.12	18	
1100	13.86	200	-	4.0	14.8	329	7.49	-190	0.10	20	
1105	15.00	200	-	5.0	14.8	328	7.50	-191	0.10	22	
1110	16.78	200	-	6.0	14.9	330	7.50	-186	0.18	21	
1115	19.15	200	-	7.0	15.0	332	7.51	-184	0.20	21	
1120	20.38	200	-	8.0	15.2	329	7.53	-180	0.24	19	
1125	SAMPLED	-	-	(got turbid while sampling)							

Notes:

* collected sample prior to purging/parameters, at 1030, in case recharge is too low for sample post-purge - DISCARDED
 * all parameters stable except WL - low recharge. Collect sample @

ATC Well Sampling Form - Page 1 of 2

Site Name/Location: Rutland Airport Date: 7/11/18

Sample I.D.: MW-35 Collection Time 1146

Sampling Sequence: 1 Of

^{ATC} EC-8 Field Staff Collecting This Sample: CFS

Climatic Conditions (Temp/Precip): Sunny, 80's

Depth To Product: NA Feet Depth To Water: 4.42 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -6.7 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): 12.7

Well Yield: High Low Pumped Dry? NO

Final Water Appearance (At Sample Collection) Clear Cloudy Opaque

Sample Collected from (tubing, bailer, or other-describe) HDPE tubing

Submitted For Analysis By (Method or Methods): PFAS - 537-21 list

Field Test Results (HACH Kits):

Alkalinity: - Chloride: -
Iron (II): - Sulfate: -

Notes: _____

Low-Flow Well Sampling Form – Page 2 of 2

Location: Rutland Airport Depth To _____ / _____ Of Screen (Below RP)

Well Id: MW-35 Top Bottom

Field Personnel: CFS Pump Intake Depth: 1 ft from bottom

Reference Point (RP – TOC or other-describe): TOC Pumping Device: Peristaltic pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged gal	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1105	4.42	* Begin									purging, measuring draw down, and filling flow through cell.
1110	4.50	200			14.59	458	7.00	-99.7	0.91	17.6	sl. cloudy / colorless
1115	4.50	200			14.44	457	6.84	-90.7	0.82	19.6	"
1120	4.50	200		1	15.08	460	6.32	-76.8	0.64	14.4	"
1125	4.51	"			14.62	468	6.19	-77.9	0.48	6.48	clear / colorless
1130	4.51	"			14.57	469	6.19	-91.0	0.42	2.96	"
1135	4.52	"		2	14.57	469	6.16	-99.7	0.23	1.75	"
1140	4.52	"			14.58	469	6.16	-100.8	0.22	1.82	"
1145	4.52	"		2.5	14.59	469	6.16	-101.0	0.21	1.99	"
1146	End purge meet stabilization criteria. Collect sample - MW-35										
	Field blank @ 1145										

Notes:

ATC Well Sampling Form - Page 1 of 2

Site Name/Location: Rutland Airport Date: 7/11/18

Sample I.D.: MW-4S Collection Time 1256

Sampling Sequence: 2 Of 2

^{ATC} EC-S Field Staff Collecting This Sample: OFF

Climatic Conditions (Temp/Precip): Sunny, 80's

Depth To Product: NA Feet Depth To Water: 4.50 Feet

Reference Point (TOC or other -Describe) TOC

Ref. Point Elev. Relative To Ground Surface (Use "+" For Aboveground, "-" For Belowground): -0.3 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): 14.35

Well Yield: High Low _____ Pumped Dry? _____

Final Water Appearance (At Sample Collection) Clear Cloudy _____ Opaque _____

Sample Collected from (tubing, bailer, or other-describe) HDPE tubing

Submitted For Analysis By (Method or Methods): PPAS 537-21157

Field Test Results (HACH Kits):

Alkalinity: - Chloride: -

Iron (II): - Sulfate: -

Notes: _____

Field Blank at 1255

Low-Flow Well Sampling Form – Page 2 of 2

Location: Rutland Airport Depth To _____ / _____ Of Screen (Below RP)

Well Id: MW-4S Top Bottom

Field Personnel: CFS Pump Intake Depth: 1 ft from bottom

Reference Point (RP – TOC or other-describe): TOC Pumping Device: Peristaltic Pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged gal	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10 %	Turbidity (NTU) 10%	Comments
1205	4.56	* Begin									purging, measuring drawdown, and filling flow through cell
1210	4.70	175			13.77	435	6.63	-73.4	0.56	9.93	clear/colorless
1215	4.79	200			14.61	435	6.52	-82.0	0.30	54.6	cloudy & colorless
1220	4.86	200		1	14.95	432	6.46	-89.5	0.29	40.7	"
1225	4.80	200			14.98	432	6.46	-90.0	0.29	25.8	"
1230	4.78	"			15.66	431	6.40	-56.2	0.43	25.3	"
1235	4.75	"		2	15.95	429	6.30	-66.5	0.47	17.3	"
1240	4.75	"			15.94	430	6.30	-76.1	0.46	13.1	clear/colorless
1245	4.75	"			15.63	433	6.28	-89.3	0.40	12.7	"
1250	4.74	"		3	15.61	431	6.30	-91.2	0.43	12.0	"
1255	4.74	"		3 1/4	15.58	432	6.33	-93.5	0.42	12.5	"

Notes:

1256 - End purge, meet stabilization criteria. Collect sample MW-4S.
 Field Blank collected @ 1255.

ATC Well Sampling Form - Page 1 of 2

Site Name/Location: Rutland SURA Date: 7/11/18

Sample I.D.: MW-55 Collection Time 1405

Sampling Sequence: 3 of 3

EC S Field Staff Collecting This Sample: [Signature]

Climatic Conditions (Temp/Precip): sunny, 70°, breezy

Depth To Product: — Feet Depth To Water: 5.48 Feet

Reference Point (TOC or other -Describe) TOL

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: —

Total Depth Of Boring (Take Measurement After Sampling): 14.50'

Well Yield: High [X] Low — Pumped Dry? NO

Final Water Appearance (At Sample Collection) Clear — Cloudy [X] Opaque orange

Sample Collected from (tubing, bailer, or other-describe) tubing

Submitted For Analysis By (Method or Methods): 537-21 test

Field Test Results (HACH Kits):

Alkalinity: — Chloride: —

Iron (II): — Sulfate: —

Notes:

* FB-55 @ 1315

--USE REVERSE SIDE OF FORM FOR LOW FLOW SAMPLING PARAMETERS--

Low-Flow Well Sampling Form - Page 2 of 2

Location: Rutland SURA Depth To 4 / 14 Of Screen (Below RP)
 Well Id: MW-53 Top Bottom
 Field Personnel: JP Pump Intake Depth: ~ 10'
 Reference Point (RP - TOC or other-describe): TOC Pumping Device: peri-pump

Time (24 Hr)	Depth To Water (ft)	Purge Rate mL/min)	Pump Speed	Cumulative Volume Purged (L)	Temperature °C 3%	Specific Conductance (uS/cm) 3%	pH ±0.1	ORP/ eH (mV) ±10	DO (Mg/L) 10%	Turbidity (NTU) 10%	Comments
1315	5.48	-	-	-	-	-	-	-	-	-	START
1320	5.60	200	-	1.0	15.6	463	6.92	19	0.14	480	
1325	5.60	200	-	2.0	15.8	458	6.95	24	0.13	480	
1330	5.68	200	-	3.0	17.3	373	6.96	72	0.15	1050	
1335	5.68	200	-	4.0	16.8	367	6.86	106	2.32	275	
1340	5.68	200	-	5.0	16.7	370	6.86	108	2.18	79	
1345	5.68	200	-	6.0	17.0	369	6.86	114	2.03	84	
1350	5.68	200	-	7.0	17.3	357	6.85	126	2.51	81	
1355	5.68	200	-	8.0	16.9	352	6.85	130	2.46	82	
1400	5.68	200	-	9.0	16.7	354	6.85	129	2.48	79	
1405	SAMPLED-										

Notes:

YSI MULTIPARAMETER METER

Serial No.: 05E2343 Model No.: YSI 556 MPS Decal No.: _____
 Site Name: Rutland Regional Airport Job No.: 280EM00212

Instrument is calibrated in accordance with Manufacturer's Instructions

DATE	Pre Calibration Readings	Post Calibration Readings	PM Check	Calibration STDs (lot #s)	Signature	Remarks
7/11/18						
Cond. $\mu\text{S}/\text{cm}$ 1413 @ 25°C		1412	1380 @ 24.6°C	7GG024	AM / PM CFS CFS	
pH=4.0		4.00	4.12	6GC939	}	
pH=7.0		7.00	7.10	7GD829		
pH=10.0		10.00	10.05	7GH088		
D.O. mg/l / %		7.53 mg/l / 98.3%	5.06 / 82.4%	---		
ORP mV 220 @ 25°C		220 @ 25°C	221 @ 25°C	7GG707	}	
Temp C		23.75°C	25.89	---		
Baro. Press. mmHg		743.0	743.3	---		
Zero DO mV/l		0.01	0.5	7GA598	✓ ↓	

DATE:						
Cond. mS/cm						
pH=4.0						
pH=7.0						
pH=10.0						
D.O mg/l / %						
ORP mV						
Temp C						
Baro. Press. mmHg						

YSI MULTIPARAMETER METER

Serial No.: 3617 Model No.: YSI Pro+ Decal No.: _____
 Site Name: Rutland Regional Airport Job No.: ZPOEM00212

Instrument is calibrated in accordance with Manufacturer's Instructions

DATE: <u>7/11/18</u>	Pre Calibration Readings	Post Calibration Readings	PM Check	Calibration STDs (lot #s)	Signature	Remarks
Cond. μ S/cm <u>1413 @ 25°C</u>	/	<u>1413</u>	<u>1215 @ 27°C</u>	<u>7GG024</u>	<u>AM / PM</u> <u>OFF / OFF</u>	
pH=4.0		<u>4.01</u>	<u>4.05</u>	<u>GGC939</u>		
pH=7.0		<u>7.01</u>	<u>7.82</u>	<u>7GD829</u>		
pH=10.0		<u>10.01</u>	<u>10.0</u>	<u>7GH058</u>		
D.O. mg/l / %		<u>8.62 / 96.94%</u>	<u>7.23 / 95.4%</u>	-----		
ORP mV		<u>235.7 @ 22°C</u>	<u>224 @ 28.4°C</u>	<u>7GG707</u>		
Temp C		<u>21.8°C</u>	<u>27.0</u>	-----		
Baro. Press. mmHg		<u>741.7</u>	<u>741.5</u>	-----		
Zero DO mg/l		<u>0.0</u>	<u>0.00</u>	<u>7GA59D</u>	<u>✓</u> <u>✓</u>	

DATE:						
Cond. mS/cm						
pH=4.0						
pH=7.0						
pH=10.0						
D.O mg/l / %						
ORP mV						
Temp C						
Baro. Press. mmHg						

