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FOCUSED SITE INVESTIGATION REPORT
Stratham Fire Department
4 Winnicutt Road
Stratham, New Hampshire

NHDES Site #199507007
Project Type: HazWaste
Project #39137

Prepared For:
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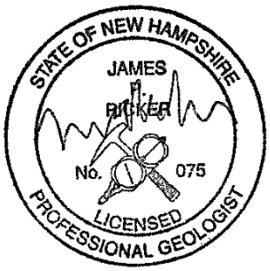

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February 24, 2020

Wilcox & Barton, Inc. Project #STRT0001

Wilcox & Barton INC.

CIVIL • ENVIRONMENTAL • GEOTECHNICAL

FOCUSED SITE INVESTIGATION REPORT

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4 WINNICUTT ROAD
STRATHAM, NEW HAMPSHIRE

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HAZWASTE PROJECT #39137

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CERTIFICATION

The following personnel have prepared and/or reviewed this report for accuracy, content, and quality of presentation.

Document: Focused Site Investigation Report
Stratham Fire Department, 4 Winnicutt Rd., Stratham, New Hampshire
NHDES Site #199507007, Project Type: HAZWASTE, Project #39137

Date/Version: February 24, 2020

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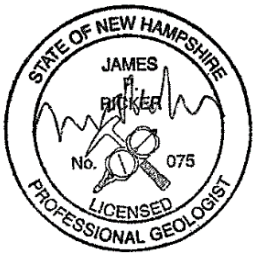

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Principal Engineer

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1.0 INTRODUCTION

On behalf of the Town of Stratham (the Town), Wilcox & Barton, Inc. has completed a Focused Site Investigation (FSI) for the Stratham Fire Department (SFD) at 4 Winnicutt Road in Stratham, New Hampshire (the site). The FSI was completed in accordance with a letter from the New Hampshire Department of Environmental Services (NHDES) dated April 26, 2019, a Scope of Work submitted to NHDES by Wilcox & Barton, Inc. on behalf of the Town on June 7, 2019, and a Contract Modification for additional drinking water sampling approved by the Town on October 10, 2019. A copy of the April 2019 letter from NHDES is included in Appendix A.

The location of the subject property is shown on Figure 1 – *Site Location Map*. A plan showing the location of the fire station and adjacent properties is shown on Figure 2 – *Site Plan.* A detailed site plan showing features such as catch basins, storm water infrastructure, floor drains, leachfields, and holding tanks associated with potential release areas are shown on Figure 3 – *Subsurface Infrastructure Plan.*

2.0 BACKGROUND AND INVESTIGATION HISTORY

The SFD is an approximately 20,000-square-foot facility that was completed in 2008. It replaced a smaller fire station that was demolished as part of the construction of the new facility. The former fire station was built in 1957 and was located largely within the current building footprint. The SFD is served by a bedrock water supply well located near the southeastern corner of the Stratham Historical Society building, which shares the 2.47-acre property with the SFD. The water supply well also serves the adjacent property to the south at 156 Portsmouth Avenue (Colleen Lake).

In March 2019, NHDES was notified of analytical results for a drinking water sample collected on March 5, 2019, from the water supply well at 149/151 Portsmouth Avenue. The 149/151 Portsmouth Avenue property is located to the west of the SFD in the downgradient direction. The analytical results indicated the presence of perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), and perfluorohexane sulfonic acid (PFHxS) at concentrations of 31.4 nanograms per liter (ng/l), 39.8 ng/l, and 63.3 ng/l, respectively. This prompted NHDES to collect additional drinking water samples from nearby water supply wells at 142 Portsmouth Avenue, 157 Portsmouth Avenue, 4 Winnicutt Road (the SFD), and the Stratham Green Condominium Association (Stratham Green) on March 22, 2019. The analyses detected per- and polyfluoroalkyl substances (PFAS) at concentrations approaching, or above, the NHDES Ambient Groundwater Quality Standards (AGQS) that were in effect at the time of sample collection.

On April 26, 2019, NHDES submitted a letter via e-mail to the Stratham Select Board Chair requesting that the Town conduct an FSI to evaluate the possible source (or sources) of groundwater contamination. They further requested that the Town or its consultant prepare a Work Plan for the FSI that was to include a schedule for implementation and provide it to NHDES for their review by June 7, 2019. In response, the Town issued a Request for Proposal on May 20, 2019, to which Wilcox & Barton, Inc. responded on May 29, 2019. On June 4, 2019, Wilcox & Barton, Inc. was selected by the Town to conduct the FSI and the requested

Work Plan was prepared and submitted to NHDES on June 7, 2019. The tasks included in the Work Plan that were conducted as part of the FSI are described in Section 3.0.

3.0 FOCUSED SITE INVESTIGATION

3.1 Fire Department Research and Interview

In the April 26, 2019, letter to the Town, NHDES identified several areas that required additional investigation and data gathering as part of the FSI. These include the following tasks, which Wilcox & Barton, Inc. evaluated through a combination of database searches and in-person interviews:

- Confirmation that the SFD has (or had) historically used and stored Class B firefighting foam as part of their operations and procedures;
- Documentation of releases of foam concentrate during storage, transfer, or equipment calibration;
- Documentation of discharges of foam solution for apparatus testing and/or cleaning (i.e., washing/drying of hoses);
- Discharges of foam solution for fire training;
- Leaks from foam distribution equipment between storage and pumping locations;
- The presence of floor drains or dry wells where discharges of interior truck/hose wash water potentially containing PFAS may have entered the subsurface;
- The location and specification of the on-site drinking water well (construction information, pump intake depth, any recent pump repairs/installations, etc. if known);
- The physical location of site utilities, septic system, storm water management systems, and other pertinent site features etc.;
- A summary of the history of site operations, historical and current storage and use of any PFAS containing materials, hazardous materials and/or petroleum products, and the location of any storage areas of such onsite; and
- Information on department practices and designated areas for storage, handling, and use of PFAS-containing products and any historical knowledge of releases or spills of Class B Foam concentrate or solutions.

On June 17, 2019, Wilcox & Barton, Inc. met at the SFD with Mr. Matthew Larrabee (Stratham Fire Chief) and Mr. Dan Crow (Crow Construction) for a tour of the building, a demonstration of the firefighting products used and stored at the property, and the procedures for cleaning the associated firefighting gear after use. Mr. Crow provided Wilcox & Barton, Inc. with a copy of the site plan that was prepared for construction of the facility in 2007 showing the physical locations of the building and associated subsurface features and utilities (Figure 3). The information obtained during the visit is summarized in Section 4.0 below. Photographs of the interior of the SFD and floor drain system are included in Appendix B.

3.2 Monitoring Well Installation, Development, and Survey

On June 27 and June 28, 2019, Wilcox & Barton, Inc. oversaw the installation of monitoring wells MW-101 through MW-105 at the locations shown on Figures 2 and 3. The monitoring wells were installed by Geosearch, Inc. of Sterling, Massachusetts using hollow-stem auger drilling techniques to depths of up to approximately 18 feet below ground surface (bgs). During advancement of the soil borings that preceded monitoring well construction, overburden soil was screened with a photoionization detector (PID) from the ground surface to the bottom of the borehole. Observations such as soil lithology, color, odor, PID readings, and the estimated depth to groundwater were recorded in the project field notes. The soil borings were logged using the Modified Burmister soil classification system. No soil samples were collected for laboratory analysis.

Monitoring well locations were chosen as follows:

- **MW-101**: Upgradient of the SFD building and associated infrastructure.
- **MW-102**: Downgradient of both the current and former fire station bays for the former and current fire station buildings.
- **MW-103**: Downgradient, northwestern portion of the property in the direction of the commercial and residential properties located along Portsmouth Avenue.
- **MW-104**: Downgradient, western portion of the property prior to Portsmouth Avenue and the monitoring well network on the Stratham Village Market (O'Brien Energy) property at 157 Portsmouth Avenue.
- **MW-105**: Downgradient of the SFD, the existing leachfield for the building, and the approximate location of the former leachfield for the former septic system.

Upon reaching the terminal depth at each boring location (auger refusal or approximately 8 feet below the soil/groundwater table interface, whichever came first), monitoring wells were constructed with up to 10 feet of 2-inch-diameter, 0.010-inch slotted polyvinyl chloride (PVC) well screen and an appropriate length of PVC riser to the surface. Clean filter sand was introduced into the annular space around the well screens and capped with a one-foot-thick bentonite seal. The wells were completed at ground level with flush-mounted steel road boxes set in concrete pads. Well construction details are included on the soil boring and well construction logs provided in Appendix C.

Immediately following construction, Wilcox & Barton, Inc. developed the wells by purging at least three well volumes to remove accumulated fines and enhance the free flow of groundwater through the sand pack and well screen. The top-of-casing elevations for the new monitoring wells were surveyed and tied to building corners of the Fire Department and Stratham Historical Society as elevation benchmarks.

3.3 Groundwater and Surface Water Sampling

On July 15 and July 29, 2019, Wilcox & Barton, Inc. collected groundwater samples with disposable, polyethylene bailers from new monitoring wells MW-101, MW-102, MW-103, MW-104, and MW-105 and from existing wells MW-1, MW-3, and MW-5, which are located across the street at the Stratham Village Market (O'Brien Energy) property. Depth-to-water measurements were taken in each well prior to sampling and used to calculate the potentiometric surface elevations presented in Table 1 – *Well Gauging and Piezometric Head Elevation* Data and shown on Figure 4 – *Piezometric Head Elevation Plan*. Groundwater samples were collected in accordance with the Wilcox & Barton, Inc. *Standard Operating Procedure FP-17 - Groundwater Sampling for Per- and Polyfluoroalkyl Substances (PFAS)*, which is included in Appendix D.

The groundwater samples were packed in ice and submitted under standard Chain-of-Custody (COC) procedures to Con-Test Analytical Laboratory (Con-Test) in East Longmeadow, Massachusetts for analysis of PFAS by EPA Method 537.1 (modified). For Quality Assurance/Quality Control (QA/QC) purposes, an equipment blank was also collected and submitted during each round.

3.4 Drinking Water Sampling

In April 2019, NHDES identified 44 properties within a 1,000-foot radius of at least one of the exceedances for PFAS in drinking water discussed above. Of those 44 properties, 7 were determined by NHDES to be undeveloped or served by a community supply well. On April 16, 2019, invitations were sent by NHDES to the remaining 37 properties to schedule a time to collect a drinking water sample from the water supply well servicing the property for laboratory analysis of PFAS. NHDES collected drinking water samples from the following properties:

- 4 College Road;
- 4R College Road (Irrigation Well);
- 4R College Road (Primary Well);
- 6 College Road;
- 13 College Road;
- 138 Portsmouth Avenue;
- 140 Portsmouth Avenue;
- 142R Portsmouth Avenue;
- 145 Portsmouth Avenue;
- 149/151 Portsmouth Avenue;
- 152 Portsmouth Avenue;
- 156 Portsmouth Avenue (same as SFD);
- 157 Portsmouth Avenue;
- 159 Portsmouth Avenue;
- 161-2 Portsmouth Avenue;
- 165 Portsmouth Avenue;
- 166 Portsmouth Avenue;
- 169 Portsmouth Avenue;
- 170 Portsmouth Avenue;
- 172 Portsmouth Avenue;
- 176 Portsmouth Avenue;
- 232 Portsmouth Avenue;
- 7 Tansy Avenue;
- 4 Winnicutt Road (SFD);
- 7/7R Winnicutt Road; and
- 9 Winnicutt Road.

In addition, samples were collected from Wells #1, #2, and #3 at the Stratham Green property, which is located approximately one-half mile to the northwest of the SFD.

As of June 10, 2019, NHDES had contacted 60 properties in the immediate area that may have been at risk of PFAS contamination. At the time the June 2019 Work Plan was prepared for review by NHDES, drinking water samples had been collected or scheduled from approximately 34 of those properties. With the possibility of new data being received by NHDES as additional property owners responded to the sampling requests, the June 2019 Work Plan included an allocation for up to eight additional drinking water samples to be collected as part of the FSI. The exact locations of properties to be sampled were flexible and dependent upon the data gaps that existed in the initial 1,000-foot radius evaluation. One additional sample was specified by NHDES for the water supply well at 142 Portsmouth Avenue, where the concentration of PFAS in the sample collected by NHDES in March 2019 approached, but did not exceed, AGQS.

On July 15, 2019, Wilcox & Barton, Inc. visited several properties in the Stratham Town Center area that fell within the 1,000-foot radius where drinking water samples for PFAS analysis had not yet been collected. Wilcox & Barton, Inc. was successful in collecting drinking water samples from water supply wells at the following properties:

- 2 College Road;
- 137 Portsmouth Avenue;
- 142 Portsmouth Avenue;
- 160 Portsmouth Avenue; and
- 164 Portsmouth Avenue.

Wilcox & Barton, Inc. also visited the following properties, but could not collect a drinking water sample for the reasons noted:

- 139 Portsmouth Avenue: Hair salon - did not grant access due to the recent collection of a water sample by GeoInsight, Inc. The NHDES OneStop site does not include the results of any drinking water sample collected from this property.
- 148 Portsmouth Avenue: Private residence, appeared to be abandoned.
- 154 Portsmouth Avenue: No one available.
- 18 Winnicutt Rd.: Private residence, no one available; however, NHDES collected a sampled in April 2019. Property is more than 500 feet from a known PFAS exceedance.
- 8 Winnicutt Rd.: Cornerstone Baptist Church, located adjacent to the SFD; abandoned.

The samples collected on July 15, 2019, were placed on ice and submitted under standard COC procedures to Con-Test for laboratory analysis of PFAS by EPA Method 537.1.

On September 23, 2019, Mr. David Moore (Stratham Town Administrator), Ms. Amy Doherty (NHDES), and Mr. James Ricker (Wilcox & Barton, Inc.) participated in a conference call to discuss the status of the drinking water sampling program and the pending release of the FSI Report to the Town and to NHDES. It was noted during the call that recent analytical data

received by both NHDES and Wilcox & Barton, Inc. suggested that there may be additional water supply wells located within 500 feet of known AGQS exceedances that should be evaluated and included in the study. NHDES stated that rather than receive an FSI Report that contained the results of the drinking water samples collected to date, they would prefer that the additional investigation and applicable drinking water sample collection be conducted and included in a more comprehensive report at a later date.

On October 10, 2019, the Town approved a modification to the Wilcox & Barton, Inc. contract to conduct a Sensitive Receptor Survey and collect additional drinking water samples. On October 23, 2019, Wilcox & Barton, Inc. used a combination of water well records, a desktop survey, and in-person communications with property owners to complete the Sensitive Receptor Survey. The Sensitive Receptor Survey identified the following properties within 500 feet of a known AGQS exceedance for PFAS (as of September 30, 2019) that had not been sampled:

- 5/5R College Road (same well);
- 9 College Road;
- 19 College Road;
- 131 Portsmouth Avenue;
- 132 Portsmouth Avenue;
- 148 Portsmouth Avenue (previously attempted in July 2019);
- 154 Portsmouth Avenue (previously attempted in July 2019); and
- 8 Winnicutt Road (previously attempted in July 2019).

On November 1, 2019, Wilcox & Barton, Inc. submitted letters to the property owners and followed up with phone calls to arrange for the collection of a drinking water sample from their water supply wells. Wilcox & Barton, Inc. was successful in scheduling appointments at the following properties:

- 5/5R College Road (same well);
- 9 College Road;
- 19 College Road (well could not be sampled – home vacant and water turned off);
- 131 Portsmouth Avenue; and
- 132 Portsmouth Avenue

On November 6, 2019, NHDES received the results of a drinking water sample collected by NHDES from the property at 13 College Road on October 2, 2019. The analytical results indicated the presence of PFOA at a concentration of 33 ng/l, which exceeded the AGQS of 12 ng/l. Wilcox & Barton, Inc. used this data prior to the planned water supply well sampling event to determine if additional drinking water wells were located within a 500-foot radius of the water supply well at 13 College Road. One additional water supply well was identified at 5 French Lane and added to the sampling program, which was conducted on November 12, 2019. Wilcox

& Barton, Inc. also collected a surface water sample from the pond located within the Stratham Traffic Circle that merges Portsmouth Avenue with College Road. The surface water and drinking water samples were packed in ice and submitted with an equipment blank to Con-Test for laboratory analysis of PFAS by EPA Method 537.1.

4.0 ANALYTICAL RESULTS AND FINDINGS

4.1 Fire Department Research and Interview

The April 26, 2019, letter from NHDES to the Town presented several questions that required further evaluation as part of the FSI, including the site history (addressed in Section 2.0), the use and storage of Class B firefighting foam, historical Fire Department practices, and the nature and location of subsurface utilities. These data gaps that represent potential source areas and transport mechanisms for PFAS that could result in impacts to potential receptors are addressed below.

4.1.1 Use and Storage of Class-B Firefighting Foam

The SFD currently uses a fluorine-free surfactant-based foam, "F-500 Encapsulator Agent (EA)", for use in extinguishing petroleum and petroleum vapor-based fires. The SFD stores approximately 35 gallons of the firefighting foam on each of two trucks parked at the facility. Chief Larrabee stated that the foam has been on the trucks since they were purchased in 2000 (Engine 1) and 2009 (Engine 3). Prior to 2000, the SFD used the product "Universal Gold", which is an Alcohol Resistant Aqueous Film-Forming Foam (AR-AFFF) that contains PFAS. Its use has since been discontinued by the SFD. According to Chief Larrabee, the Universal Gold AR-AFFF was stored in only one truck until it was nearly used up, at which time the remainder of it was discharged at an off-site structure fire.

There are no other storage areas for the F-500 EA product at the SFD, and as such, there is no piping or other mechanisms for transferring foam between locations at the property. Chief Larrabee stated that their calls generally require very little of the foam, and that they might use about 1 gallon of the 1 to 3% mixture each year. No fire training activities - using foam or otherwise - are conducted at the SFD. The Chief also stated that the SFD formerly used a car wash product "that contained a wax similar to something that is used at a drive-through car wash" that he indicated "used to be used all the time to wash trucks and equipment and was typically done outside". Chief Larrabee spoke with the store where the product was purchased and they believe it was "Meguiar's D100 Detailer Hyper-Wash", which contains sulfonic acids but does not appear to be a fluorine-based product.

During the June 2019 visit and inspection by Wilcox & Barton, Inc., it was noted that the "foam level indicator" on one of the two trucks characterized the tank as being "full". Chief Larrabee acknowledged that the foam remaining on the two trucks at the station is likely at the end of its shelf life due to its age. According to the SDS, F-500 EA is "100% biodegradable, is non-hazardous, and contains no ingredients reportable under the Superfund Amendments and Reauthorization Act (SARA) Title 111, Section 313 or the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The shelf life is 15 years and it can be

discarded as a non-hazardous waste under Resource Conservation and Recovery Act (RCRA) CFR 261". Copies of the Safety Data Sheets for F-500 Encapsulator Agent, Universal Gold, and Meguiar's D100 Detailer Hyper-Wash are included in Appendix E.

4.1.2 On-site Fire-fighting Equipment Handling and Cleaning

As illustrated on Figure 3, the SFD facility was constructed with floor drains that run throughout the fire truck bays and discharge into a 1,500-gallon subsurface holding tank on the exterior north side of the building. The floor drains in the firefighting gear storage room also discharge into the tank. A float switch signals an alarm when the tank is nearing capacity, at which time a contractor is contacted to pump off the water and transport it to the Greater Lawrence Sanitary District for disposal. The frequency of the pump-offs varies depending on the amount of water that enters the drains from the washing of hoses, melting snow, and washing road salt off the fire trucks during the winter. The SFD estimates that they are pumped off on average between four and five times per year.

On the occasions where the use of Class B foam is required, the hoses are emptied onsite prior to return to the fire station. When the hoses are brought back to the station, they are laid out on the heated slab inside the station to dry for a period of up to two weeks prior to being rolled up and put away. According to the SFD, no washing or rinsing of firehoses occurs outdoors. There are no other interior floor drains that would capture rinse water from the hoses. A separate 1,000-gallon subsurface decontamination tank is located on the southern side of the building, which captures and stores water from a clothes washing system, decontamination sink, and facility showers. This tank also has an alarm to signify when it is full, at which time it is pumped off and the water disposed off-site. The only water that reportedly enters the existing leachfield on the south side of the building is from toilets and bathroom sinks (not for equipment decontamination) within the facility.

4.1.3 On-site Utilities

The SFD facility is served by a bedrock water supply well that was drilled in July 2007 as part of the construction of the new Fire Department building. The well is approximately 225 feet deep, with 60 feet of permanent steel casing and a reported yield of 35 gallons per minute. The depth to bedrock was recorded at 17 feet bgs.

According to Chief Larrabee, the leachfield for the former SFD building is believed to have been in the area that now comprises the northern portion of the parking lot on the south side of the new building and the interior portion of the structure where the fire trucks are parked. Currently, gray water and septic wastes are discharged into one 1,500-gallon and one 3,000-gallon septic tank located on the south side of the building. The wastewater is directed through a distribution box and into a chambered leaching system located beneath the paved parking lot. Additional infrastructure, including subsurface electric, gas, telephone, and water lines, lighting conduits, septic vents, catch basins, and sanitary sewer and drainpipes, are also present beneath the paved parking area and access ways connecting to Portsmouth Avenue and Winnicutt Road. A 20,000-gallon subsurface cistern that is used to store fire suppression water is located on the eastern side of the building. These features are shown on Figure 3.

4.2 Groundwater

On June 28, 2019, the NHDES submitted a final rulemaking proposal to establish new AGQS for four PFAS: PFOA, PFOS, PFHxS, and perfluorononanoic acid (PFNA). The rulemaking proposal was filed with the New Hampshire Joint Legislative Committee on Administrative Rules for consideration at their July 2019 meeting. The new AGQS were subsequently adopted by NHDES with an effective date of September 30, 2019. Although the groundwater samples for this FSI were collected prior to the effective date, the analytical results presented herein are compared to the AGQS that became effective on September 30, 2019, and which NHDES is currently using to evaluate groundwater quality.

The analytical results for the groundwater samples collected by Wilcox & Barton, Inc. in July 2019 indicate the presence of PFAS at concentrations exceeding AGQS in monitoring wells MW-102, MW-103, MW-104, MW-105, MW-1, MW-3, and MW-5. In total, PFAS were detected at concentrations above AGQS in 14 of 16 samples collected. The only monitoring well where PFAS was not detected at concentrations above AGQS was monitoring well MW-101, which was installed on the upgradient portion of the SFD property. The compounds PFHxS and PFOS were detected at concentrations above AGQS in all 14 of the samples, while PFOA was detected at concentrations above AGQS in 13 of the 14 samples. In the remaining (14th) sample, PFOA was detected at a concentration at, but not over, the AGQS of 12 ng/L). The highest concentration of PFAS was the detection of PFOS at a concentration of 2,400 ng/L in monitoring well MW-105.

Analytical results are presented in Table 2 – *Groundwater Samples – Summary of Analytical Results* and copies of the laboratory reports are included in Appendix F. The analytical results for the four regulated PFAS are represented graphically on Figure 5 – *Analytical Results – Groundwater.*

4.3 Residential Drinking Water

A total of 50 drinking water samples have been collected from 48 water supply wells since March 2019. Of the 50 samples, 10 were collected by Wilcox & Barton, Inc. as part of this investigation, while the remaining 40 samples were collected by NHDES.

The analytical results indicate the presence of PFAS in all 50 of the samples collected. Of these, 27 of the samples collected from water supply wells on 23 properties contained PFAS at concentrations exceeding AGQS. The properties where PFAS was detected at concentrations above AGQS in multiple samples include the following:

- 4R College Road (one primary well and one irrigation well);
- 142 Portsmouth Avenue (two samples from the same well, collected on separate dates); and
- The Stratham Green (three water supply wells, all sampled on the same date in March 2019).

The compound most often detected at concentrations above AGQS in drinking water samples was PFOA (in 24 of 50 samples), followed by PFOS in 20 of the 50 samples.

Analytical results for drinking water samples are presented in Table 3 - *Drinking Water Samples – Summary of Analytical Results* and the laboratory analytical package is included in Appendix F. Notification letters to the private water well owners where drinking water samples were collected are included in Appendix G. A graphical representation of residential drinking water quality by water supply well is presented on Figure 6 – *Regional PFAS Overview.*

5.0 SITE GEOLOGY AND HYDROGEOLOGY

5.1 Site and Local Geology

The overburden encountered at the site during drilling and well installation consisted primarily of brownish-tan silt and fine to medium sand with some gravel overlying the bedrock surface between approximately 16 and 18 ft bgs. In soil borings in the northern (B(MW)-102) and western (B(MW)-103 and B(MW)-104) portions of the SFD property, lenses of brownish- to gray-blue clay were noted at depths of approximately 8 to 9 ft bgs. The bedrock beneath the overburden deposits is mapped as the Silurian-Ordovician Eliot Formation, which is described as a gray to green phyllite, calcareous quartzite, quartz-mica schist. Bedrock was not evaluated as part of the FSI.

According to the U.S. Department of Agriculture (USDA) Soil Conservation Service (USDA, 1991), soil in the Stratham Town Center area is mapped as the Hoosic-Paxton-Eldridge unit, which is described as “somewhat excessively drained to moderately well drained, loamy soils that are nearly level to steep”.

5.2 Groundwater Elevations and Flow Direction

The overburden potentiometric surface and groundwater flow direction is shown on Figure 4. Based on water level measurements collected from the monitoring well network on July 29, 2019, groundwater flow is generally to the west-northwest towards the Squamscott River and its associated tributaries. The direction of groundwater flow in the overburden mimics surface topography, as the SFD property slopes downward from east to the west towards Portsmouth Avenue (Route 33) and the Stratham Village Market (O’Brien Energy) property across the street at 157 Portsmouth Avenue.

Whereas no bedrock monitoring wells were installed during the investigation and private bedrock water supply wells were not viable gauging points due to water level influences from daily use, vertical hydraulic gradients could not be calculated. The horizontal gradient at the site is approximately 0.016 feet/foot.

6.0 CONCEPTUAL SITE MODEL

6.1 Contaminant Source

The presence of PFAS in regional groundwater is likely attributable to the previous use of Universal Gold Class B fire-fighting foam at the SFD prior to the early 2000s. The former fire station was in operation for approximately 50 years before the construction of the new facility began in 2007. While no direct evidence was encountered that documents specific releases of PFAS to the environment during the use of the property as a fire station, it is well documented that PFAS have been used in Class B firefighting foams since the 1960s. Based on the presence of only trace levels of PFAS in upgradient monitoring well MW-101, the east-to-west direction of groundwater flow across the site, and the detection of elevated concentrations of PFAS in monitoring wells located at, and downgradient of, the SFD property, Wilcox & Barton, Inc. concludes that the contaminant source is the soil and groundwater beneath the SFD property.

Best Management Practices are currently in use at the fire station and by the SFD staff in the form of interior floor drains that capture firefighting-related wastewater and store it in secured subsurface tanks. If the only firefighting foam product used at the site in the past 20 years has been F-500 EA, then the contamination is likely the result of historic releases of fluorine-based foams at the site between the late 1950s and early 2000s. During these decades, and prior to the current understanding of the environmental impacts caused by Class B firefighting foams, it was not uncommon for regional fire departments to drain, rinse, and dry fire hoses and other equipment in outdoor areas. Such practices could be the cause of the PFAS currently present in overburden and bedrock groundwater in the Stratham Town Center area.

The soil beneath and downgradient of the leachfield is likely impacted with PFAS, as it continues to receive water from the on-site bedrock water supply well containing PFAS at concentrations exceeding AGQS. Onsite soil may have also been unknowingly impacted by discharges of fluorine-based foams by the fire department prior to the exclusive use of F-500 EA approximately 20 years ago.

6.2 Contaminant Distribution

6.2.1 Soil

No soil samples were collected for PFAS analysis during the FSI. Although soil data could provide a qualitative assessment of soil quality at the site, no Soil Remediation Standards exist for PFAS, nor has a leachability standard been established by which to determine how much PFAS in soil is capable of adversely impacting groundwater quality at concentrations that exceed AGQS.

6.2.2 Overburden Groundwater

PFAS has been detected in overburden groundwater at concentrations above AGQS at 4 Winnicutt Road and 157 Portsmouth Avenue. No overburden groundwater samples were collected from other properties as part of the FSI.

6.2.3 Bedrock Groundwater

PFAS has been detected in samples collected from bedrock water supply wells on Winnicutt Road, Portsmouth Avenue, and College Road at concentrations above AGQS. Water supply wells in an approximate one-quarter-square-mile area were found to contain PFAS at concentrations above AGQS.

6.2.4 Surface Water

One surface water sample (SW-1) was collected from the ponded area located within the traffic circle approximately one-quarter mile southeast of the SFD. The laboratory analytical results indicated the presence of several PFAS, including PFOA at a concentration of 2.5 ng/L and PFHxS at a concentration of 3.4 ng/L. There are currently no regulatory standards for PFAS in surface water; however, the results are referenced here for comparative purposes.

6.3 Contaminant Migration

PFAS will migrate downward through soil and with groundwater and along preferential flow pathways such as utility line conduits, foundation footings, high-permeability overburden materials, and bedrock fractures. The regional extent of PFAS detections in bedrock water supply wells is presented on Figure 6 – *Regional PFAS Overview*.

6.4 Sensitive Receptors

In general, potential human receptors may include residents, workers, visitors, and trespassers. Environmental receptors may include flora and fauna within the affected area. Potential exposure points may include wellhead protection areas, residential water wells, surface waters, wetlands, locations of direct soil contact (e.g., playgrounds, gardens, construction trenches), and utility corridors. Exposure routes through which human receptors may contact contaminants include ingestion, inhalation, and dermal contact. Employees, customers, and utility workers at adjacent properties that are active businesses and/or NHDES release sites may be exposed under certain scenarios. A summary of potential drinking water receptors within 500 feet of a known exceedance of AGQS for PFAS is included in Table 4 - *Potential Human Receptor List* and presented on Figure 7 – *Potential Receptor Map.*

Potential exposure pathways for receptors at the site include:

- <u>Ingestion of Drinking Water</u> – The site and surrounding properties are currently served by private water supply wells. An exposure pathway via drinking water ingestion is complete but is mitigated by bottled water deliveries and treatment systems, where in use.
- <u>Inhalation of Vapors</u> – PFAS do not volatilize; therefore, human exposure via inhalation at the site is an incomplete exposure pathway.
- <u>Dermal Contact with Soil and Groundwater</u> – Soil samples were not collected for laboratory analysis of PFAS, so no data exists to compare to the NHDES Direct Contact

guideline of 500 microgram per kilogram, so the completeness of the dermal contact exposure pathway is unknown. Dermal contact with groundwater by utility workers is a potentially complete exposure pathway.

- Environmental Receptors (Surface Water) – PFAS were detected in one surface water sample at concentrations of single-digit ng/l; however, there are currently no regulatory standards for PFAS in surface water. Therefore, the exposure pathway for environmental receptors in this water body is potentially complete.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Wilcox & Barton, Inc. has completed an FSI to evaluate the source of PFAS contamination in groundwater in the SFD area. The FSI included the following:

- An assessment of the site background and history;
- Interviews and research into current and past fire department practices, including:
    - The use and storage of Class-B firefighting foam;
    - On-site firefighting equipment handling and cleaning procedures; and
    - A summary of on-site subsurface utilities.
- The installation of five overburden monitoring wells;
- The collection of groundwater, residential drinking water, and surface water samples;
- A summary of site and local geology and hydrogeology; and
- Preparation of a Conceptual Site Model and a Sensitive Receptor Survey.

The key findings of the FSI are as follows:

- The current fire station was completed in 2008 and replaced the original fire station building that was built in 1957.
- The SFD previously used Universal Gold, a fluorine-based Class B AFFF, until approximately 2000.
- The SFD currently uses a fluorine-free surfactant (F-500 EA) for fire suppression. Less than 70 gallons of the F-500 EA foam have been stored on site in two fire trucks dating back to 2000. There are no other PFAS-containing products used, stored, or transferred on the SFD property.
- Water from wet hoses and fire trucks is captured in a floor drain system that directs water to a 1,500-gallon subsurface tank located on the north side of the building. Water from a decon sink and the washing machine is contained in a 1,000-gallon subsurface tank located on the south side of the building.
- Hoses are dried on the heated concrete slab within the building. No drying of hoses or firefighting equipment currently occurs outdoors.

- The analytical results of groundwater and drinking water samples collected upgradient of the SFD show only low concentrations of PFAS in overburden and bedrock groundwater.
- The analytical results for groundwater samples collected from monitoring wells on the SFD property and on the downgradient adjacent property show PFAS concentrations as high as 2,400 ng/L, with decreasing concentrations downgradient of the site.
- The analytical results for drinking water samples collected from 26 water supply wells on 23 properties indicate the presence of PFAS at concentrations exceeding AGQS.
- The area where PFAS was detected at concentrations above AGQS is primarily west (downgradient) of the SFD, encompassing an approximate area that extends from Stratham Green along College Road to the northwest, to 164 Portsmouth Avenue in the northeast, and 142 Portsmouth Avenue to the south.
- Residual impacts from historic releases of Class B firefighting foam are apparent. Soil and groundwater at the SFD appear to be a continual source of PFAS contamination to regional groundwater.
- A lawn irrigation system is used to water the grassy areas of the SFD property in the summertime. The source of the water to the sprinklers is the impacted on-site water supply well.
- No other potential sources of PFAS contamination were identified during the FSI.

7.2 Recommendations

Based on the data collected during the FSI, Wilcox & Barton, Inc. recommends the following:

- Continue providing bottled water to all properties where PFAS was detected at concentrations above AGQS;
- Install a Point-of-Entry treatment system on, at a minimum, the water supply well serving the SFD, SHS, and 156 Portsmouth Avenue properties;
- Conduct quarterly monitoring of water supplies with AGQS exceedances;
- Collect follow-up samples from any water supply well where PFAS was detected at concentrations below AGQS but within 90% of an established regulatory standard; and
- Continue to coordinate drinking water sample collection efforts with property owners who were unresponsive to sampling requests by NHDES and Wilcox & Barton, Inc.

TABLES

TABLE 1
Well Gauging and Piezometric Head Elevation Data
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Well Identification	Gauging Date	Top of Casing Elevation (ft)	Depth to Water* (ft)	LNAPL Thickness (ft)	Piezometric Head Elevation (ft)
MW-1	7/15/19	NS/NC	4.72	--	--
	7/29/19	NS/NC	4.91	--	--
MW-3	7/15/19	NS/NC	4.77	--	--
	7/29/19	NS/NC	4.97	--	--
MW-4	7/15/19	NS/NC	5.10	--	--
	7/29/19	NS/NC	5.31	--	--
MW-5	7/15/19	NS/NC	3.97	--	--
	7/29/19	NS/NC	4.25	--	--
MW-6	7/15/19	NS/NC	3.14	--	--
	7/29/19	NS/NC	4.07	--	--
MW-7	7/15/19	NS/NC	4.58	--	--
	7/29/19	NS/NC	4.76	--	--
MW-101	7/15/19	101.20	12.30	--	88.90
	7/29/19	101.20	12.77	--	88.43
MW-102	7/15/19	94.78	7.38	--	87.40
	7/29/19	94.78	7.61	--	87.17
MW-103	7/15/19	89.28	5.97	--	83.31
	7/29/19	89.28	6.06	--	83.22
MW-104	7/15/19	87.54	5.57	--	81.97
	7/29/19	87.54	5.61	--	81.93
MW-105	7/15/19	95.47	8.94	--	86.53
	7/29/19	95.47	9.21	--	86.26

NOTE: Site surveyed on 6/28/19. Top of casing elevations are referenced to an arbitrary benchmark set at the southest building corner of the fire department (assumed elevation 100.00 ft).

ft	Feet.
*	Depth from top of casing or designated measuring point.
LNAPL	Light non-aqueous phase liquid.
NS/NC	Not surveyed/not calculated.
--	No measurable LNAPL present.

TABLE 2
Groundwater Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Sample Identification	Ambient Groundwater Quality Standards (AGQS) †	MW-101		MW-102		MW-103		MW-104	
Sample Date		07/15/19	07/29/19	07/15/19	07/29/19	07/15/19	07/29/19	07/15/19	07/29/19
Well Depth (ft)		15.30	15.30	15.67	15.67	11.19	11.19	11.67	11.67
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)									
Perfluorobutanoic Acid (PFBA)	NS	2.0 U	2.0 U	6.7	2.9	14	11	7.9	5.8
Perflourobutane Sulfonic Acid (PFBS)	NS	2.0 U	2.0 U	6.5	7.1	13	17	11	12
Perfluoropentanoic Acid (PFPeA)	NS	2.2	2.0 U	13	13	35	53	17	21
Perfluorohexanoic Acid (PFHxA)	NS	2.6	2.7	55	77	32	45	39	46
Perfluorohexane Sulfonic Acid (PFHxS)	18	4.0	2.0 U	**520**	**940**	**250**	**220**	**310**	**260**
Perfluoroheptanoic Acid (PFHpA)	NS	2.0 U	2.0 U	7.8	10	20	34	13	13
Perfluoroheptane Sulfonic Acid (PFHpS)	NS	2.0 U	2.0 U	35	68	14	19	10	10
Perfluorooctanoic Acid (PFOA)	12	5.7	6.1	**33**	**38**	**39**	**41**	**140**	**150**
Perfluorooctane Sulfonic Acid (PFOS)	15	2.0 U	2.0 U	**870**	**1,300**	**80**	**150**	**420**	**310**
Perfluorooctane Sulfonamide (PFOSA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
6:2 Fluorotelomer Sulfonate	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluorononanoic Acid (PFNA)	11	2.0 U	2.0 U	2.0 U	2.0 U	3.3	4.0	2.0 U	2.0 U
Perfluorodecanoic Acid (PFDA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluorodecane Sulfonic Acid (PFDS)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
8:2 Fluorotelomer sulfonate	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluoroundecanoic Acid (PFUnA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
N-methyl perfluorooctanesulfonamido acetic acid	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluorododecanoic Acid (PFDoA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluorotridecanoic Acid (PFTRDA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluorotetradecanoic Acid (PFTEDA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

All concentrations reported in nanograms per liter (ng/L) unless otherwise specified.
Bold indicates exceedance of applicable Ambient Groundwater Quality Standard (AGQS).

U	Not detected at or above the listed laboratory reporting limit.
NS	No standard established.
bold	Detected concentration exceeds AGQS.
bold italics	Not detected; laboratory reporting limit exceeds effective AGQS.
†	Table 600-1 of Part Env-Or 603.03(c), AGQS, effective September 30, 2019.

TABLE 2
Groundwater Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Sample Identification	Ambient Groundwater Quality Standards (AGQS) †	MW-105		MW-1		MW-3		MW-5	
Sample Date		07/15/19	07/29/19	07/15/19	07/29/19	07/15/19	07/29/19	07/15/19	07/29/19
Well Depth (ft)		17.48	17.48	13.10	13.10	12.96	12.96	13.82	13.82
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)									
Perfluorobutanoic Acid (PFBA)	NS	5.0	2.1	25	14	45	23	19	9.7
Perflourobutane Sulfonic Acid (PFBS)	NS	3.7	2.4	22	19	23	25	29	30
Perfluoropentanoic Acid (PFPeA)	NS	9.9	5.1	81	54	130	110	45	40
Perfluorohexanoic Acid (PFHxA)	NS	19	12	65	57	100	100	38	43
Perfluorohexane Sulfonic Acid (PFHxS)	18	**64**	**69**	**180**	**170**	**800**	**580**	**300**	**240**
Perfluoroheptanoic Acid (PFHpA)	NS	2.9	2.8	23	20	93	85	19	19
Perfluoroheptane Sulfonic Acid (PFHpS)	NS	7.1	6.8	4.3	2.0 U	12	2.0 U	4.7	8.5
Perfluorooctanoic Acid (PFOA)	12	**15**	12	**78**	**70**	**320**	**240**	**83**	**84**
Perfluorooctane Sulfonic Acid (PFOS)	15	**2,400**	**1,900**	**25**	**20**	**170**	**170**	**99**	**98**
Perfluorooctane Sulfonamide (PFOSA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
6:2 Fluorotelomer Sulfonate	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluorononanoic Acid (PFNA)	11	2.0 U	2.0 U	2.0 U	2.0 U	4.0	4.1	2.0 U	2.0 U
Perfluorodecanoic Acid (PFDA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluorodecane Sulfonic Acid (PFDS)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
8:2 Fluorotelomer sulfonate	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluoroundecanoic Acid (PFUnA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
N-methyl perfluorooctanesulfonamido acetic acid	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluorododecanoic Acid (PFDoA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluorotridecanoic Acid (PFTRDA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Perfluorotetradecanoic Acid (PFTEDA)	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

All concentrations reported in nanograms per liter (ng/L) unless otherwise specified.
Bold indicates exceedance of applicable Ambient Groundwater Quality Standard (AGQS).

U	Not detected at or above the listed laboratory reporting limit.
NS	No standard established.
bold	Detected concentration exceeds AGQS.
bold italics	Not detected; laboratory reporting limit exceeds effective AGQS.
†	Table 600-1 of Part Env-Or 603.03(c), AGQS, effective September 30, 2019.

TABLE 3
Drinking Water Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Street Address		1 College Road		2 College Road		3 College Road		4 College Road		4R College Road		4R College Road	
Sample Identification	Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLs) †	1 College Rd		2 College Rd		3 College Rd		Nursery Building		Irrigation Well		Primary Well	
Sample Date		7/3/2019		7/15/2019		7/3/2019		4/24/2019		4/24/2019		4/24/2019	
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)													
Perfluorobutanoic Acid (PFBA)	NS	4.5		6.2		3.9		12		7.3		7.0	
Perflourobutane Sulfonate (PFBS)	NS	2.8		5.7		2.7		4.9		7.6		5.3	
Perfluoropentanoic Acid (PFPeA)	NS	7.5		6.2		3.2		0.43	U	6.3		4.8	
Perfluorohexanoic Acid (PFHxA)	NS	8.2		9.2		4.1		10		11		7.7	
Perfluorohexane sulfonate (PFHxS)	18	7.7		**36**		5.6		14		17		18	
Perfluoroheptanoic Acid (PFHpA)	NS	4.0		2.6		2.0		5.9		8.3		5.9	
Perfluoroheptane Sulfonate (PFHpS)	NS	0.33		2.0	U	0.27		0.94		2.2	U	1.6	U
Perfluorooctanoic Acid (PFOA)	12	**13**		**19**		9.2		**24**		**43**		**28**	
Perfluorooctane Sulfonate (PFOS)	15	8.4		**26**		11		**61**		**64**		**46**	
Perfluorooctane Sulfonamide (PFOSA)	NS	--	--	2.0	U	--		--		--		--	
6:2 Fluorotelomer Sulfonate	NS	8.7	U	2.0	U	8.0	U	1.7	U	1.8	U	1.8	U
Perfluorononanoic Acid (PFNA)	11	0.52		2.0	U	0.45		3.0		4.3		2.1	
Perfluorodecanoic Acid (PFDA)	NS	1.7	U	2.0	U	1.6	U	2.2		0.77		0.42	
Perfluorodecane Sulfonate (PFDS)	NS	1.7	U	2.0	U	1.6	U	0.28	U	0.29	U	0.30	U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	--	U	2.0	U	--		--		--		--	U
8:2 Fluorotelomer sulfonate	NS	1.7	U	2.0	U	1.6	U	0.33	U	1.8	U	0.35	U
Perfluoroundecanoic Acid (PFUnA)	NS	1.7	U	2.0	U	1.6	U	0.95	U	0.98	U	1.0	U
N-methyl perfluorooctanesulfonamido acetic acid	NS	1.7	U	2.0	U	1.6	U	1.7	U	1.1	U	1.1	U
Perfluorododecanoic Acid (PFDoA)	NS	1.7	U	2.0	U	1.6	U	0.48	U	0.49	U	0.51	U
Perfluorotridecanoic Acid (PFTRDA)	NS	1.7	U	2.0	U	1.6	U	1.1	U	1.2	U	1.2	U
Perfluorotetradecanoic Acid (PFTEDA)	NS	1.7	U	2.0	U	1.6	U	0.25	U	0.26	U	0.27	U

All concentrations reported in nanograms per liter (ng/L) unless otherwise specified.
Bold indicates exceedance of applicable Ambient Groundwater Quality Standard (AGQS).

U	Not detected at or above the listed laboratory reporting limit.
J	Estimated concentration.
B	Constituent detected in blank; sample result >5x blank (>10x for common laboratory contaminants); result valid.
UB	Constituent detected in blank; sample result <5x blank (<10x for common laboratory contaminants); sample result changed to non-detection.
--	Sample not analyzed for this constituent.
NS	No standard established.
bold	Detected concentration exceeds AGQS in effect at the time of sample collection.
bold italics	Not detected; laboratory reporting limit exceeds effective AGQS.
†	Table 705-7 of Part Env-Dw 705.06, MCLs and MCLGs, effective September 30, 2019.

PFAS naming convention was changed from "xxx sulfonate" to "xxxsulfonic acid" starting in April 2018.
The naming convention has been changed for this table for consistency.

TABLE 3
Drinking Water Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Street Address		5 College Road		6 College Road		9 College Road		11 College Road		13 College Road		15 College Road	
Sample Identification	Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLs) †	5 College Road		6 College Rd		9 College Rd		11 College Rd		13 College Rd		15 College Rd	
Sample Date		11/12/2019		4/24/2019		11/12/2019		6/13/2019		10/2/2019		6/21/2019	
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)													
Perfluorobutanoic Acid (PFBA)	NS	2.1	U	3.3		2.0	U	3.4		5.4		5.7	
Perflourobutane Sulfonate (PFBS)	NS	29		4.2		5.5		4.1		7.1		12	
Perfluoropentanoic Acid (PFPeA)	NS	9.2		3.0		2.0	U	3.2		3.0		5.6	
Perfluorohexanoic Acid (PFHxA)	NS	18		6.6		5.4		7.8		10		8.8	
Perfluorohexane sulfonate (PFHxS)	18	15		**28**		5.8		14		**73**	**B**	**29**	
Perfluoroheptanoic Acid (PFHpA)	NS	3.7		2.7		2.0	U	3.4		3.1		4.3	
Perfluoroheptane Sulfonate (PFHpS)	NS	2.1	U	0.80	U	2.0	U	0.70		0.64	J	0.40	
Perfluorooctanoic Acid (PFOA)	12	**22**		**18**		12		**16**		**33**		**19**	
Perfluorooctane Sulfonate (PFOS)	15	**41**		**27**		**16**		**38**		**17**		9.6	
Perfluorooctane Sulfonamide (PFOSA)	NS	2.1	U	--		2.0	U	--		--		--	
6:2 Fluorotelomer Sulfonate	NS	2.1	U	--		2.0	U	9.1	U	9.6	U	9.4	U
Perfluorononanoic Acid (PFNA)	11	3.0		0.54		2.0	U	1.3		0.65	J	0.31	
Perfluorodecanoic Acid (PFDA)	NS	2.1	U	1.8	U	2.0	U	1.8	U	1.9	U	1.9	U
Perfluorodecane Sulfonate (PFDS)	NS	2.1	U	1.8	U	2.0	U	1.8	U	1.9	U	1.9	U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	2.1	U	--		2.0	U	--		--		--	
8:2 Fluorotelomer sulfonate	NS	2.1	U	1.8	U	2.0		1.8	U	1.9	U	1.9	U
Perfluoroundecanoic Acid (PFUnA)	NS	2.1	U	1.8	U	2.0	U	1.8	U	1.9	U	1.9	U
N-methyl perfluorooctanesulfonamido acetic acid	NS	2.1	U	1.8	U	2.0	U	1.8	U	1.9	U	1.9	U
Perfluorododecanoic Acid (PFDoA)	NS	2.1	U	1.8	U	2.0	U	1.8	U	1.9	U	1.9	U
Perfluorotridecanoic Acid (PFTRDA)	NS	2.1	U	1.8	U	2.0	U	1.8	U	1.9	U	1.9	U
Perfluorotetradecanoic Acid (PFTEDA)	NS	2.1	U	1.8	U	2.0	U	1.8	U	1.9	UB	1.9	U

All concentrations reported in nanograms per liter (ng/L) unless otherwise specified.
Bold indicates exceedance of applicable Ambient Groundwater Quality Standard (AGQS).

U	Not detected at or above the listed laboratory reporting limit.
J	Estimated concentration.
B	Constituent detected in blank; sample result >5x blank (>10x for common laboratory contaminants); result valid.
UB	Constituent detected in blank; sample result <5x blank (<10x for common laboratory contaminants); sample result changed to non-detection.
--	Sample not analyzed for this constituent.
NS	No standard established.
bold	Detected concentration exceeds AGQS in effect at the time of sample collection.
bold italics	Not detected; laboratory reporting limit exceeds effective AGQS.
†	Table 705-7 of Part Env-Dw 705.06, MCLs and MCLGs, effective September 30, 2019.

PFAS naming convention was changed from "xxx sulfonate" to "xxxsulfonic acid" starting in April 2018.
The naming convention has been changed for this table for consistency.

TABLE 3
Drinking Water Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Street Address		23 College Road		25 College Road		131 Portsmouth Avenue		132 Portsmouth Avenue		137 Portsmouth Avenue		138 Portsmouth Avenue	
Sample Identification	Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLs) †	23 College Rd		25 College Rd		131 Portsmouth Avenue		132 Portsmouth Avenue		137 Portsmouth Ave		138 Portsmouth Ave	
Sample Date		6/28/2019		6/28/2019		11/12/2019		11/12/2019		7/15/2019		4/29/2019	
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)													
Perfluorobutanoic Acid (PFBA)	NS	4.1		1.1		2.0	U	2.0	U	2.0	U	2.0	
Perflourobutane Sulfonate (PFBS)	NS	5.3		1.2		3.1		3.7		2.0	U	1.4	
Perfluoropentanoic Acid (PFPeA)	NS	1.4		1.8	U	2.0		2.0	U	2.0	U	1.2	
Perfluorohexanoic Acid (PFHxA)	NS	2.6		0.85		2.3		2.0	U	2.0	U	1.5	
Perfluorohexane sulfonate (PFHxS)	18	14		4.2		6.1		16		4.5		1.5	
Perfluoroheptanoic Acid (PFHpA)	NS	1.7		0.6		2.0	U	2.0	U	2.0	U	0.81	
Perfluoroheptane Sulfonate (PFHpS)	NS	0.5		1.8	U	2.0	U	2.0	U	2.0	U	1.9	U
Perfluorooctanoic Acid (PFOA)	12	**13**		3.8		4.0		2.0	U	3.6		2.8	
Perfluorooctane Sulfonate (PFOS)	15	8.7		1.6		5.4		2.0	U	2.3		1.0	
Perfluorooctane Sulfonamide (PFOSA)	NS	--		--		2.0	U	2.0	U	2.0	U	--	
6:2 Fluorotelomer Sulfonate	NS	8.8	U	9.0	U	2.0	U	2.0	U	2.0	U	1.9	U
Perfluorononanoic Acid (PFNA)	11	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U
Perfluorodecanoic Acid (PFDA)	NS	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U
Perfluorodecane Sulfonate (PFDS)	NS	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	--		--		2.0	U	2.0	U	2.0	U	--	
8:2 Fluorotelomer sulfonate	NS	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U
Perfluoroundecanoic Acid (PFUnA)	NS	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U
N-methyl perfluorooctanesulfonamido acetic acid	NS	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	1.2	U
Perfluorododecanoic Acid (PFDoA)	NS	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U
Perfluorotridecanoic Acid (PFTRDA)	NS	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U
Perfluorotetradecanoic Acid (PFTEDA)	NS	1.8	U	1.8	U	2.0	U	2.0	U	2.0	U	1.9	U

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B	Constituent detected in blank; sample result >5x blank (>10x for common laboratory contaminants); result valid.
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--	Sample not analyzed for this constituent.
NS	No standard established.
bold	Detected concentration exceeds AGQS in effect at the time of sample collection.
bold italics	Not detected; laboratory reporting limit exceeds effective AGQS.
†	Table 705-7 of Part Env-Dw 705.06, MCLs and MCLGs, effective September 30, 2019.

PFAS naming convention was changed from "xxx sulfonate" to "xxxsulfonic acid" starting in April 2018.
The naming convention has been changed for this table for consistency.

TABLE 3
Drinking Water Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Street Address		140 Portsmouth Avenue		140 Portsmouth Avenue		142 Portsmouth Avenue				142R Portsmouth Avenue		145 Portsmouth Avenue	
Sample Identification	Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLs) †	House Well		Shop Well		Pipers Landing				142 Portsmouth Ave		145 Portsmouth Ave	
Sample Date		4/29/2019		4/29/2019		3/22/2019		7/15/2019		4/23/2019		4/23/2019	
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)													
Perfluorobutanoic Acid (PFBA)	NS	2.0		2.1		2.0	U	3.0		4.5		8.7	
Perflourobutane Sulfonate (PFBS)	NS	0.41		0.52		5.8		10		7.4		18	
Perfluoropentanoic Acid (PFPeA)	NS	1.0		0.78		3.0		3.9		1.9		17	
Perfluorohexanoic Acid (PFHxA)	NS	1.1		0.85		14		18		2.1		52	
Perfluorohexane sulfonate (PFHxS)	18	0.51		0.90		**63**		**110**		4.4		**230**	
Perfluoroheptanoic Acid (PFHpA)	NS	0.49		0.49		2.9		4.0		1.4		12	
Perfluoroheptane Sulfonate (PFHpS)	NS	1.9	U	1.9	U	2.0	U	2.0	U	1.8	U	4.7	
Perfluorooctanoic Acid (PFOA)	12	2.2		1.6		**37**		**45**		4.4		**140**	
Perfluorooctane Sulfonate (PFOS)	15	0.77		1.9	U	**32**		**41**		4.5		**200**	
Perfluorooctane Sulfonamide (PFOSA)	NS	--		--		2.0	U	2.0	U	--		--	
6:2 Fluorotelomer Sulfonate	NS	1.9	U	1.9	U	2.0	U	2.0	U	1.8	U	1.7	U
Perfluorononanoic Acid (PFNA)	11	0.31		1.9	U	2.0	U	2.0	U	0.28		0.62	
Perfluorodecanoic Acid (PFDA)	NS	1.9	U	1.9	U	2.0	U	2.0	U	1.8	U	0.26	U
Perfluorodecane Sulfonate (PFDS)	NS	1.9	U	1.9	U	2.0	U	2.0	U	1.8	U	0.27	U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	--		--		2.0	U	2.0	U	--		--	
8:2 Fluorotelomer sulfonate	NS	1.9	U	1.9	U	2.0	U	2.0	U	1.8	U	0.32	U
Perfluoroundecanoic Acid (PFUnA)	NS	1.9	U	1.9	U	2.0	U	2.0	U	1.8	U	0.93	U
N-methyl perfluorooctanesulfonamido acetic acid	NS	1.9	U	1.9	U	2.0	U	2.0	U	1.8	U	1.0	U
Perfluorododecanoic Acid (PFDoA)	NS	1.9	U	1.9	U	2.0	U	2.0	U	1.8	U	0.46	U
Perfluorotridecanoic Acid (PFTRDA)	NS	1.9	U	1.9	U	2.0	U	2.0	U	1.8	U	1.1	U
Perfluorotetradecanoic Acid (PFTEDA)	NS	0.31		1.9	U	2.0	U	2.0	U	1.8	U	0.24	U

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J	Estimated concentration.
B	Constituent detected in blank; sample result >5x blank (>10x for common laboratory contaminants); result valid.
UB	Constituent detected in blank; sample result <5x blank (<10x for common laboratory contaminants); sample result changed to non-detection.
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NS	No standard established.
bold	Detected concentration exceeds AGQS in effect at the time of sample collection.
bold italics	Not detected; laboratory reporting limit exceeds effective AGQS.
†	Table 705-7 of Part Env-Dw 705.06, MCLs and MCLGs, effective September 30, 2019.

PFAS naming convention was changed from "xxx sulfonate" to "xxxsulfonic acid" starting in April 2018.
The naming convention has been changed for this table for consistency.

TABLE 3
Drinking Water Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Street Address		149/151 Portsmouth Avenue*	152 Portsmouth Avenue	156 Portsmouth Avenue	157 Portsmouth Avenue	159 Portsmouth Avenue	160 Portsmouth Avenue
Sample Identification	Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLs) †	149/151 Portsmouth Ave	Primary Well	156 Portsmouth Ave	Stratham Central Condos	Apartment Complex	160 Portsmouth Ave
Sample Date		3/5/2019	5/3/2019	3/22/2019	3/22/2019	4/24/2019	7/15/2019
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)							
Perfluorobutanoic Acid (PFBA)	NS	2.5	7.5	6.7	17	6.8	2.7
Perflourobutane Sulfonate (PFBS)	NS	6.4	8.2	4.6	15	7.6	5.6
Perfluoropentanoic Acid (PFPeA)	NS	4.6	15	20	60	16	7.5
Perfluorohexanoic Acid (PFHxA)	NS	12.8	24	21	53	22	8.9
Perfluorohexane sulfonate (PFHxS)	18	**63.3**	**160**	**58**	**222**	**76**	13
Perfluoroheptanoic Acid (PFHpA)	NS	3.0	10	11	16	7.5	3.1
Perfluoroheptane Sulfonate (PFHpS)	NS	--	3.3	2.0 U	4.2	2.0	2.0 U
Perfluorooctanoic Acid (PFOA)	12	**31.4**	**57**	**33**	**84**	**41**	8.8
Perfluorooctane Sulfonate (PFOS)	15	**39.8**	**150**	**149**	**206**	**69**	2.0 U
Perfluorooctane Sulfonamide (PFOSA)	NS	--	--	2.0 U	1.9 U	--	2.0 U
6:2 Fluorotelomer Sulfonate	NS	--	1.8 U	2.0 U	1.9 U	2.2	2.0 U
Perfluorononanoic Acid (PFNA)	11	1.7	1.6	2.1	1.9 U	0.50	2.0 U
Perfluorodecanoic Acid (PFDA)	NS	--	0.28 U	2.0 U	1.9 U	0.28 U	2.0 U
Perfluorodecane Sulfonate (PFDS)	NS	--	0.29 U	2.0 U	1.9 U	0.29 U	2.0 U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	--	--	2.0 U	3.0	--	2.0 U
8:2 Fluorotelomer sulfonate	NS	--	0.34 U	2.0 U	1.9 U	0.33 U	2.0 U
Perfluoroundecanoic Acid (PFUnA)	NS	--	1.0 U	2.0 U	1.9 U	1.0 U	2.0 U
N-methyl perfluorooctanesulfonamido acetic acid	NS	--	1.1 U	2.0 U	1.9 U	1.1 U	2.0 U
Perfluorododecanoic Acid (PFDoA)	NS	--	0.49 U	2.0 U	1.9 U	0.49 U	2.0 U
Perfluorotridecanoic Acid (PFTRDA)	NS	--	1.2 U	2.0 U	1.9 U	1.2 U	2.0 U
Perfluorotetradecanoic Acid (PFTEDA)	NS	--	0.26 U	2.0 U	1.9 U	0.26 U	2.0 U

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TABLE 3
Drinking Water Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Street Address		161-2 Portsmouth Avenue		164 Portsmouth Avenue		165 Portsmouth Avenue		166 Portsmouth Avenue		169 Portsmouth Avenue		170 Portsmouth Avenue	
Sample Identification	Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLs) †	161-2 Portsmouth Ave		164 Portsmouth Ave		165 Portsmouth Ave		166 Portsmouth Ave		169 Portsmouth Ave		170 Portsmouth Ave	
Sample Date		5/24/2019		7/15/2019		5/2/2019		5/2/2019		5/2/2019		5/24/2019	
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)													
Perfluorobutanoic Acid (PFBA)	NS	4.0		2.1		2.9		3.2		2.1		2.0	
Perflourobutane Sulfonate (PFBS)	NS	5.3		9.0		5.4		11		5.0		5.2	
Perfluoropentanoic Acid (PFPeA)	NS	12		6.0		3.3		1.3		0.72		1.6	
Perfluorohexanoic Acid (PFHxA)	NS	18		6.7		3.4		2.5		0.79		2.6	
Perfluorohexane sulfonate (PFHxS)	18	**57**		**26**		4.9		**21**		4.7		3.1	
Perfluoroheptanoic Acid (PFHpA)	NS	6.1		2.5		1.5		1.7		0.48		2.2	
Perfluoroheptane Sulfonate (PFHpS)	NS	1.5		2.0	U	0.20		1.8	U	1.9	U	0.17	U
Perfluorooctanoic Acid (PFOA)	12	**37**		12		6.2		7.5		2.4		6.9	
Perfluorooctane Sulfonate (PFOS)	15	**73**		2.0	U	9.8		2.0		1.9	U	0.49	U
Perfluorooctane Sulfonamide (PFOSA)	NS	--		2.0	U	--		--		--		--	
6:2 Fluorotelomer Sulfonate	NS	2.2		2.0	U	1.9	U	1.8	U	1.9	U	1.8	U
Perfluorononanoic Acid (PFNA)	11	0.73		2.0	U	0.40		1.8	U	1.9	U	0.25	U
Perfluorodecanoic Acid (PFDA)	NS	0.67		2.0	U	1.9	U	1.8	U	1.9	U	0.28	U
Perfluorodecane Sulfonate (PFDS)	NS	0.31	U	2.0	U	1.9	U	1.8	U	1.9	U	0.29	U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	--		2.0	U	--		--		--		--	
8:2 Fluorotelomer sulfonate	NS	0.36	U	2.0	U	1.9	U	1.8	U	1.9	U	1.8	U
Perfluoroundecanoic Acid (PFUnA)	NS	1.7		2.0	U	1.9	U	1.8	U	1.9	U	1.0	U
N-methyl perfluorooctanesulfonamido acetic acid	NS	1.2	U	2.0	U	1.9	U	1.8	U	1.9	U	1.1	U
Perfluorododecanoic Acid (PFDoA)	NS	0.66		2.0	U	1.9	U	1.8	U	1.9	U	0.50	U
Perfluorotridecanoic Acid (PFTRDA)	NS	1.2	U	2.0	U	1.9	U	1.8	U	1.9	U	1.2	U
Perfluorotetradecanoic Acid (PFTEDA)	NS	0.32		2.0	U	1.9	U	1.8	U	1.9	U	0.26	U

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TABLE 3
Drinking Water Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Street Address		172 Portsmouth Avenue		175 Portsmouth Avenue		176 Portsmouth Avenue		232 Portsmouth Avenue		Stratham Green Road		Stratham Green Road	
Sample Identification	Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLs) †	172 Portsmouth Ave		175 Portsmouth Ave		Primary Well		232 Portsmouth Ave		Well #1		Well #2	
Sample Date		4/24/2019		5/3/2019		5/3/2019		4/29/2019		3/22/2019		3/22/2019	
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)													
Perfluorobutanoic Acid (PFBA)	NS	1.7		2.9		2.9		2.4		3.6		4.8	
Perflourobutane Sulfonate (PFBS)	NS	4.7		3.7		3.7		0.76		3.7		3.7	
Perfluoropentanoic Acid (PFPeA)	NS	1.8		2.5		2.5		3.0		3.4		2.0	U
Perfluorohexanoic Acid (PFHxA)	NS	2.9		3.6		3.6		4.7		5.6		3.8	
Perfluorohexane sulfonate (PFHxS)	18	3.0		3.1		3.1		0.49		13		14	
Perfluoroheptanoic Acid (PFHpA)	NS	2.5		2.8		2.8		0.55		3.2		2.3	
Perfluoroheptane Sulfonate (PFHpS)	NS	2.5		--		0.18	U	1.8	U	1.9	U	2.0	U
Perfluorooctanoic Acid (PFOA)	12	10		9.0		9.0		3.1		**18**		**12.4**	
Perfluorooctane Sulfonate (PFOS)	15	5.4		1.0		1.0		0.80		**29**		14	
Perfluorooctane Sulfonamide (PFOSA)	NS	--		--		--		--		1.9	U	2.0	U
6:2 Fluorotelomer Sulfonate	NS	1.8	U	--		1.9	U	1.8	U	1.9	U	2.0	U
Perfluorononanoic Acid (PFNA)	11	0.46		--		0.26	U	1.0		1.9	U	2.0	U
Perfluorodecanoic Acid (PFDA)	NS	1.8	U	--		0.30	U	0.70		1.9	U	2.0	U
Perfluorodecane Sulfonate (PFDS)	NS	1.8	U	--		0.31	U	1.8	U	1.9	U	2.0	U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	--		--		--		--		1.9	U	2.0	U
8:2 Fluorotelomer sulfonate	NS	1.8	U	--		0.36	U	1.8	U	1.9	U	2.0	U
Perfluoroundecanoic Acid (PFUnA)	NS	1.8	U	--		1.1	U	1.8	U	1.9	U	2.0	U
N-methyl perfluorooctanesulfonamido acetic acid	NS	1.8	U	--		1.2	U	1.8	U	1.9	U	2.0	U
Perfluorododecanoic Acid (PFDoA)	NS	1.8	U	--		0.53	U	1.8	U	1.9	U	2.0	U
Perfluorotridecanoic Acid (PFTRDA)	NS	1.8	U	--		1.3	U	1.8	U	1.9	U	2.0	U
Perfluorotetradecanoic Acid (PFTEDA)	NS	1.8	U	--		0.28	U	1.8	U	1.9	U	2.0	U

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TABLE 3
Drinking Water Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Street Address		Stratham Green Road		7 Tansy Avenue		4 Winnicutt Road		7/7R Winnicutt Road (shared well)		9 Winnicutt Road		17 Winnicutt Road	
Sample Identification	Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLs) †	Well #3		7 Tansy Ave		Stratham Fire Dept		7 Winnicutt Road		9 Winnicutt Rd		17 Winnicutt Rd	
Sample Date		3/22/2019		5/3/2019		3/22/2019		3/22/2019		5/9/2019		6/21/2019	
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)													
Perfluorobutanoic Acid (PFBA)	NS	5.1		1.2		6.7		6.7		1.8		2.1	
Perflourobutane Sulfonate (PFBS)	NS	4.0		1.9	U	4.6		5.9		0.60		2.0	
Perfluoropentanoic Acid (PFPeA)	NS	2.4		0.59		20		22		1.4		2.9	
Perfluorohexanoic Acid (PFHxA)	NS	3.0		1.0		21		22		1.8		3.9	
Perfluorohexane sulfonate (PFHxS)	18	**22**		0.54		**58**		6.7		1.9		1.8	
Perfluoroheptanoic Acid (PFHpA)	NS	2.0	U	0.35		11		6.9		0.92		1.6	
Perfluoroheptane Sulfonate (PFHpS)	NS	2.0	U	1.9	U	2.0	U	1.8	U	0.18	U	1.8	U
Perfluorooctanoic Acid (PFOA)	12	**13**		1.8		**33**		**17**		3.1		6.1	
Perfluorooctane Sulfonate (PFOS)	15	**19**		1.0		**149**		0.92		0.51	U	1.6	
Perfluorooctane Sulfonamide (PFOSA)	NS	2.0	U	--		2.0	U	--		--		--	
6:2 Fluorotelomer Sulfonate	NS	2.0	U	1.9	U	2.0	U	8.9	U	1.9	U	9.1	U
Perfluorononanoic Acid (PFNA)	11	2.0	U	1.9	U	2.1		0.47		0.26	U	1.8	U
Perfluorodecanoic Acid (PFDA)	NS	2.0	U	1.9	U	2.0	U	1.8	U	0.29	U	1.8	U
Perfluorodecane Sulfonate (PFDS)	NS	2.0	U	1.9	U	2.0	U	1.8	U	0.30	U	1.8	U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	2.0	U	--		2.0	U	--		--		--	
8:2 Fluorotelomer sulfonate	NS	2.0	U	1.9	U	2.0	U	1.8	U	0.35	U	1.8	U
Perfluoroundecanoic Acid (PFUnA)	NS	2.0	U	1.9	U	2.0	U	1.8	U	1.0	U	1.8	U
N-methyl perfluorooctanesulfonamido acetic acid	NS	2.0	U	1.9	U	2.0	U	1.8	U	1.2	U	1.8	U
Perfluorododecanoic Acid (PFDoA)	NS	2.0	U	1.9	U	2.0	U	1.8	U	0.52	U	1.8	U
Perfluorotridecanoic Acid (PFTRDA)	NS	2.0	U	1.9	U	2.0	U	1.8	U	1.2	U	1.8	U
Perfluorotetradecanoic Acid (PFTEDA)	NS	2.0	U	1.9	U	2.0	U	1.8	U	0.27	U	1.8	U

All concentrations reported in nanograms per liter (ng/L) unless otherwise specified.
Bold indicates exceedance of applicable Ambient Groundwater Quality Standard (AGQS).

U	Not detected at or above the listed laboratory reporting limit.
J	Estimated concentration.
B	Constituent detected in blank; sample result >5x blank (>10x for common laboratory contaminants); result valid.
UB	Constituent detected in blank; sample result <5x blank (<10x for common laboratory contaminants); sample result changed to non-detection.
--	Sample not analyzed for this constituent.
NS	No standard established.
bold	Detected concentration exceeds AGQS in effect at the time of sample collection.
bold italics	Not detected; laboratory reporting limit exceeds effective AGQS.
†	Table 705-7 of Part Env-Dw 705.06, MCLs and MCLGs, effective September 30, 2019.

PFAS naming convention was changed from "xxx sulfonate" to "xxxsulfonic acid" starting in April 2018.
The naming convention has been changed for this table for consistency.

TABLE 3
Drinking Water Samples - Summary of Analytical Results
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site #199507007

Street Address		18 Winnicutt Road	5 French Lane			
Sample Identification	Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLs) †	18 Winnicutt Rd	5 French Ln		5 French Lane	
Sample Date		4/25/2019	6/28/2019		11/12/2019	
Per- and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 (Reported in ng/L)						
Perfluorobutanoic Acid (PFBA)	NS	1.7	0.50		2.0	U
Perflourobutane Sulfonate (PFBS)	NS	0.50	0.29		5.4	
Perfluoropentanoic Acid (PFPeA)	NS	1.0	1.8	U	2.0	U
Perfluorohexanoic Acid (PFHxA)	NS	1.2	1.8	U	2.0	U
Perfluorohexane sulfonate (PFHxS)	18	1.2	0.97	U	12	
Perfluoroheptanoic Acid (PFHpA)	NS	0.72	0.25		2.0	U
Perfluoroheptane Sulfonate (PFHpS)	NS	--	1.8	U	2.0	U
Perfluorooctanoic Acid (PFOA)	12	2.7	1.4		3.4	
Perfluorooctane Sulfonate (PFOS)	15	--	0.79		2.0	U
Perfluorooctane Sulfonamide (PFOSA)	NS	--	--		2.0	U
6:2 Fluorotelomer Sulfonate	NS	--	8.8	U	2.0	U
Perfluorononanoic Acid (PFNA)	11	--	1.8	U	2.0	U
Perfluorodecanoic Acid (PFDA)	NS	--	1.8	U	2.0	U
Perfluorodecane Sulfonate (PFDS)	NS	--	1.8	U	2.0	U
N-ethyl perfluorooctanesulfonamido acetic acid	NS	--	--		2.0	U
8:2 Fluorotelomer sulfonate	NS	--	1.8	U	2.0	U
Perfluoroundecanoic Acid (PFUnA)	NS	--	1.8	U	2.0	U
N-methyl perfluorooctanesulfonamido acetic acid	NS	--	1.8	U	2.0	U
Perfluorododecanoic Acid (PFDoA)	NS	--	1.8	U	2.0	U
Perfluorotridecanoic Acid (PFTRDA)	NS	--	1.8	U	2.0	U
Perfluorotetradecanoic Acid (PFTEDA)	NS	--	1.8	U	2.0	U

All concentrations reported in nanograms per liter (ng/L) unless otherwise specified.
Bold indicates exceedance of applicable Ambient Groundwater Quality Standard (AGQS).

U	Not detected at or above the listed laboratory reporting limit.
J	Estimated concentration.
B	Constituent detected in blank; sample result >5x blank (>10x for common laboratory contaminants); result valid.
UB	Constituent detected in blank; sample result <5x blank (<10x for common laboratory contaminants); sample result changed to non-detection.
--	Sample not analyzed for this constituent.
NS	No standard established.
bold	Detected concentration exceeds AGQS in effect at the time of sample collection.
bold italics	Not detected; laboratory reporting limit exceeds effective AGQS.
†	Table 705-7 of Part Env-Dw 705.06, MCLs and MCLGs, effective September 30, 2019.

PFAS naming convention was changed from "xxx sulfonate" to "xxxsulfonic acid" starting in April 2018.
The naming convention has been changed for this table for consistency.

TABLE 4
Potential Human Receptor List
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site No. 199507007

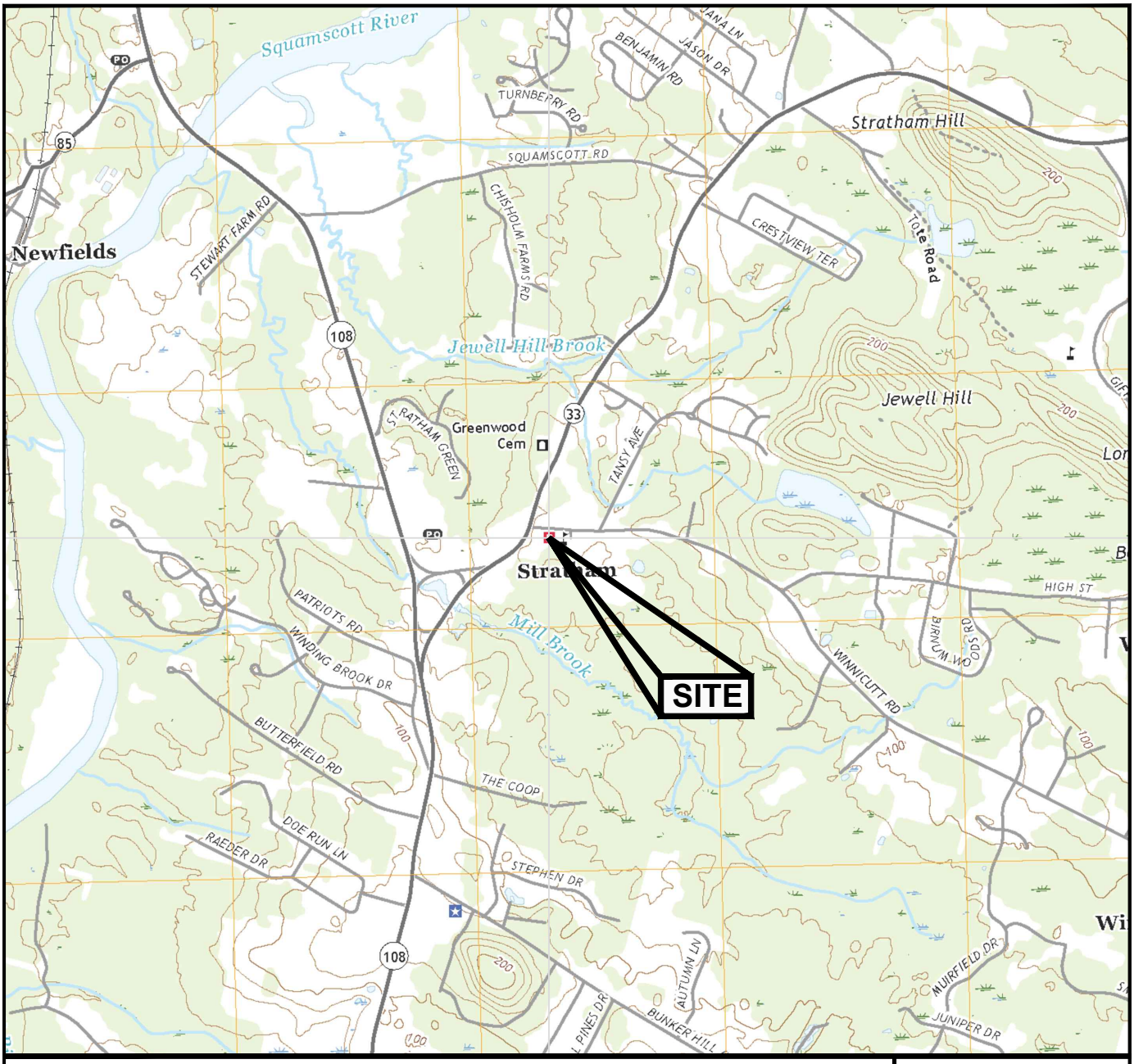
Property Identification (Map/ Lot/ Sub-Lot)	Property Address	Owner Name	Owner's Mailing Address* (if different from Property Address)	Property Use	Connected to Public Water?	Water Supply Well Located on Property?	Notes
17/ 012	1 College Road	Emanuel, Fred Revocable Trust	6 Patriots Road, Stratham, NH 03885	Residential	No	Yes	Sampled (NHDES) 7/3/19
17/ 035	2 College Road	Parsons M H & Sons Lumber Co.	P.O. Box 450, York, ME 03909	Commercial/Industrial (post office)	No	Yes	Sampled (W&B) 7/5/19
17/ 015	3 College Road	Schmidt Family Trust	P.O. Box 36, Stratham, NH 03885	Residential	No	Yes	Sampled (NHDES) 7/3/19
17/ 034	4 College Road	4 College Rd Real Estate LLC, c/o David Short	P.O. Box 715, Stratham, NH 03885	Commercial/Industrial (retail/offices)	No	Yes	Sampled (NHDES) 4/24/19
17/ 032	4R College Road	Short, David and Jeanne	P.O. Box 715, Stratham, NH 03885	Residential	No	Yes	Sampled (NHDES) 4/24/19
17/ 017	5 College Road	Rawson, III Verne Edward		Residential	No	Yes	Sampled (W&B) 11/12/19
17/ 016	5R College Road	Rawson, III Verne Edward	5 College Road, Stratham, NH 03885	Residential	No	No	Same as above
17/ 033	6 College Road	4 College Rd Real Estate LLC, c/o David Short	P.O Box 715, Stratham, NH 03885	Commercial/Industrial	No	Yes	Sampled (NHDES) 4/24/19
17/ 018	9 College Road	Rawson, Jr. Verne E.		Residential	No	Yes	Sampled (W&B) 11/12/19
17/ 019	11 College Road	Shine-Canty, Andrea J. and Alan P.		Residential	No	Yes	Sampled (NHDES) 6/13/19
17/ 020	13 College Road	Secore, Dennis and Gail		Residential	No	Yes	Sampled (NHDES) 10/2/19
17/ 021	15 College Road	Fawcett, Robert S. and Anne M.		Residential	No	Yes	Sampled (NHDES) 6/21/19
17/ 024	19 College Road	Wingate Woods LLC	6 Patriots Road, Stratham, NH 03885	Residential	No	No	Abandoned - water turned off
17/ 012	5 French Lane	Rowe, Kenneth and Dorothy	P.O. Box 146, Stratham, NH 03885	Residential	No	Yes	Sampled (W&B) 11/12/19
17/ 023	16 French Lane	Poco Realty Trust	6 Patriots Road, Stratham, NH 03885	Residential	No	Yes	
17/ 022	131 Portsmouth Avenue	Emanuel, Fred Revocable Trust	6 Patriots Road, Stratham, NH 03885	Residential	No	Yes	Sampled (W&B) 11/12/19

TABLE 4
Potential Human Receptor List
Stratham Fire Department
4 Winnicutt Road, Stratham, New Hampshire
NHDES Site No. 199507007

Property Identification (Map/ Lot/ Sub-Lot)	Property Address	Owner Name	Owner's Mailing Address* (if different from Property Address)	Property Use	Connected to Public Water?	Water Supply Well Located on Property?	Notes
17/ 013	132 Portsmouth Avenue	Tonal Hearth Property Management		Mixed Residential/Commercial	No	Yes	Sampled (W&B) 11/12/19
17/ 036	137 Portsmouth Avenue	Zeff, Maureen and Richard	14 Evergreen Way, Stratham, NH 03885	Commercial/Industrial (doctor's office)	No	Yes	Sampled (W&B) 7/15/19
13/ 068	138 Portsmouth Avenue	King, Daryl M.		Residential	No	Yes	Sampled (NHDES) 4/29/19
17/ 037	139 Portsmouth Avenue	JP Commons LLC		Commercial (Salon/Spa)	No	Yes	
13/ 067	140 Portsmouth Avenue	King Revocable Trust of 2001	P.O. Box 216, Stratham, NH 03885	Residential	No	Yes	Sampled (NHDES) 4/29/19
17/ 120	142R Portsmouth Avenue	142 R Portsmouth Ave, LLC	P.O. Box 432, Stratham, NH 03885	Residential	No	Yes	Sampled (NHDES) 4/23/19
17/ 118	148 Portsmouth Avenue	Jones, Bradley R.	P.O. Box 175, Stratham, NH 03885	Commercial/Industrial (restaurant/apartments)	No	Yes	
17/ 116	154 Portsmouth Avenue	Scheel, John B.	4 Tall Pines Drive, Stratham, NH 03885	Residential	No	Yes	
17/ 115	156 Portsmouth Avenue	Lake, Colleen D. Revocable Trust		Commercial/Industrial	No	Yes	Sampled (NHDES) 3/22/19
17/ 093	1 Tansy Avenue	Waldron, George B.		Residential	No	Yes	
17/ 090	7 Winnicutt Road	Marston, Gregory W.		Residential	No	Yes	Sampled (NHDES) 6/17/19
4/ 25/ 0	7R Winnicutt Road	Marston, Ralph		Residential	No	No	Shared with 7 Winnicutt Road
17/ 113	8 Winnicutt Road	Cornerstone Baptist Church		Residential (Church)	No	No	Abandoned - water turned off
17/ 112	18 Winnicutt Road	Stark-Jones Revocable Trust	P.O. Box 175, Stratham, NH 03885	Residential	No	Yes	Sampled (NHDES) 4/25/19

Notes:
Bold = Site property.
* = All addressess are Stratham, New Hampshire 03885 unless noted.
Information obtained from the Town of Stratham Assessor's Database on October 21 and December 26, 2019.
-- = information not readily available.

FIGURES



SCALE: 1:24,000

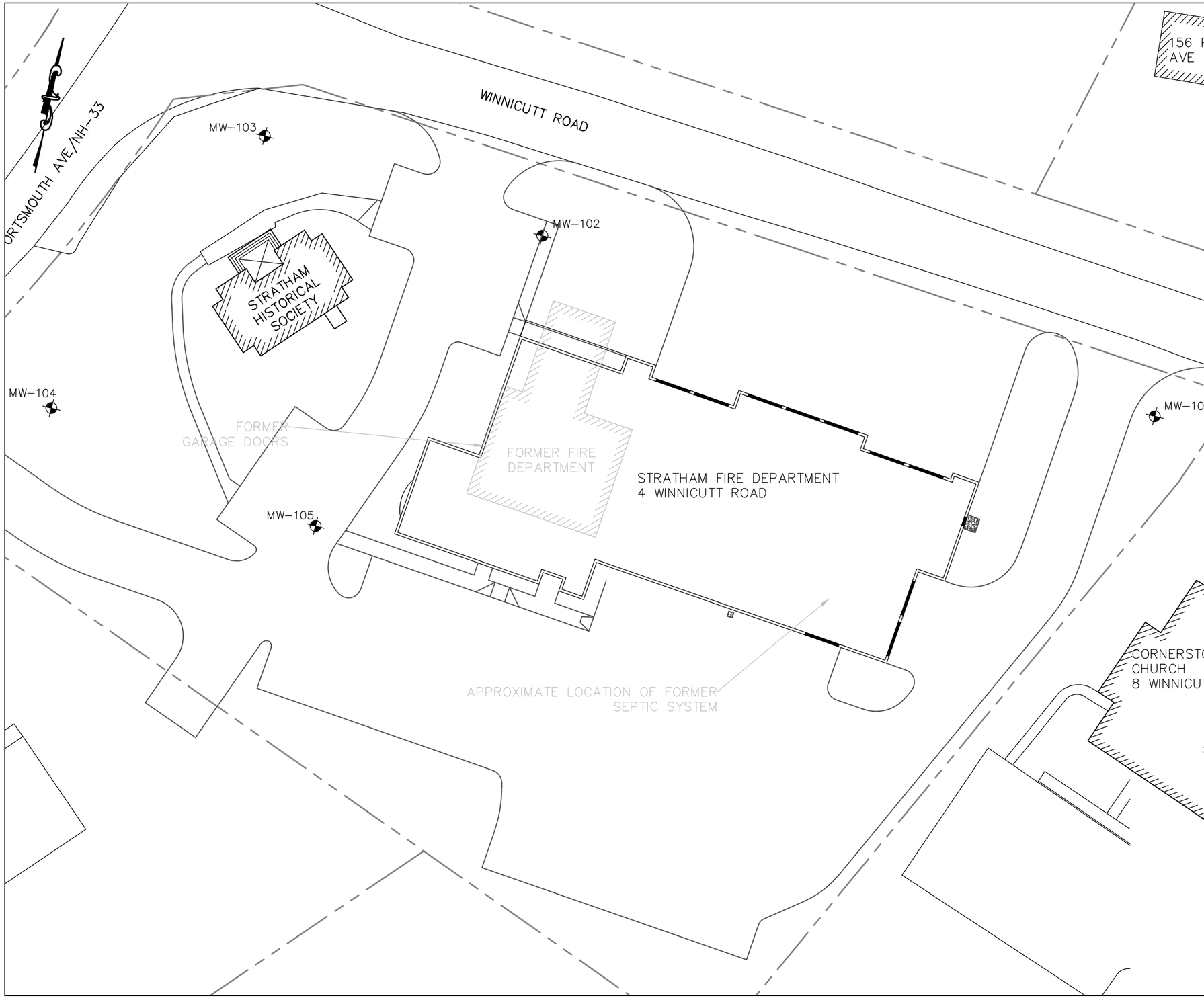
1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

DATE September 25, 2019	SCALE As shown	FILE STRT0001_Site Location Map	Wilcox & Barton INC. CIVIL · ENVIRONMENTAL · GEOTECHNICAL
APPROVED BY JPR	DRAWN BY ZP	REVISED	
CLIENT Town of Stratham, NH		JOB NUMBER STRT0001	*SITE LOCATION MAP*
LOCATION Stratham Fire Department 4 Winnicutt Road Stratham, New Hampshire		MAP SOURCE Newmarket, NH USGS QUAD 2018	*Figure 1*



LEGEND

MW-101 MONITORING WELL

PROPERTY LINE

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PLAN BASED ON STRATHAM GIS DATA, AERIAL MAPS, SITE VISITS, WILCOX & BARTON INC. SURVEY DATA, AND A SITE CONSTRUCTION RECORD DRAWING PREPARED BY SEVERINO TRUCKING CO., INC. DATED NOVEMBER 20, 2008.
3. THIS PLAN IS NOT A PROFESSIONAL SURVEY AND IS NOT INTENDED TO ESTABLISH PROPERTY BOUNDARIES.

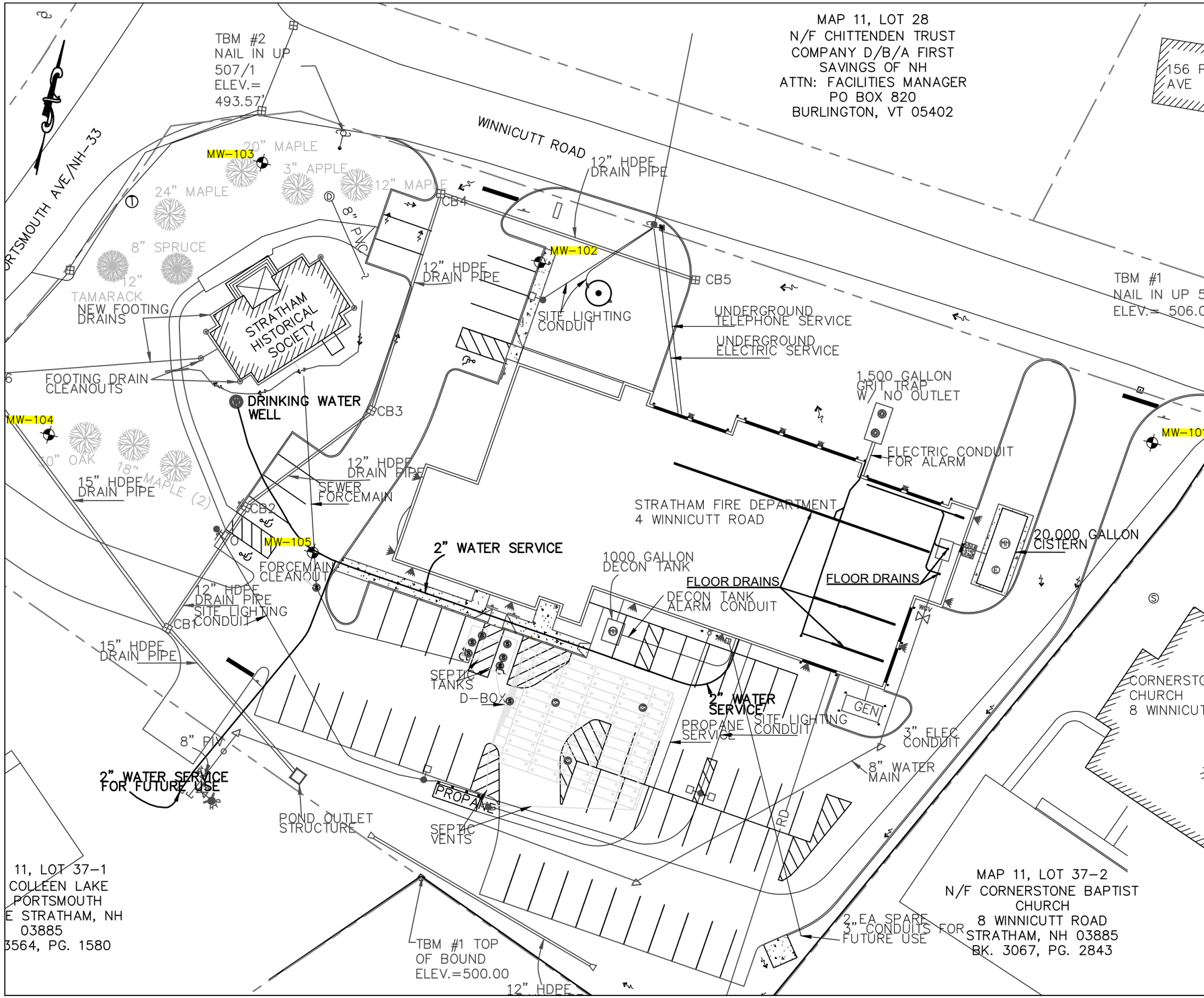
GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
1 inch = 40 feet

Wilcox & Barton INC.
CIVIL · ENVIRONMENTAL · GEOTECHNICAL

TITLE: *SITE PLAN*		
DATE: December 16, 2019	SCALE: SEE GRAPHIC	FILE: Master_Plan
APPROVED BY: JPR	DRAWN BY: ZRP	REVISED:
CLIENT: Town of Stratham, NH		JOB NUMBER: STRT0001
LOCATION: Stratham Fire Department 4 Winnicutt Road Stratham, New Hampshire		DRAWING NUMBER: *FIGURE 2*



LEGEND

- MW-101 — MONITORING WELL
- FIRE HYDRANT
- CB — CATCH BASIN
- WGV — WATER VALVE
- TREE
- (S) — SEWER MANHOLE
- (E) — ELECTRICAL MANHOLE
- (T) — TELEPHONE MANHOLE
- (D) — STORM DRAIN MANHOLE
- X — CHAINLINK FENCE
- PROPERTY LINE

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PLAN BASED ON STRATHAM GIS DATA, AERIAL MAPS, SITE VISITS, WILCOX & BARTON INC. SURVEY DATA, AND A SITE CONSTRUCTION RECORD DRAWING PREPARED BY SEVERINO TRUCKING CO., INC. DATED NOVEMBER 20, 2008.
3. THIS PLAN IS NOT A PROFESSIONAL SURVEY AND IS NOT INTENDED TO ESTABLISH PROPERTY BOUNDARIES.

GRAPHIC SCALE

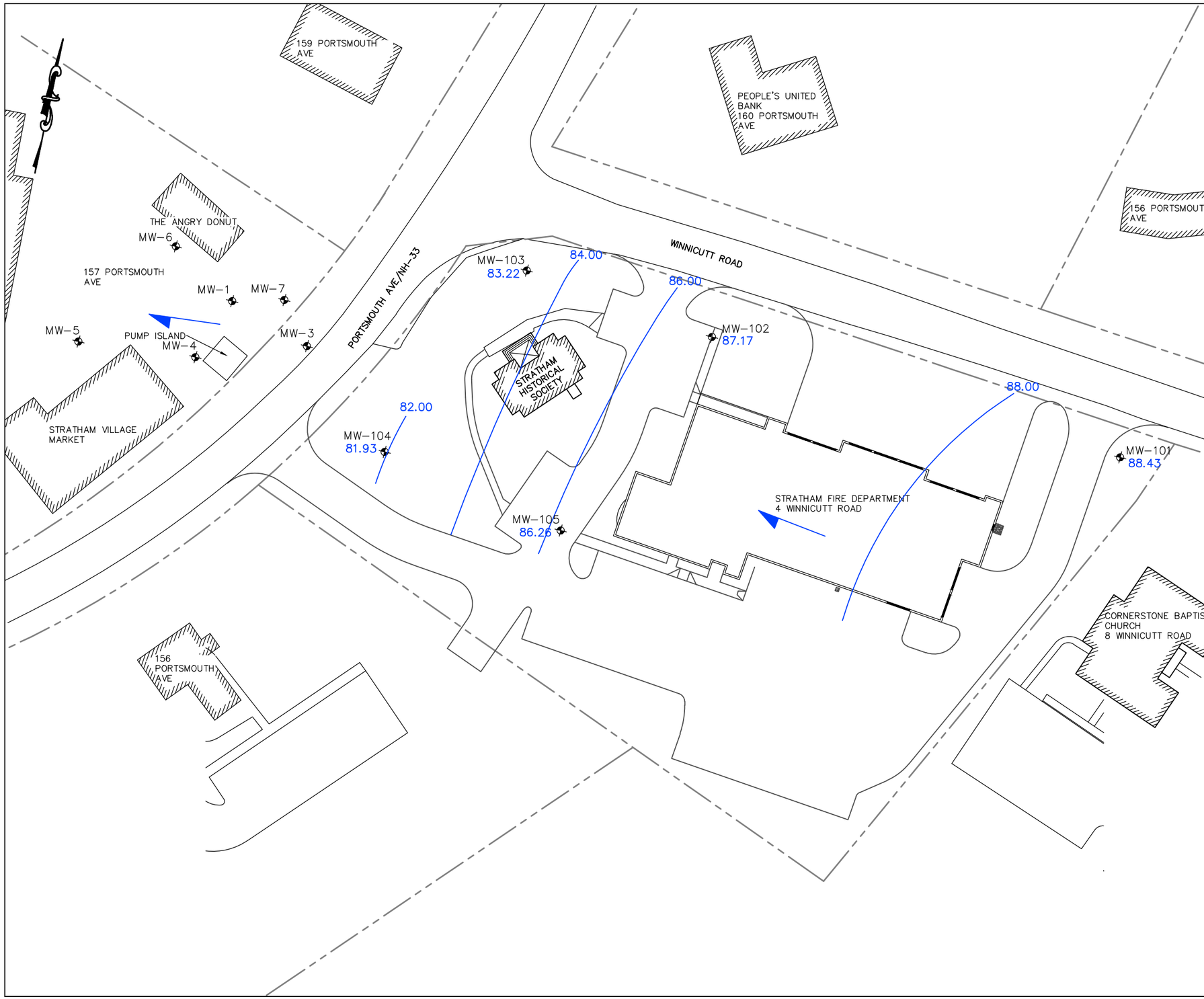
40 0 20 40 80

(IN FEET)
1 inch = 40 feet

Wilcox & Barton INC.
CIVIL · ENVIRONMENTAL · GEOTECHNICAL

TITLE: ***SUBSURFACE INFRASTRUCTURE PLAN – STRATHAM FIRE DEPARTMENT***

DATE: December 16, 2019	SCALE: SEE GRAPHIC	FILE: Master_Plan
APPROVED BY: JPR	DRAWN BY: ZRP	REVISED:
CLIENT: Town of Stratham, NH		JOB NUMBER: STRT0001
LOCATION: Stratham Fire Department, 4 Winnicutt Road, Stratham, New Hampshire		DRAWING NUMBER: *FIGURE 3*



LEGEND

MW-1 89.41	MONITORING WELL LOCATION WITH PIEZOMETRIC HEAD ELEVATION IN FEET RELATIVE TO BENCHMARK
101.00	PIEZOMETRIC HEAD ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION
NS	NOT SURVEYED
	PROPERTY LINE

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PLAN BASED ON STRATHAM GIS DATA, AERIAL MAPS, SITE VISITS, WILCOX & BARTON INC. SURVEY DATA, AND A SITE CONSTRUCTION RECORD DRAWING PREPARED BY SEVERINO TRUCKING CO., INC. DATED NOVEMBER 20, 2008.
3. THIS PLAN IS NOT A PROFESSIONAL SURVEY AND IS NOT INTENDED TO ESTABLISH PROPERTY BOUNDARIES.
4. GROUNDWATER FLOW DIRECTION AT 157 PORTSMOUTH AVENUE BASED OFF GEOINSIGHT INC. HISTORICAL REPORTS, RELATIVE TO IMMEDIATE SITE AREA. ABSOLUTE GROUNDWATER ELEVATIONS UNKNOWN.

GRAPHIC SCALE

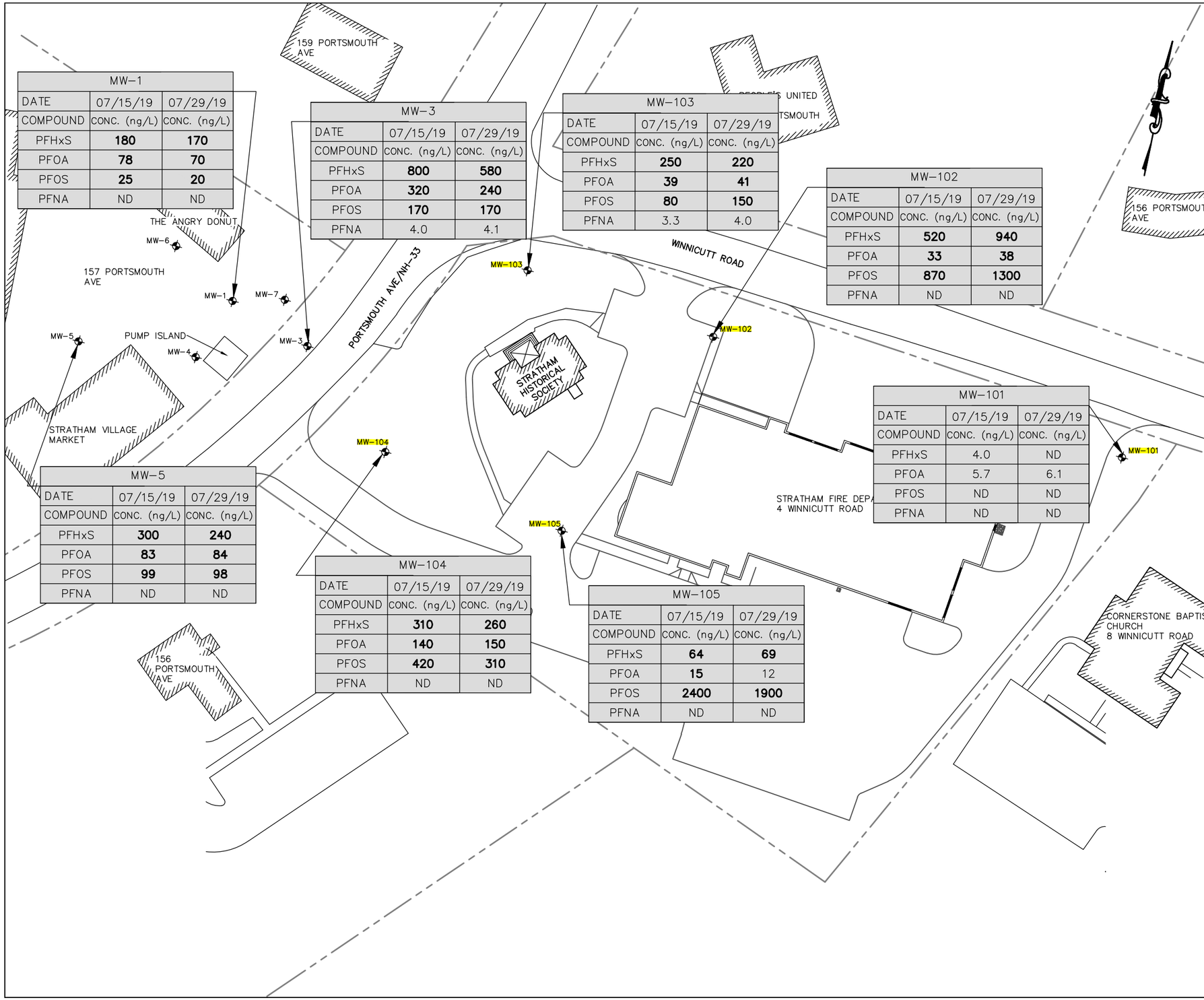
60 0 30 60 120

(IN FEET)
1 inch = 60 feet

Wilcox & Barton INC.
CIVIL · ENVIRONMENTAL · GEOTECHNICAL

TITLE
PIEZOMETRIC HEAD ELEVATION PLAN
Gauging Date: July 29, 2019

DATE December 16, 2019	SCALE SEE GRAPHIC	FILE Master_Plan
APPROVED BY JPR	DRAWN BY ZRP	REVISED
CLIENT Town of Stratham, NH		JOB NUMBER STRT0001
LOCATION Stratham Fire Department 4 Winnicutt Road Stratham, New Hampshire		DRAWING NUMBER *FIGURE 4*



MW-1		
DATE	07/15/19	07/29/19
COMPOUND	CONC. (ng/L)	CONC. (ng/L)
PFHxS	**180**	**170**
PFOA	**78**	**70**
PFOS	**25**	**20**
PFNA	ND	ND

MW-3		
DATE	07/15/19	07/29/19
COMPOUND	CONC. (ng/L)	CONC. (ng/L)
PFHxS	**800**	**580**
PFOA	**320**	**240**
PFOS	**170**	**170**
PFNA	4.0	4.1

MW-103		
DATE	07/15/19	07/29/19
COMPOUND	CONC. (ng/L)	CONC. (ng/L)
PFHxS	**250**	**220**
PFOA	**39**	**41**
PFOS	**80**	**150**
PFNA	3.3	4.0

MW-102		
DATE	07/15/19	07/29/19
COMPOUND	CONC. (ng/L)	CONC. (ng/L)
PFHxS	**520**	**940**
PFOA	**33**	**38**
PFOS	**870**	**1300**
PFNA	ND	ND

MW-101		
DATE	07/15/19	07/29/19
COMPOUND	CONC. (ng/L)	CONC. (ng/L)
PFHxS	4.0	ND
PFOA	5.7	6.1
PFOS	ND	ND
PFNA	ND	ND

MW-5		
DATE	07/15/19	07/29/19
COMPOUND	CONC. (ng/L)	CONC. (ng/L)
PFHxS	**300**	**240**
PFOA	**83**	**84**
PFOS	**99**	**98**
PFNA	ND	ND

MW-104		
DATE	07/15/19	07/29/19
COMPOUND	CONC. (ng/L)	CONC. (ng/L)
PFHxS	**310**	**260**
PFOA	**140**	**150**
PFOS	**420**	**310**
PFNA	ND	ND

MW-105		
DATE	07/15/19	07/29/19
COMPOUND	CONC. (ng/L)	CONC. (ng/L)
PFHxS	**64**	**69**
PFOA	**15**	12
PFOS	**2400**	**1900**
PFNA	ND	ND

LEGEND

MW-1 MONITORING WELL

PROPERTY LINE

CONTAMINANT DISTRIBUTION

NOTE: ONLY COMPOUNDS WITH CORRESPONDING AMBIENT GROUNDWATER QUALITY STANDARDS SHOWN

DATE	07/29/19
COMPOUND	CONC. (ng/L)
NAME	VALUE

DATE COLLECTION DATE
CONC. CONCENTRATION
ng/L NANOGRAMS PER LITER

PFOA PERFLUOROOCTANOIC ACID
PFOS PERFLUOROOCTANESULFONIC ACID
PFHxS PERFLUOROHEXANESULFONIC ACID
PFNA PERFLUORONONANOIC ACID
ND NOT DETECTED
BOLD INDICATES EXCEEDANCE OF CORRESPONDING CRITERIA

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PLAN BASED ON STRATHAM GIS DATA, AERIAL MAPS, SITE VISITS, WILCOX & BARTON INC. SURVEY DATA, AND A SITE CONSTRUCTION RECORD DRAWING PREPARED BY SEVERINO TRUCKING CO., INC. DATED NOVEMBER 20, 2008.
3. THIS PLAN IS NOT A PROFESSIONAL SURVEY AND IS NOT INTENDED TO ESTABLISH PROPERTY BOUNDARIES.

GRAPHIC SCALE

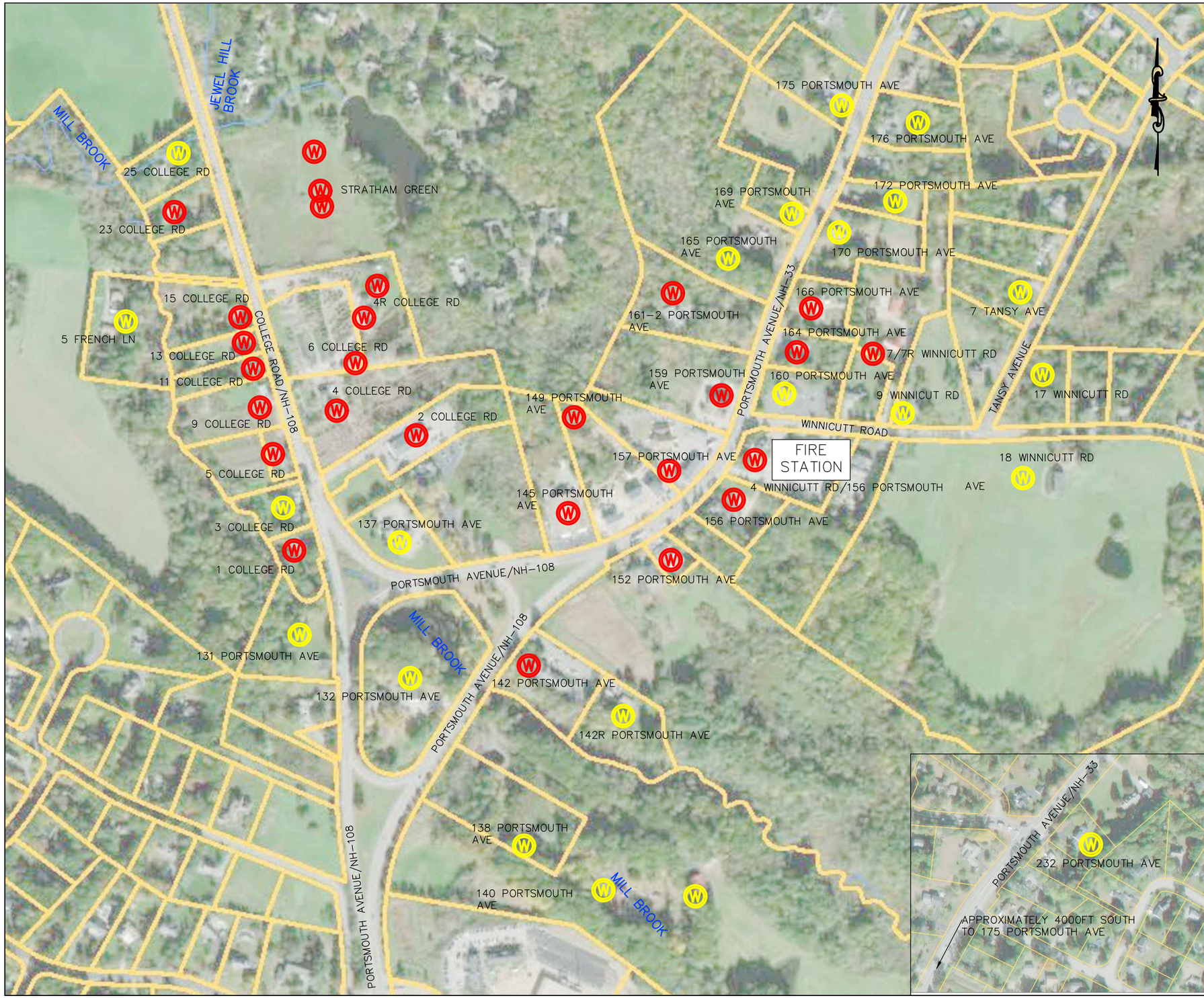
60 0 30 60 120

(IN FEET)
1 inch = 60 feet

Wilcox & Barton INC.
CIVIL · ENVIRONMENTAL · GEOTECHNICAL

TITLE
ANALYTICAL RESULTS – GROUNDWATER

DATE	SCALE	FILE
December 16, 2019	SEE GRAPHIC	Master_Plan
APPROVED BY: JPR	DRAWN BY: ZRP	REVISED: December 23, 2019
CLIENT: Town of Stratham, NH		JOB NUMBER: STRT0001
LOCATION: Stratham Fire Department, 4 Winnicutt Road, Stratham, New Hampshire		DRAWING NUMBER: *FIGURE 5*



LEGEND

- PROPERTY LINE
- DRINKING WATER WELL WITH ONE OR MORE MCL EXCEEDANCES (AS OF SEPTEMBER 30, 2019)
- DRINKING WATER WELL WITH ONE OR MORE DETECTIONS LESS THAN MCLs

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PLAN BASED ON STRATHAM GIS DATA, AERIAL MAPS, SITE VISITS, WILCOX & BARTON INC. SURVEY DATA, AND NH GRANIT WELL LOCATIONS. EXACT WELL LOCATIONS UNKNOWN FOR 132, 131, 160 AND 164 PORTSMOUTH AVE, AND 18 WINNICUTT RD. DRAWING REPRESENTS APPROXIMATION.
3. THIS PLAN IS NOT A PROFESSIONAL SURVEY AND IS NOT INTENDED TO ESTABLISH PROPERTY BOUNDARIES.
4. ONLY DETECTIONS AND EXCEEDANCES FOR PFHxS, PFOA, PFOS, AND PFNA CONSIDERED, AS THESE COMPOUNDS HAVE ESTABLISHED AND/OR PROPOSED MCLs.
5. PFAS EXCEEDANCES BASED ON SAMPLES COLLECTED BY BOTH WILCOX & BARTON INC. AND NHDES.

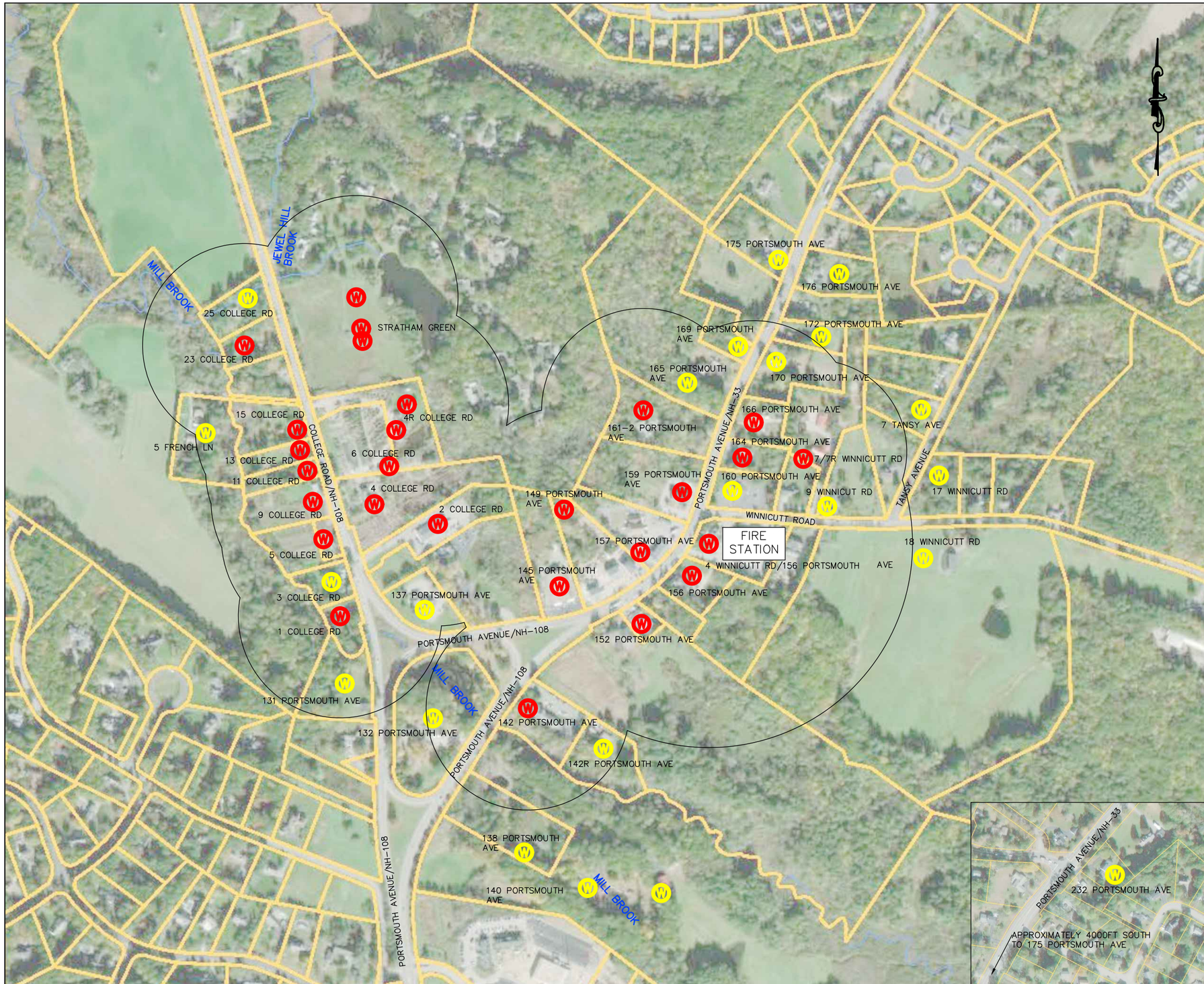
GRAPHIC SCALE

400 0 200 400 800

(IN FEET)
1 inch = 400 feet

Wilcox & Barton INC.
CIVIL · ENVIRONMENTAL · GEOTECHNICAL

TITLE: *REGIONAL PFAS OVERVIEW*		
DATE: December 16, 2019	SCALE: SEE GRAPHIC	FILE: Master_Plan
APPROVED BY: JPR	DRAWN BY: ZRP	REVISED: December 29, 2019
CLIENT: Town of Stratham, NH		JOB NUMBER: STRT0001
LOCATION: Stratham Fire Department, 4 Winnicutt Road, Stratham, New Hampshire		DRAWING NUMBER: *FIGURE 6*



LEGEND

- PROPERTY LINE
- DRINKING WATER WELL WITH ONE OR MORE MCL EXCEEDANCES (AS OF SEPTEMBER 30, 2019)
- DRINKING WATER WELL WITH ONE OR MORE DETECTIONS LESS THAN MCLs
- 500-FOOT RADIUS FROM WATER SUPPLY WELLS WITH EXCEEDANCES OF ANY PFAS MCLs

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PLAN BASED ON STRATHAM GIS DATA, AERIAL MAPS, SITE VISITS, WILCOX & BARTON INC. SURVEY DATA, AND NH GRANIT WELL LOCATIONS. EXACT WELL LOCATIONS UNKNOWN FOR 132, 131, 160 AND 164 PORTSMOUTH AVE, AND 18 WINNICUTT RD. DRAWING REPRESENTS APPROXIMATION.
3. THIS PLAN IS NOT A PROFESSIONAL SURVEY AND IS NOT INTENDED TO ESTABLISH PROPERTY BOUNDARIES.
4. ONLY DETECTIONS AND EXCEEDANCES FOR PFHxS, PFOA, PFOS, AND PFNA CONSIDERED, AS THESE COMPOUNDS HAVE ESTABLISHED AND/OR PROPOSED MCLs.
5. PFAS EXCEEDANCES BASED ON SAMPLES COLLECTED BY BOTH WILCOX & BARTON INC. AND NHDES.

GRAPHIC SCALE

500 0 250 500 1000

(IN FEET)
1 inch = 500 feet

Wilcox & Barton INC.
CIVIL · ENVIRONMENTAL · GEOTECHNICAL

TITLE
POTENTIAL RECEPTOR MAP

DATE December 16, 2019	SCALE SEE GRAPHIC	FILE Master_Plan
APPROVED BY JPR	DRAWN BY ZRP	REVISED December 29, 2019
CLIENT Town of Stratham, NH		JOB NUMBER STRT0001
LOCATION Stratham Fire Department 4 Winnicutt Road Stratham, New Hampshire		DRAWING NUMBER *FIGURE 7*

APPENDIX A

NHDES Correspondence

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Robert R. Scott, Commissioner

EMAIL ONLY

April 26, 2019

Michael Houghton
Select Board Chair, Town of Stratham
10 Bunker Hill Avenue
Stratham, NH 03885

Subject: **Stratham** – Stratham Fire Department, 4 Winnicut Road
DES Site #**199507007**, Project #39022

Request for Focused Site Investigation

Dear Mr. Houghton:

The New Hampshire Department of Environmental Services (NHDES) has reviewed the water quality data from a sample collected on March 22, 2019 from the water supply well that services the Fire Department facility and has become aware of the exceedance of the Ambient Groundwater Quality Standard (AGQS) included in Env-Or 600 Contaminated Site Management rules for per- and polyfluoroalkyl substances (PFAS) in groundwater.

Specifically, the concentrations of the NHDES-regulated PFAS perfluorooctanoic acid (PFOA, 33.4 nanograms per liter [ng/L]) and perfluorooctane sulfonic acid (PFOS, 149 ng/L) were found to exceed the current AGQS of 70 nanograms per liter (ng/L), which applies to the concentrations of PFOA and PFOS individually, or as a sum of their two concentrations combined (i.e., "PFOA+PFOS"). The PFOA+PFOS combined concentration in groundwater from this well was 182.4 ng/L. Refer to the attached Figure and Table that summarizes the water quality samples collected to date in the immediate area. The laboratory data packages for the samples depicted in the table are also attached for your reference. Sampling of the Fire Department's water supply well was initially requested by NHDES based on our preliminary investigation activities associated with identifying the source and spatial extent of impacted water supply wells when we became aware of data results from a nearby and apparent downgradient community water supply well located at 149-151 Portsmouth Avenue that had a combined concentration of PFOS+PFOA of 71.2 ng/l.

In response to these data, and as an interim measure, we understand that the Town has arranged for an alternative water supply (bottled water) to be provided to properties that have known AGQS violations. NHDES appreciates your rapid response to ensuring safe drinking water is available. NHDES is currently conducting additional sampling of water supply wells in the immediate area that may be at risk of having PFAS contamination. Those results will be shared with the Town as soon as they are available.

Based on the information available to date, a discharge of regulated contaminants appears to have occurred at or in the vicinity of the Fire Department property; however, the source and the location of release(s) of PFAS has not yet been confirmed. We do know that certain formulations of Class B firefighting foams, which are typically used on flammable liquid fires and spills, may contain PFAS that can contaminate groundwater and make it unsafe to drink even if only very small quantities are released to the environment. It is anticipated that Class B Firefighting Foam would have been used at this property while historically being operated as a Fire Department. Class B firefighting foams may be released into the environment through a variety of practices and mechanisms during routine non-fire firefighting activities including, but not limited to, the following:

- releases of foam concentrate during storage, transfer or equipment calibration;
- discharge of foam solution for apparatus testing and/or cleaning (i.e. washing/drying of hoses);
- discharge of foam solution for fire training; and/or
- leaks from foam distribution equipment between storage and pumping locations.

We are also aware that historically the fire department maintained floor drains and a dry well where discharges of interior truck/hose wash water potentially containing PFAS may have entered the subsurface.

In consideration of the information above, NHDES is requiring the Town, as a potentially responsible party, to conduct a Focused Site Investigation to evaluate the source of PFAS contamination in groundwater at the Fire Station. As a first step to evaluate the potential source(s) of contamination, NHDES suggests that you and your consultant collect and evaluate information regarding the on-site well (construction information, pump intake depth, any recent pump repairs/installations, etc. if known), physical location of Site utilities including the water supply well, septic system, storm water management systems, and other pertinent site features etc. Additional information of interest includes basic history of site operations, historical and current storage and use of any PFAS containing materials, hazardous materials and/or petroleum products, and the location of any storage areas of such onsite. Information considered should include Fire Department practices and designated areas for storage, handling and use of PFAS containing products and any historical knowledge of releases / spills of Class B Foam concentrate or solutions. This information in total should then be used to: (1) identify potential PFAS release mechanism and discharge area(s); and (2) identify and guide any additional investigation actions under Env-Or 600 Contaminated Site Management rules that may be warranted.

Please prepare a Work Plan for a Focused Site Investigation that includes a schedule for implementation, and provide the Work Plan to NHDES for our review by June 7, 2019. NHDES is available to work with you and your consultant to define an appropriate scope of work and adjust the schedule if appropriate.

If water supply samples collected by NHDES or by the Town exhibit PFOA and/or PFOS concentrations that exceed AGQS, then we ask/request that the Town provide bottled potable water immediately to those locations as an interim measure. Subsequently, if it is concluded that the Fire Department site is the source of PFAS contamination, the Town will need to provide a longer term alternative water supply solution such as a connection to a public water supply or

installation (including maintenance and monitoring of) operate, and maintain point-of-entry (POE) treatment systems.

Please note that the Focused Site Investigation must be completed by, or under the direction of, a professional engineer or professional geologist licensed under RSA 310-A, and the report shall bear the seal of the professional responsible for the work. A list of companies that conduct Site Investigations is available at: http://www2.des.state.nh.us/OneStop/ORCB_Web_Reports_Menu.aspx. NHDES does not pre-qualify consultants on this list; therefore, NHDES strongly recommends that you review a firm's experience and qualifications prior to retaining them to conduct the required work.

NHDES will provide guidance on the need for further investigation, remediation, or closure of this project after we have reviewed the Focused Site Investigation report.

Should you have any questions about the Focused Site Investigation discussed herein, please do not hesitate to contact me directly at NHDES' Waste Management Division.

Sincerely,

Amy T. Doherty, P.G.
State Sites Supervisor
Hazardous Waste Remediation Bureau
Tel: (603) 271-6542
Fax: (603) 271-2181
Email: amy.doherty@des.nh.gov

Attms: Table – Water Quality Summary
Figure
Laboratory Data Packages

ec: Michael Wimsatt, P.G., Director, WMD
Karlee Kenison, P.G., Administrator, HWRB
David Moore, Town Administrator, Town of Stratham
Matt Larrabee, Fire Chief, Town of Stratham
Attention Health Officer, Town of Stratham

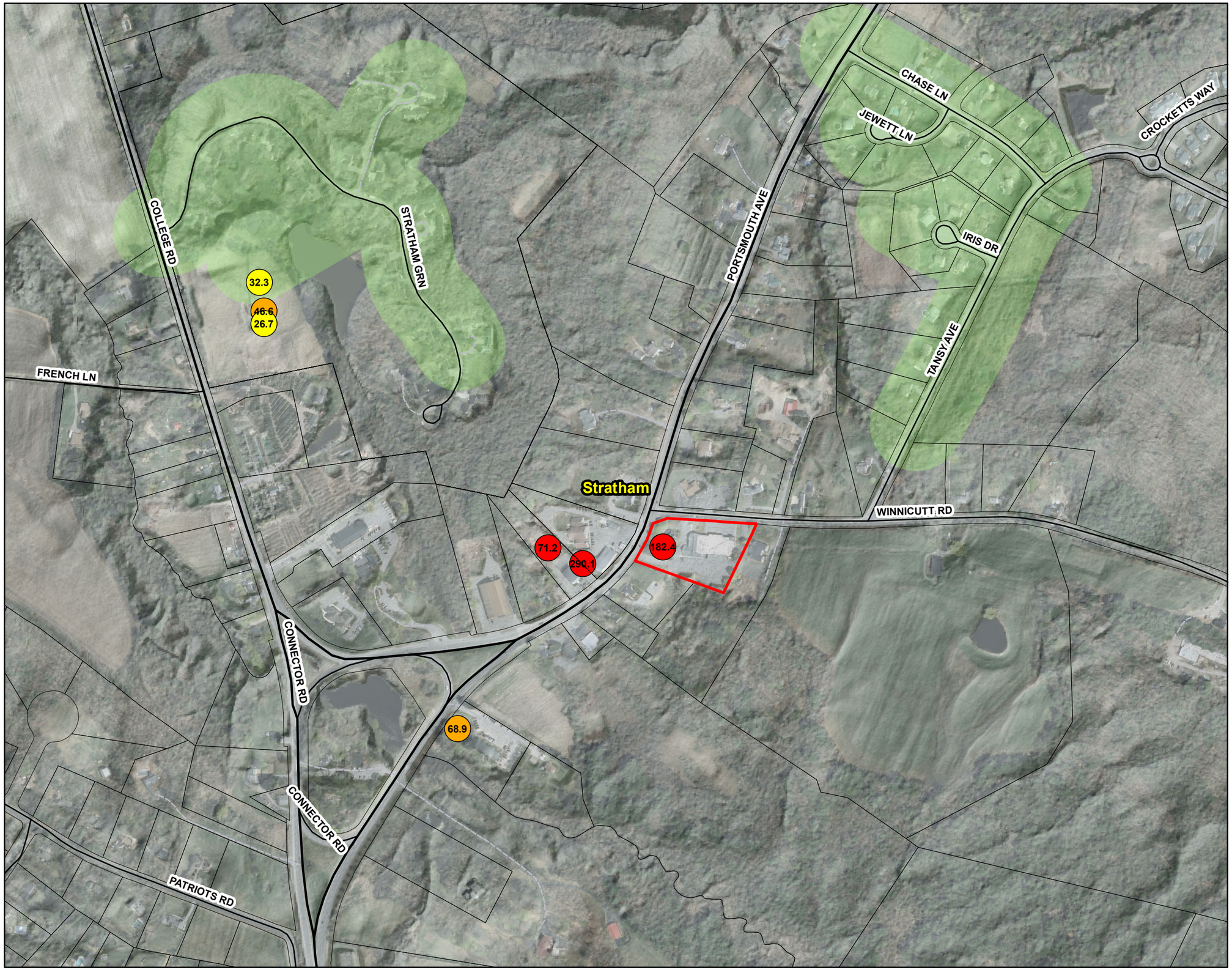
Water Quality Summary
Stratham Fire Department
Stratham, New Hampshire

PFAS Compounds	AGQS (ng/L)	149/151 Portsmouth Ave	142 Portsmouth Ave	CL Stratham Green	CL Stratham Green	CL Stratham Green	157 Portsmouth Ave	4 Winnicutt Rd
				Well#1	*Well#2*	*Well #3*		
			Pipers Landing	*Stratham Green Condominum Association*			*Stratham Central Condos*	*Stratham Fire Dept*
		3/5/2019	*3/22/2019*	*3/22/2019*			*3/22/2019*	*3/22/2019*
PERFLUOROBUTANOIC ACID - PFBA	---	*2.48*	<1.96	3.58	4.83	5.06	16.6	6.72
PERFLUOROPENTANOIC ACID - PFPEA	---	*4.62*	3.02	3.39	<1.98	2.35	59.9	20.1
PERFLUOROBUTANE SULFONIC ACID - PFBS	---	*6.36*	5.81	3.72	3.73	4	15.2	4.61
PERFLUOROHEXANOIC ACID - PFHXA	---	*12.8*	13.8	5.59	3.83	2.97	52.7	21.3
PERFLUOROHEPTANOIC ACID - PFHPA	---	*3*	2.92	3.21	2.26	<2.02	16.3	11.1
PERFLUOROHEXANE SULFONIC ACID - PFHXS	---	*63.3*	63.3	12.8	14	21.9	222	57.6
6:2 FLUOROTELOMER SULFONIC ACID - 6:2 FTSA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
PERFLUOROOCTANOIC ACID - PFOA	70	31.4	36.9	17.9	12.4	13.2	**84.1**	**33.4**
PERFLUOROHEPTANE SULFONIC ACID - PFHPS	---	*n/a*	<1.96	<1.94	<1.98	<2.02	4.23	<2.00
PERFLUORONONANOIC ACID - PFNA	---	*<1.74*	<1.96	<1.94	<1.98	<2.02	<1.94	2.11
PERFLUOROOCTANESULFONAMIDE - FOSA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
PERFLUOROOCTANE SULFONIC ACID - PFOS	70	39.8	32	28.7	14.3	19.1	**206**	**149**
PERFLUORODECANOIC ACID - PFDA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
8:2 FLUOROTELOMER SULFONIC ACID - 8:2 FTSA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
N-METHYL PERFLUOROOCTANE SULFONAMIDO ACETIC ACID - NMEFOSAA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
N-ETHYL PERFLUOROOCTANE SULFONAMIDO ACETIC ACID - NETFOSAA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	2.98	<2.00
PERFLUOROUNDECANOIC ACID - PFUNA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
PERFLUORODECANE SULFONIC ACID - PFDS	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
PERFLUORODODECANOIC ACID - PFDOA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
N-METHYL PERFLUOROOCTANE SULFONAMIDE - NMEFOSA	---	*n/a*	<9.79	<9.71	<9.91	<10.1	<9.71	<10.0
PERFLUOROTRIDECANOIC ACID - PFTRA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
PERFLUOROTETRADECANOIC ACID - PFTEA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
N-ETHYL PERFLUOROOCTANE SULFONAMIDE - NETFOSA	---	*n/a*	<9.79	<9.71	<9.91	<10.1	<9.71	<10.0
PERFLUOROHEXADECANOIC ACID - PFHXDA	---	*n/a*	<1.96	<1.94	<1.98	<2.02	<1.94	<2.00
N-METHYL PERFLUOROOCTANESULFONAMIDO ETHANOL - NMEFOSE	---	*n/a*	<9.79	<9.71	<9.91	<10.1	<9.71	<10.0
N-ETHYL PERFLUOROOCTANESULFONAMIDO ETHANOL - ETFOSE	---	*n/a*	<9.79	<9.71	<9.91	<10.1	<9.71	<10.0
PFOA+PFOS Total	70	**71.2**	68.9	46.6	26.7	32.3	**290.1**	**182.4**
Total PFAS	---	163.76	157.75	78.89	55.35	68.58	680.01	305.94

Notes:
'ng/L' - nanograms per liter
'---' - no current standard
AGQS' - Ambient Groundwater Quality Standard included in Env-Or 600 Contamianted Site Management rules
'<' - concentration not detected above the applicable laboratory reporting limit
'n/a' - not tested for

Stratham NH
April 16, 2019

The data presented is under constant revision as new sites or facilities are added. The data may not contain all of the potential or existing sites or facilities. NHDES is not responsible for the use or interpretation of this information. Not intended for legal purposes.



Water Distribution

Stratham FD

PFOA+PFOS

- ≥400
- 70 - <400
- 45 - <70
- 10 - <45
- < 10

N
W E
S

0 200 400 800 Feet

1 in = 400 feet

NHDES

Map By; Derek Bennett 271-8520

GRANITE STATE
ANALYTICAL SERVICES, LLC.

22 Manchester Road, Unit 2, Derry, NH 03038

Phone: (800) 699-9920 | (603) 432-3044 website: www.granitestateanalytical.com

DRINKING WATER COMPLIANCE REPORT

CHEMICAL RESULTS FOR THE 1st QUARTER 2019

Legend	
Passes	✓
Fails EPA Primary	⊗
Fails EPA Secondary	▼
Fails State Guideline	✕
Attention	⚠

DATE PRINTED: 03/15/2019

SAMPLE ID#: 1903-00270-001 **LAB ID#:** 2064

SAMPLED BY: Sheing, Curt by GSA QCM App. I

SAMPLE CATEGORY: Treatment Evaluation

SYSTEM NAME: 149/151 Portsmouth Ave **EPA ID #:** 2236190

SYSTEM TOWN: Stratham **DATE & TIME COLLECTED:** 03/05/2019 11:10AM

SAMPLE AGENT #: 603-432-3044 **DATE & TIME RECEIVED:** 03/05/2019 1:08PM

SAMPLE LOCATION: 501 DEP Tap/Basement Pump Room/After Treatment **WATER SYS TYPE:**

RECEIPT TEMP: ON ICE 5.5° CELSIUS

BAR CODE: **CLIENT JOB #**

Test Description	Results	Test Units	Pass /Fail	DQ Flag	RL	Limit	Method	Analyst	Date & Time Analyzed
Date Extracted	-					No Limit	EPA 537	2064	03/12/19 3:37PM
Perfluorobutanesulfonic Acid (PFBS)	6.36	ng/L			Sub Report		EPA 537 Isotope Dilution	2064	03/13/19 3:16PM
Perfluorobutanoic Acid (PFBA)	2.48	ng/L			Sub Report		EPA 537 Isotope Dilution	2064	03/13/19 3:16PM
Perfluoroheptanoic Acid (PFHpA)	3.00	ng/L			Sub Report		EPA 537 Isotope Dilution	2064	03/13/19 3:16PM
Perfluorohexanesulfonic Acid (PFHxS)	63.3	ng/L			Sub Report		EPA 537 Isotope Dilution	2064	03/13/19 3:16PM
Perfluorohexanoic Acid (PFHxA)	12.8	ng/L			Sub Report		EPA 537 Isotope Dilution	2064	03/13/19 3:16PM
Perfluorononanoic Acid (PFNA)	<1.74	ng/L			Sub Report		EPA 537 Isotope Dilution	2064	03/13/19 3:16PM
Perfluorooctanesulfonic Acid (PFOS)	39.8	ng/L	✓		Sub Report	70 ng/L	EPA 537 Isotope Dilution	2064	03/13/19 3:16PM
Perfluorooctanoic Acid (PFOA)	31.4	ng/L	✓		Sub Report	70 ng/L	EPA 537 Isotope Dilution	2064	03/13/19 3:16PM
Perfluoropentanoic Acid (PFPeA)	4.62	ng/L			Sub Report		EPA 537 Isotope Dilution	2064	03/13/19 3:16PM
Total PFOA PFOS	71.2	ng/L	✕		Sub Report	70 ng/L	N/A Calculation	2064	03/13/19 3:16PM

The results presented in this report relate to the samples listed above in the condition in which they were received.

RL: "Reporting limit" means the lowest level of an analyte that can be accurately recovered from the matrix of interest.

Data Qualifier (DQ) Flags: None

*** NELAP Accredited Analysis**

NELAP ACCREDITED TNI LABORATORY

Donald A. D'Anjou, Ph. D.
Laboratory Director

ANALYTICAL REPORT

Lab Number:	L1908562
Client:	Granite State Analytical Services 22 Manchester Rd Unit 2 Derry, NH 03038
ATTN:	Erin Shaw
Phone:	(603) 432-3044
Project Name:	Not Specified
Project Number:	1902-00270
Report Date:	03/14/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: Not Specified
Project Number: 1902-00270

Lab Number: L1908562
Report Date: 03/14/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1908562-01	1903-00270-001	DW	Not Specified	03/05/19 11:10	03/06/19
L1908562-02	1903-00270-001 FB	DW	Not Specified	03/05/19 00:00	03/06/19

Project Name:	Not Specified	**Lab Number:**	L1908562
Project Number:	1902-00270	**Report Date:**	03/14/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	Not Specified	**Lab Number:**	L1908562
Project Number:	1902-00270	**Report Date:**	03/14/19

Case Narrative (continued)

Perfluorinated Alkyl Acids by Isotope Dilution

Please note that the Isotopically labelled Extracted Internal Standards that are part of sample extraction for our Isotope Dilution method are found under the "Surrogate" section of the report. These labelled analogs are utilized for the Isotope Dilution method of target analyte quantitation.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth Porta

Title: Technical Director/Representative Date: 03/14/19

ORGANICS

SEMIVOLATILES

Project Name: Not Specified
Project Number: 1902-00270
Lab Number: L1908562
Report Date: 03/14/19

SAMPLE RESULTS

Lab ID: L1908562-01
Client ID: 1903-00270-001
Sample Location: Not Specified

Date Collected: 03/05/19 11:10
Date Received: 03/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 122,537(M)
Analytical Date: 03/13/19 15:16
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 03/12/19 15:37

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	2.48		ng/l	1.74	--	1
Perfluoropentanoic Acid (PFPeA)	4.62		ng/l	1.74	--	1
Perfluorobutanesulfonic Acid (PFBS)	6.36		ng/l	1.74	--	1
Perfluorohexanoic Acid (PFHxA)	12.8		ng/l	1.74	--	1
Perfluoroheptanoic Acid (PFHpA)	3.00		ng/l	1.74	--	1
Perfluorohexanesulfonic Acid (PFHxS)	63.3		ng/l	1.74	--	1
Perfluorooctanoic Acid (PFOA)	31.4		ng/l	1.74	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.74	--	1
Perfluorooctanesulfonic Acid (PFOS)	39.8		ng/l	1.74	--	1
PFOA/PFOS, Total	71.2		ng/l	1.74	--	1
PFAS, Total (5)	138		ng/l	1.74	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	91		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	108		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	102		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	100		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	98		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	104		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	98		36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	100		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		42-146

Project Name: Not Specified
Project Number: 1902-00270
Lab Number: L1908562
Report Date: 03/14/19

SAMPLE RESULTS

Lab ID: L1908562-02
Client ID: 1903-00270-001 FB
Sample Location: Not Specified

Date Collected: 03/05/19 00:00
Date Received: 03/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Dw
Analytical Method: 122,537(M)
Analytical Date: 03/13/19 15:49
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 03/12/19 15:37

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.99	--	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.99	--	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.99	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.99	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.99	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.99	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.99	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.99	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.99	--	1
PFOA/PFOS, Total	ND		ng/l	1.99	--	1
PFAS, Total (5)	ND		ng/l	1.99	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	99		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	100		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	108		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	103		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	100		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	99		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	100		42-146

Project Name: Not Specified
Project Number: 1902-00270

Lab Number: L1908562
Report Date: 03/14/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 03/13/19 17:12
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 03/12/19 15:37

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-02 Batch: WG1214853-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	--
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	--
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	--
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	--
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	--
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	--
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	--
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	--
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	--
PFOA/PFOS, Total	ND		ng/l	2.00	--
PFAS, Total (5)	ND		ng/l	2.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	101		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	107		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	110		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	103		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	102		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	104		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	101		36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	107		42-146

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 1902-00270
Lab Number: L1908562
Report Date: 03/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 Batch: WG1214853-2 WG1214853-3								
Perfluorobutanoic Acid (PFBA)	102		98		67-148	4		30
Perfluoropentanoic Acid (PFPeA)	97		93		63-161	4		30
Perfluorobutanesulfonic Acid (PFBS)	93		91		65-157	2		30
Perfluorohexanoic Acid (PFHxA)	104		100		69-168	4		30
Perfluoroheptanoic Acid (PFHpA)	95		90		58-159	5		30
Perfluorohexanesulfonic Acid (PFHxS)	98		100		69-177	2		30
Perfluorooctanoic Acid (PFOA)	97		92		63-159	5		30
Perfluorononanoic Acid (PFNA)	101		97		68-171	4		30
Perfluorooctanesulfonic Acid (PFOS)	85		82		52-151	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	100		104		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	101		105		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	109		109		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	104		104		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	102		104		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	107		103		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	101		101		36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	100		100		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	106		104		42-146

Matrix Spike Analysis

Batch Quality Control

Project Name: Not Specified

Project Number: 1902-00270

Lab Number: L1908562

Report Date: 03/14/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1214853-4 QC Sample: L1908562-01 Client ID: 1903-00270-001												
Perfluorobutanoic Acid (PFBA)	2.48	36.4	40.1	103		-	-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	4.62	36.4	40.5	99		-	-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	6.36	36.4	39.1	90		-	-		65-157	-		30
Perfluorohexanoic Acid (PFHxA)	12.8	36.4	51.3	106		-	-		69-168	-		30
Perfluoroheptanoic Acid (PFHpA)	3.00	36.4	38.0	96		-	-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	63.3	36.4	106	117		-	-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	31.4	36.4	66.7	97		-	-		63-159	-		30
Perfluorononanoic Acid (PFNA)	ND	36.4	38.0	105		-	-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	39.8	36.4	71.3	87		-	-		52-151	-		30

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	96				21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	94				30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103				47-153
Perfluoro[13C4]Butanoic Acid (MPFBA)	89				2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	107				16-173
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	103				42-146
Perfluoro[13C8]Octanoic Acid (M8PFOA)	93				36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	94				34-146
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	110				31-159

Project Name: Not Specified
Project Number: 1902-00270

Lab Number: L1908562
Report Date: 03/14/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1908562-01A	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.2	Y	Absent		A2-NH-537-ISOTOPE(14)
L1908562-01B	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.2	Y	Absent		A2-NH-537-ISOTOPE(14)
L1908562-02A	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.2	Y	Absent		A2-NH-537-ISOTOPE(14)

*Values in parentheses indicate holding time in days

Project Name:	Not Specified	**Lab Number:**	L1908562
Project Number:	1902-00270	**Report Date:**	03/14/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the

Project Name:	Not Specified	**Lab Number:**	L1908562
Project Number:	1902-00270	**Report Date:**	03/14/19

original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Project Name: Not Specified **Lab Number:** L1908562
Project Number: 1902-00270 **Report Date:** 03/14/19

REFERENCES

122 Determination of Selected Perfluorintated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537, EPA/600/R-08/092. Version 1.1, September 2009.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL — World Class Chemistry

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 3/7/19

ALPHA Job #: L1908562

Client Information

Client: Granite State Analytical
Address: 22 Manchester Rd
Derry, NH 03038
Phone: 603-432-3044
Fax:
Email: eshaw@granitestateanalytical.c

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #: 1902-00270
Project Manager:
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PFC 537 - PFOA / PFOS only	PFC 537 - 6 compound	PFC 537 - 14 compound	PFC 537 mod - PFOA / PFOS only	PFC 537 mod - 6 compound	PFC 537 mod - 9 compound	PFC 537 mod - 24 compound						Sample Specific Comments	TOTAL # BOTTLES
908562-01	1903-00270-001	03/05/19	11:10	DW	Client	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐		2
-02	1903-00270-001 FB					☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐		2
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		1
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		1
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		3
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		1
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		3
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		1
					Container Type	P	P	P	P	P	P	P	-	-	-	-	-		
					Preservative	O	O	O	O	O	O	O	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	3/6/19 10:08	[illegible] AAC	3/6/19 10:08
[illegible] ADL	3/6/19 1425	[illegible]	3/6/19 1425
[illegible]	03/07/19 0530	[illegible]	3/7/19 0530

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ)
(rev. 5-JAN-18)

April 15, 2019

Vista Work Order No. 1900522

Mr. Brandon Kernen
New Hampshire DES
29 Hazen Road
Concord, NH 03302

Dear Mr. Kernen,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on March 26, 2019 under your Project Name 'General PWS'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1900522
Case Narrative

Sample Condition on Receipt:

Five aqueous samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method (Modified EPA Method 537). The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1900522-01	2236100001	22-Mar-19 10:08	26-Mar-19 09:24	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900522-02	2232050001	22-Mar-19 10:40	26-Mar-19 09:24	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900522-03	2232050002	22-Mar-19 10:55	26-Mar-19 09:24	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900522-04	2232050003	22-Mar-19 10:35	26-Mar-19 09:24	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900522-05	2236130002	22-Mar-19 13:05	26-Mar-19 09:24	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0034-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFPeA	2706-90-3	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFBS	375-73-5	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFHxA	307-24-4	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFHpA	375-85-9	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFHxS	355-46-4	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
6:2 FTS	27619-97-2	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFOA	335-67-1	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFHpS	375-92-8	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFNA	375-95-1	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFOSA	754-91-6	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFOS	1763-23-1	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFDA	335-76-2	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
8:2 FTS	39108-34-4	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
MeFOSAA	2355-31-9	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
EtFOSAA	2991-50-6	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFUnA	2058-94-8	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFDS	335-77-3	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFDoA	307-55-1	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
MeFOSA	31506-32-8	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFTrDA	72629-94-8	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFTeDA	376-06-7	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
EtFOSA	4151-50-2	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFHxDA	67905-19-5	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
MeFOSE	24448-09-7	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
EtFOSE	1691-99-2	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	104	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C3-PFPeA	IS	98.2	60 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C3-PFBS	IS	101	60 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFHxA	IS	97.2	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C4-PFHpA	IS	99.6	60 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
18O2-PFHxS	IS	102	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-6:2 FTS	IS	101	40 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFOA	IS	94.6	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C5-PFNA	IS	92.2	50 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C8-PFOSA	IS	53.0	20 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C8-PFOS	IS	99.2	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Matrix: Aqueous
Project: General PWS

Laboratory Data

Lab Sample: B9D0034-BLK1
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	86.2	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-8:2 FTS	IS	95.6	40 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d3-MeFOSAA	IS	82.8	50 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d5-EtFOSAA	IS	88.5	50 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFUnA	IS	85.2	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFDoA	IS	81.6	30 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d3-MeFOSA	IS	19.6	10 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFTeDA	IS	89.8	20 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d5-EtFOSA	IS	22.6	10 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFHxDA	IS	88.2	20 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d7-MeFOSE	IS	45.1	10 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d9-EtFOSE	IS	42.3	10 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Vista Analytical Laboratory

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: New Hampshire DES
Project: General PWS
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0034-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	42.7	40.0	107	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFPeA	2706-90-3	41.4	40.0	104	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFBS	375-73-5	42.8	40.0	107	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFHxA	307-24-4	42.6	40.0	106	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFHpA	375-85-9	42.0	40.0	105	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFHxS	355-46-4	42.2	40.0	105	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
6:2 FTS	27619-97-2	43.4	40.0	108	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFOA	335-67-1	42.7	40.0	107	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFHpS	375-92-8	43.5	40.0	109	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFNA	375-95-1	44.3	40.0	111	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFOSA	754-91-6	45.2	40.0	113	70 - 130	Q	B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFOS	1763-23-1	42.2	40.0	105	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFDA	335-76-2	46.1	40.0	115	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
8:2 FTS	39108-34-4	46.4	40.0	116	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
MeFOSAA	2355-31-9	41.2	40.0	103	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
EtFOSAA	2991-50-6	43.1	40.0	108	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFUnA	2058-94-8	42.0	40.0	105	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFDS	335-77-3	38.3	40.0	95.8	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFDoA	307-55-1	40.0	40.0	100	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
MeFOSA	31506-32-8	235	200	117	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFTrDA	72629-94-8	42.3	40.0	106	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFTeDA	376-06-7	44.9	40.0	112	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
EtFOSA	4151-50-2	247	200	123	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFHxDA	67905-19-5	42.8	40.0	107	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
MeFOSE	24448-09-7	238	200	119	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
EtFOSE	1691-99-2	229	200	114	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.2	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C3-PFPeA	IS	99.6	60- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C3-PFBS	IS	96.9	60- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFHxA	IS	104	70- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C4-PFHpA	IS	103	60- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
18O2-PFHxS	IS	98.6	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-6:2 FTS	IS	100	40- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFOA	IS	102	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0034-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C5-PFNA	IS	88.4	50- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C8-PFOSA	IS	48.0	20- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C8-PFOS	IS	98.0	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFDA	IS	84.4	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-8:2 FTS	IS	90.4	40- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d3-MeFOSAA	IS	85.2	50- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d5-EtFOSAA	IS	82.5	50- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFUnA	IS	88.3	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFDoA	IS	90.6	30- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d3-MeFOSA	IS	22.2	10- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFTeDA	IS	85.0	20- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d5-EtFOSA	IS	25.6	10- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFHxDA	IS	84.6	20- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d7-MeFOSE	IS	41.5	10- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d9-EtFOSE	IS	42.0	10- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1

Vista Analytical Laboratory

Sample ID: 2236100001

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Location: 142 Portsmouth Ave
Matrix: Aqueous
Date Collected: 22-Mar-19 10:08

Laboratory Data

Lab Sample: 1900522-01
Date Received: 26-Mar-19 09:24
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFPeA	2706-90-3	3.02	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFBS	375-73-5	5.81	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFHxA	307-24-4	13.8	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFHpA	375-85-9	2.92	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFHxS	355-46-4	63.3	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
6:2 FTS	27619-97-2	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFOA	335-67-1	36.9	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFHpS	375-92-8	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFNA	375-95-1	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFOSA	754-91-6	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFOS	1763-23-1	32.0	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFDA	335-76-2	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
8:2 FTS	39108-34-4	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
MeFOSAA	2355-31-9	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
EtFOSAA	2991-50-6	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFUnA	2058-94-8	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFDS	335-77-3	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFDoA	307-55-1	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
MeFOSA	31506-32-8	ND	9.79		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFTrDA	72629-94-8	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFTeDA	376-06-7	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
EtFOSA	4151-50-2	ND	9.79		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
PFHxDA	67905-19-5	ND	1.96		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
MeFOSE	24448-09-7	ND	9.79		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
EtFOSE	1691-99-2	ND	9.79		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.8	60 - 130		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C3-PFPeA	IS	91.6	60 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C3-PFBS	IS	100	60 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C2-PFHxA	IS	93.7	70 - 130		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C4-PFHpA	IS	93.5	60 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
18O2-PFHxS	IS	96.8	60 - 130		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C2-6:2 FTS	IS	95.1	40 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C2-PFOA	IS	93.7	60 - 130		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C5-PFNA	IS	94.2	50 - 130		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C8-PFOSA	IS	60.4	20 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C8-PFOS	IS	95.2	60 - 130		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1

Sample ID: 2236100001

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Location: 142 Portsmouth Ave
Matrix: Aqueous
Date Collected: 22-Mar-19 10:08

Laboratory Data

Lab Sample: 1900522-01
Date Received: 26-Mar-19 09:24
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	89.0	60 - 130		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C2-8:2 FTS	IS	89.4	40 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
d3-MeFOSAA	IS	89.4	50 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
d5-EtFOSAA	IS	90.3	50 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C2-PFUnA	IS	88.7	60 - 130		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C2-PFDoA	IS	86.9	30 - 130		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
d3-MeFOSA	IS	31.0	10 - 130		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C2-PFTeDA	IS	90.9	20 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
d5-EtFOSA	IS	34.4	10 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
13C2-PFHxDA	IS	85.0	20 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
d7-MeFOSE	IS	54.1	10 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1
d9-EtFOSE	IS	57.9	10 - 150		B9D0034	04-Apr-19	0.255 L	05-Apr-19 20:52	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Vista Analytical Laboratory

Sample ID: 2232050001

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Location: CL Stratham Green - Well 1
Matrix: Aqueous
Date Collected: 22-Mar-19 10:40

Laboratory Data

Lab Sample: 1900522-02
Date Received: 26-Mar-19 09:24
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.58	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFPeA	2706-90-3	3.39	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFBS	375-73-5	3.72	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFHxA	307-24-4	5.59	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFHpA	375-85-9	3.21	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFHxS	355-46-4	12.8	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
6:2 FTS	27619-97-2	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFOA	335-67-1	17.9	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFHpS	375-92-8	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFNA	375-95-1	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFOSA	754-91-6	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFOS	1763-23-1	28.7	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFDA	335-76-2	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
8:2 FTS	39108-34-4	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
MeFOSAA	2355-31-9	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
EtFOSAA	2991-50-6	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFUnA	2058-94-8	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFDS	335-77-3	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFDoA	307-55-1	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
MeFOSA	31506-32-8	ND	9.71		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFTrDA	72629-94-8	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFTeDA	376-06-7	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
EtFOSA	4151-50-2	ND	9.71		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
PFHxDA	67905-19-5	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
MeFOSE	24448-09-7	ND	9.71		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
EtFOSE	1691-99-2	ND	9.71		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	104	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C3-PFPeA	IS	96.5	60 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C3-PFBS	IS	100	60 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C2-PFHxA	IS	99.9	70 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C4-PFHpA	IS	98.8	60 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
18O2-PFHxS	IS	102	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C2-6:2 FTS	IS	91.4	40 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C2-PFOA	IS	98.0	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C5-PFNA	IS	95.0	50 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C8-PFOSA	IS	62.4	20 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C8-PFOS	IS	99.7	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1

Sample ID: 2232050001

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Location: CL Stratham Green - Well 1
Matrix: Aqueous
Date Collected: 22-Mar-19 10:40

Laboratory Data

Lab Sample: 1900522-02
Date Received: 26-Mar-19 09:24
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	91.1	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C2-8:2 FTS	IS	98.2	40 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
d3-MeFOSAA	IS	83.1	50 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
d5-EtFOSAA	IS	87.4	50 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C2-PFUnA	IS	94.2	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C2-PFDoA	IS	92.6	30 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
d3-MeFOSA	IS	18.9	10 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C2-PFTeDA	IS	91.4	20 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
d5-EtFOSA	IS	20.3	10 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
13C2-PFHxDA	IS	92.9	20 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
d7-MeFOSE	IS	53.5	10 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1
d9-EtFOSE	IS	53.4	10 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 21:02	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: 2232050002

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Location: CL Stratham Green - Well 2
Matrix: Aqueous
Date Collected: 22-Mar-19 10:55

Laboratory Data

Lab Sample: 1900522-03
Date Received: 26-Mar-19 09:24
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	4.83	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFPeA	2706-90-3	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFBS	375-73-5	3.73	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFHxA	307-24-4	3.83	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFHpA	375-85-9	2.26	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFHxS	355-46-4	14.0	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
6:2 FTS	27619-97-2	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFOA	335-67-1	12.4	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFHpS	375-92-8	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFNA	375-95-1	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFOSA	754-91-6	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFOS	1763-23-1	14.3	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFDA	335-76-2	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
8:2 FTS	39108-34-4	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
MeFOSAA	2355-31-9	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
EtFOSAA	2991-50-6	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFUnA	2058-94-8	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFDS	335-77-3	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFDoA	307-55-1	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
MeFOSA	31506-32-8	ND	9.91		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFTrDA	72629-94-8	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFTeDA	376-06-7	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
EtFOSA	4151-50-2	ND	9.91		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
PFHxDA	67905-19-5	ND	1.98		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
MeFOSE	24448-09-7	ND	9.91		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
EtFOSE	1691-99-2	ND	9.91		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.4	60 - 130		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C3-PFPeA	IS	90.4	60 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C3-PFBS	IS	103	60 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C2-PFHxA	IS	95.7	70 - 130		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C4-PFHpA	IS	89.8	60 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
18O2-PFHxS	IS	98.2	60 - 130		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C2-6:2 FTS	IS	93.7	40 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C2-PFOA	IS	96.2	60 - 130		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C5-PFNA	IS	94.4	50 - 130		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C8-PFOSA	IS	62.9	20 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C8-PFOS	IS	88.1	60 - 130		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1

Sample ID: 2232050002

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Location: CL Stratham Green - Well 2
Matrix: Aqueous
Date Collected: 22-Mar-19 10:55

Laboratory Data

Lab Sample: 1900522-03
Date Received: 26-Mar-19 09:24
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	89.7	60 - 130		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C2-8:2 FTS	IS	93.8	40 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
d3-MeFOSAA	IS	82.2	50 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
d5-EtFOSAA	IS	86.3	50 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C2-PFUnA	IS	90.4	60 - 130		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C2-PFDoA	IS	86.0	30 - 130		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
d3-MeFOSA	IS	25.9	10 - 130		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C2-PFTeDA	IS	83.6	20 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
d5-EtFOSA	IS	27.9	10 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
13C2-PFHxDA	IS	68.8	20 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
d7-MeFOSE	IS	53.9	10 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1
d9-EtFOSE	IS	53.6	10 - 150		B9D0034	04-Apr-19	0.252 L	05-Apr-19 21:13	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: 2232050003

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Location: CL Stratham Green - Well 3
Matrix: Aqueous
Date Collected: 22-Mar-19 10:35

Laboratory Data

Lab Sample: 1900522-04
Date Received: 26-Mar-19 09:24
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	5.06	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFPeA	2706-90-3	2.35	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFBS	375-73-5	4.00	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFHxA	307-24-4	2.97	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFHpA	375-85-9	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFHxS	355-46-4	21.9	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
6:2 FTS	27619-97-2	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFOA	335-67-1	13.2	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFHpS	375-92-8	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFNA	375-95-1	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFOSA	754-91-6	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFOS	1763-23-1	19.1	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFDA	335-76-2	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
8:2 FTS	39108-34-4	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
MeFOSAA	2355-31-9	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
EtFOSAA	2991-50-6	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFUnA	2058-94-8	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFDS	335-77-3	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFDoA	307-55-1	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
MeFOSA	31506-32-8	ND	10.1		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFTrDA	72629-94-8	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFTeDA	376-06-7	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
EtFOSA	4151-50-2	ND	10.1		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
PFHxDA	67905-19-5	ND	2.02		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
MeFOSE	24448-09-7	ND	10.1		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
EtFOSE	1691-99-2	ND	10.1		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.6	60 - 130		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C3-PFPeA	IS	92.9	60 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C3-PFBS	IS	99.5	60 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C2-PFHxA	IS	93.5	70 - 130		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C4-PFHpA	IS	95.5	60 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
18O2-PFHxS	IS	92.1	60 - 130		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C2-6:2 FTS	IS	98.5	40 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C2-PFOA	IS	93.6	60 - 130		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C5-PFNA	IS	92.6	50 - 130		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C8-PFOSA	IS	66.9	20 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C8-PFOS	IS	92.6	60 - 130		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1

Sample ID: 2232050003

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Location: CL Stratham Green - Well 3
Matrix: Aqueous
Date Collected: 22-Mar-19 10:35

Laboratory Data

Lab Sample: 1900522-04
Date Received: 26-Mar-19 09:24
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	88.0	60 - 130		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C2-8:2 FTS	IS	105	40 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
d3-MeFOSAA	IS	92.8	50 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
d5-EtFOSAA	IS	94.4	50 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C2-PFUnA	IS	88.9	60 - 130		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C2-PFDoA	IS	89.7	30 - 130		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
d3-MeFOSA	IS	20.9	10 - 130		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C2-PFTeDA	IS	87.8	20 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
d5-EtFOSA	IS	21.5	10 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
13C2-PFHxDA	IS	77.8	20 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
d7-MeFOSE	IS	53.4	10 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1
d9-EtFOSE	IS	54.8	10 - 150		B9D0034	04-Apr-19	0.248 L	05-Apr-19 21:23	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Vista Analytical Laboratory

Sample ID: 2236130002

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Location: 157 Portsmouth Ave
Matrix: Aqueous
Date Collected: 22-Mar-19 13:05

Laboratory Data

Lab Sample: 1900522-05
Date Received: 26-Mar-19 09:24
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	16.6	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFPeA	2706-90-3	59.9	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFBS	375-73-5	15.2	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFHxA	307-24-4	52.7	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFHpA	375-85-9	16.3	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFHxS	355-46-4	222	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
6:2 FTS	27619-97-2	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFOA	335-67-1	84.1	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFHpS	375-92-8	4.23	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFNA	375-95-1	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFOSA	754-91-6	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFOS	1763-23-1	206	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFDA	335-76-2	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
8:2 FTS	39108-34-4	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
MeFOSAA	2355-31-9	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
EtFOSAA	2991-50-6	2.98	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFUnA	2058-94-8	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFDS	335-77-3	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFDoA	307-55-1	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
MeFOSA	31506-32-8	ND	9.71		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFTrDA	72629-94-8	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFTeDA	376-06-7	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
EtFOSA	4151-50-2	ND	9.71		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
PFHxDA	67905-19-5	ND	1.94		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
MeFOSE	24448-09-7	ND	9.71		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
EtFOSE	1691-99-2	ND	9.71		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	101	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C3-PFPeA	IS	93.0	60 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C3-PFBS	IS	109	60 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C2-PFHxA	IS	98.9	70 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C4-PFHpA	IS	95.4	60 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
18O2-PFHxS	IS	104	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C2-6:2 FTS	IS	107	40 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C2-PFOA	IS	92.3	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C5-PFNA	IS	87.1	50 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C8-PFOSA	IS	65.1	20 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C8-PFOS	IS	98.0	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1

Sample ID: 2236130002

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS
Location: 157 Portsmouth Ave
Matrix: Aqueous
Date Collected: 22-Mar-19 13:05

Laboratory Data

Lab Sample: 1900522-05
Date Received: 26-Mar-19 09:24
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	89.7	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C2-8:2 FTS	IS	94.6	40 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
d3-MeFOSAA	IS	87.7	50 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
d5-EtFOSAA	IS	90.8	50 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C2-PFUnA	IS	88.0	60 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C2-PFDoA	IS	87.3	30 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
d3-MeFOSA	IS	22.3	10 - 130		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C2-PFTeDA	IS	90.6	20 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
d5-EtFOSA	IS	25.9	10 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
13C2-PFHxDA	IS	86.3	20 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
d7-MeFOSE	IS	51.8	10 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1
d9-EtFOSE	IS	52.5	10 - 150		B9D0034	04-Apr-19	0.258 L	05-Apr-19 22:06	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limits of Detection
LOQ	Limits of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	015
Texas Commission on Environmental Quality	T104704189-19-10
Virginia Department of General Services	9618
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Laboratory Project ID: 1900522 Temp: 0.8 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: General PWS Site ID: — Town: Stratham, NH
Sampler:

TAT (check one): Standard: [X] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to:	Name	Company	Address	City	State	Zip	Acct	Ph#	Fax#
4718	Keith DuBois	NH Dept of Environmental Services	29 Hazen Drive	Concord	NH	03301	NHDES Acct	603-271-4978	

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916)

Method of Shipment: FedEx

ATTN: Sample Receiving

Tracking No.:

Add Analysis(es) Requested

Container(s)

Preservation = Trizma

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFCs Isotope Dil-26 Cmpds
2236100001	3/22/19	10:08	142 Portsmouth Ave	2		AQ	X
2232050001	3/22/19	10:40	CL Stratham Green-Well 4	2		AQ	X
2232050002	3/22/19	10:55	CL Stratham Green-Well 2	2		AQ	X
2232050003	3/22/19	10:35	CL Stratham Green-Well 3	2		AQ	X
2236130002	3/22/19	13:05	157 Portsmouth Ave	2		AQ	X

Special Instructions and Comments:

1. Method: PFCs Isotope Dilution - 26 Compounds

Relinquished by	Date/Time	Temp °C	Received by	Date/time	Temp °C
[signature]	14:07 3/22/19	1.1	DES Cold Storage	14:07 3/22/19	1.1
[signature]	3/25/19 1439	4.8	Shipping Cooler	3/25/19	4.8
SHIPPING COOLER →			Kim Eric [signature]	03/26/19 0924	0.8

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1900522 TAT std

Samples Arrival:	Date/Time 03/26/19 0924	Initials: KE	Location: WR-2 Shelf/Rack: NA
Logged In:	Date/Time 03/26/19 1218	Initials: KE	Location: WR-2 Shelf/Rack: A3/E5

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 0.9 (uncorrected)	Probe used: Y / N	Thermometer ID: FR-4
Temp °C: 0.8 (corrected)		

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?		✓		
Shipping Documentation Present?		✓		
Airbill —	Trk # 7862 4065 8429	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓		
COC Anomaly/Sample Acceptance Form completed?			✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?					✓	✓
Preservation Documented:	$Na_2S_2O_3$ Other	Trizma	None		Yes	No NA
Shipping Container	Vista	Client	Retain	Return	Dispose	

Comments:

April 15, 2019

Vista Work Order No. 1900521

Mr. Brandon Kernen
New Hampshire DES
29 Hazen Road
Concord, NH 03302

Dear Mr. Kernen,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on March 26, 2019 under your Project Name 'General PWS/ Fire Station PFAS'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1900521
Case Narrative

Sample Condition on Receipt:

One aqueous sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method

The sample was extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method (Modified EPA Method 537). The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1900521-01	MTBE_1151	22-Mar-19 11:05	26-Mar-19 09:24	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Matrix: Aqueous
Project: General PWS/ Fire Station PFAS

Laboratory Data

Lab Sample: B9D0034-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFPeA	2706-90-3	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFBS	375-73-5	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFHxA	307-24-4	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFHpA	375-85-9	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFHxS	355-46-4	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
6:2 FTS	27619-97-2	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFOA	335-67-1	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFHpS	375-92-8	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFNA	375-95-1	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFOSA	754-91-6	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFOS	1763-23-1	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFDA	335-76-2	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
8:2 FTS	39108-34-4	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
MeFOSAA	2355-31-9	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
EtFOSAA	2991-50-6	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFUnA	2058-94-8	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFDS	335-77-3	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFDoA	307-55-1	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
MeFOSA	31506-32-8	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFTrDA	72629-94-8	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFTeDA	376-06-7	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
EtFOSA	4151-50-2	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
PFHxDA	67905-19-5	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
MeFOSE	24448-09-7	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
EtFOSE	1691-99-2	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	104	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C3-PFPeA	IS	98.2	60 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C3-PFBS	IS	101	60 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFHxA	IS	97.2	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C4-PFHpA	IS	99.6	60 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
18O2-PFHxS	IS	102	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-6:2 FTS	IS	101	40 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFOA	IS	94.6	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C5-PFNA	IS	92.2	50 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C8-PFOSA	IS	53.0	20 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C8-PFOS	IS	99.2	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Matrix: Aqueous
Project: General PWS/ Fire Station PFAS

Laboratory Data

Lab Sample: B9D0034-BLK1
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	86.2	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-8:2 FTS	IS	95.6	40 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d3-MeFOSAA	IS	82.8	50 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d5-EtFOSAA	IS	88.5	50 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFUnA	IS	85.2	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFDoA	IS	81.6	30 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d3-MeFOSA	IS	19.6	10 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFTeDA	IS	89.8	20 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d5-EtFOSA	IS	22.6	10 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
13C2-PFHxDA	IS	88.2	20 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d7-MeFOSE	IS	45.1	10 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1
d9-EtFOSE	IS	42.3	10 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:30	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Vista Analytical Laboratory

Sample ID: OPR **PFAS Isotope Dilution Method**

Client Data

Name: New Hampshire DES
Project: General PWS/ Fire Station PFAS
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0034-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	42.7	40.0	107	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFPeA	2706-90-3	41.4	40.0	104	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFBS	375-73-5	42.8	40.0	107	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFHxA	307-24-4	42.6	40.0	106	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFHpA	375-85-9	42.0	40.0	105	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFHxS	355-46-4	42.2	40.0	105	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
6:2 FTS	27619-97-2	43.4	40.0	108	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFOA	335-67-1	42.7	40.0	107	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFHpS	375-92-8	43.5	40.0	109	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFNA	375-95-1	44.3	40.0	111	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFOSA	754-91-6	45.2	40.0	113	70 - 130	Q	B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFOS	1763-23-1	42.2	40.0	105	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFDA	335-76-2	46.1	40.0	115	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
8:2 FTS	39108-34-4	46.4	40.0	116	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
MeFOSAA	2355-31-9	41.2	40.0	103	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
EtFOSAA	2991-50-6	43.1	40.0	108	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFUnA	2058-94-8	42.0	40.0	105	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFDS	335-77-3	38.3	40.0	95.8	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFDoA	307-55-1	40.0	40.0	100	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
MeFOSA	31506-32-8	235	200	117	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFTrDA	72629-94-8	42.3	40.0	106	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFTeDA	376-06-7	44.9	40.0	112	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
EtFOSA	4151-50-2	247	200	123	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
PFHxDA	67905-19-5	42.8	40.0	107	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
MeFOSE	24448-09-7	238	200	119	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
EtFOSE	1691-99-2	229	200	114	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.2	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C3-PFPeA	IS	99.6	60- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C3-PFBS	IS	96.9	60- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFHxA	IS	104	70- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C4-PFHpA	IS	103	60- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
18O2-PFHxS	IS	98.6	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-6:2 FTS	IS	100	40- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFOA	IS	102	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS/ Fire Station PFAS
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0034-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C5-PFNA	IS	88.4	50- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C8-PFOSA	IS	48.0	20- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C8-PFOS	IS	98.0	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFDA	IS	84.4	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-8:2 FTS	IS	90.4	40- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d3-MeFOSAA	IS	85.2	50- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d5-EtFOSAA	IS	82.5	50- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFUnA	IS	88.3	60- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFDoA	IS	90.6	30- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d3-MeFOSA	IS	22.2	10- 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFTeDA	IS	85.0	20- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d5-EtFOSA	IS	25.6	10- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
13C2-PFHxDA	IS	84.6	20- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d7-MeFOSE	IS	41.5	10- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1
d9-EtFOSE	IS	42.0	10- 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:20	1

Sample ID: MTBE_1151

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS/ Fire Station PFAS
Location: Mech Room Fire Station
Matrix: Aqueous
Date Collected: 22-Mar-19 11:05

Laboratory Data

Lab Sample: 1900521-01
Date Received: 26-Mar-19 09:24
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	6.72	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFPeA	2706-90-3	20.1	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFBS	375-73-5	4.61	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFHxA	307-24-4	21.3	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFHpA	375-85-9	11.1	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFHxS	355-46-4	57.6	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
6:2 FTS	27619-97-2	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFOA	335-67-1	33.4	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFHpS	375-92-8	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFNA	375-95-1	2.11	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFOSA	754-91-6	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFOS	1763-23-1	149	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFDA	335-76-2	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
8:2 FTS	39108-34-4	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
MeFOSAA	2355-31-9	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
EtFOSAA	2991-50-6	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFUnA	2058-94-8	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFDS	335-77-3	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFDoA	307-55-1	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
MeFOSA	31506-32-8	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFTrDA	72629-94-8	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFTeDA	376-06-7	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
EtFOSA	4151-50-2	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
PFHxDA	67905-19-5	ND	2.00		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
MeFOSE	24448-09-7	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
EtFOSE	1691-99-2	ND	10.0		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	101	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C3-PFPeA	IS	97.0	60 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C3-PFBS	IS	96.4	60 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C2-PFHxA	IS	96.6	70 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C4-PFHpA	IS	99.6	60 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
18O2-PFHxS	IS	98.3	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C2-6:2 FTS	IS	94.9	40 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C2-PFOA	IS	93.7	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C5-PFNA	IS	95.2	50 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C8-PFOSA	IS	57.3	20 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C8-PFOS	IS	92.7	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1

Sample ID: MTBE_1151

PFAS Isotope Dilution Method

Client Data

Name: New Hampshire DES
Project: General PWS/ Fire Station PFAS
Location: Mech Room Fire Station
Matrix: Aqueous
Date Collected: 22-Mar-19 11:05

Laboratory Data

Lab Sample: 1900521-01
Date Received: 26-Mar-19 09:24
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	85.2	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C2-8:2 FTS	IS	98.9	40 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
d3-MeFOSAA	IS	88.7	50 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
d5-EtFOSAA	IS	86.4	50 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C2-PFUnA	IS	89.9	60 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C2-PFDoA	IS	89.2	30 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
d3-MeFOSA	IS	22.4	10 - 130		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C2-PFTeDA	IS	89.5	20 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
d5-EtFOSA	IS	25.5	10 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
13C2-PFHxDA	IS	87.1	20 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
d7-MeFOSE	IS	57.0	10 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1
d9-EtFOSE	IS	54.5	10 - 150		B9D0034	04-Apr-19	0.250 L	05-Apr-19 20:41	1

RL - Reporting limit

Results reported to RL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
D	Dilution
DL	Detection limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limits of Detection
LOQ	Limits of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	015
Texas Commission on Environmental Quality	T104704189-19-10
Virginia Department of General Services	9618
Washington Department of Ecology	C584-19
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Laboratory Project ID: 1900521 Temp: 0.8 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: Fire Station PFAS - ? General PWS
Site ID:
Town: Stratham
Sampler: Stephen Roy / DWGB / 603.271.3918

TAT (check one): Standard: [X] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to:	Name	Company	Address	City	State	Zip	Acct	Ph#	Fax#
4718	Keith DuBois	NH Dept of Environmental Services	29 Hazen Drive	Concord	NH	03301	NHDES Acct	603-271-4978	

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916)

Method of Shipment: FedEx

ATTN: Sample Receiving

Tracking No.:

Add Analysis(es) Requested

Container(s)

Preservation = Trizma

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFC's Isotope Dil-26 Cmpds
~~4 Winnicott~~ (SB) MTBE - #1151	3/22/19	~~[illegible]~~ 1105	Mech Room Fire Station	2	HDPE	Aq	X

Special Instructions and Comments:

1. Method: PFCs Isotope Dilution - 26 Compounds

Relinquished by	Date/Time	Temp °C	Received by	Date/time	Temp °C
Stephen Roy / Stephen Roy	3.22.19 / 1324		Limno Fridge		
[signature]	3/25/19 1439	4.8	Shipping Cooler	3/25 1439	4.8
SHIPPING →			Kim Gerick	03/26/19 0924	0.8 °C

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1900521 TAT std

Samples Arrival:	Date/Time 03/26/19 0924	Initials: KE	Location: WR-2 Shelf/Rack: NA
Logged In:	Date/Time 03/26/19 1136	Initials: KE	Location: WR-2 Shelf/Rack: A3/E5

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 0.9 (uncorrected)	Probe used: Y / N	Thermometer ID: FR-4
Temp °C: 0.8 (corrected)		

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?		✓		
Shipping Documentation Present?		✓		
Airbill —	Trk # 7862 4065 8429	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓		
COC Anomaly/Sample Acceptance Form completed?			✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?		✓		✓
Preservation Documented:	$Na_2S_2O_3$ Trizma None Other	Yes	No	NA
Shipping Container	Vista / Client / Retain / Return		Dispose	

Comments:

APPENDIX B

Photographs

Photographs
Stratham Fire Department
4 Winnicutt Road
Stratham, New Hampshire
NHDES Site #199507007

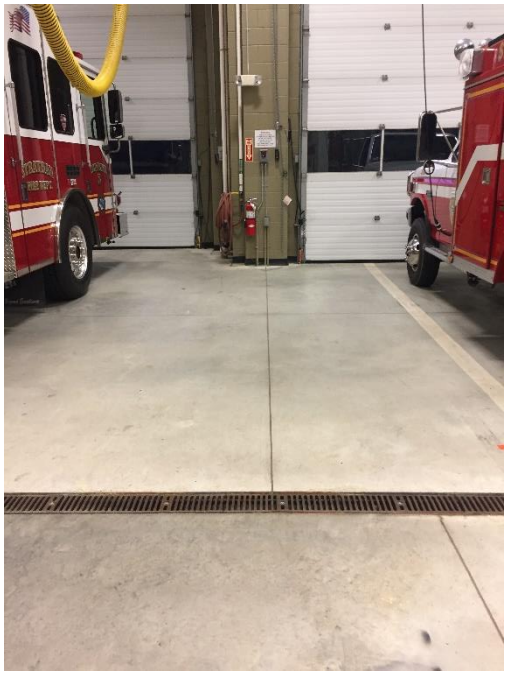


Photo 1: Interior fire truck bays with floor drain.

Photo 2: Float switch alarm on the wall for exterior subsurface tanks.

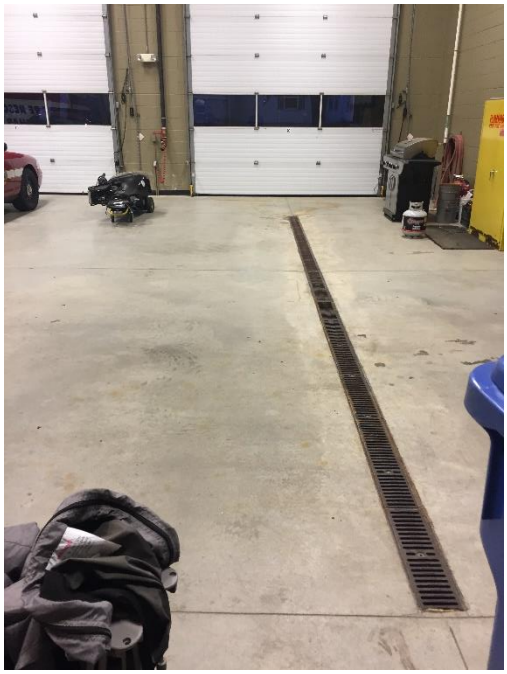


Photo 3: Floor drains beneath parked fire trucks.

Photo 4: Floor drain and shower in equipment decon room. Floor drain and shower drain go to separate exterior subsurface tanks.

Photographs
Stratham Fire Department
4 Winnicutt Road
Stratham, New Hampshire
NHDES Site #199507007

Photo 5: Equipment storage gear room with floor drain.

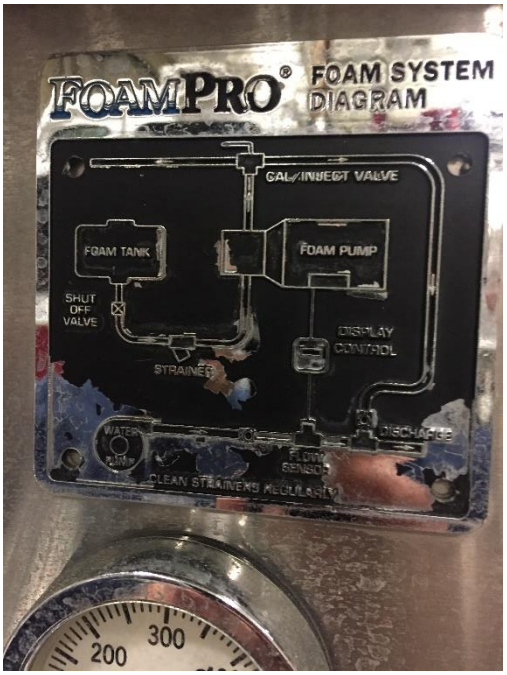


Photo 6: Foam system schematic and pressure gauge on side of fire truck.

Photo 7: Decon sink in equipment storage room.

Photo 8: Foam level indicator on side of fire truck.

Photographs
Stratham Fire Department
4 Winnicutt Road
Stratham, New Hampshire
NHDES Site #199507007

Photo 9: Clothes washing machine inside equipment storage room.

Photo 10: Photographs of former SFD building.

APPENDIX C

Soil Boring Logs and Monitoring Well Construction Details

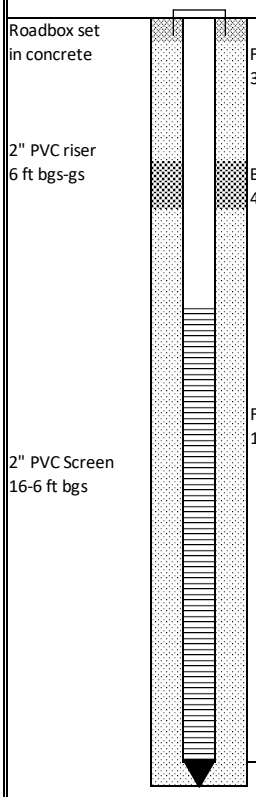
WILCOX & BARTON, INC.

SOIL BORING LOG
BORING NO: B(MW)-101

PROJECT: Stratham Fire Department	SHEET NO. : 1 of 1
CLIENT: Town of Stratham	JOB NO.: STRT0001
BORING CONTRACTOR: Geosearch, Inc.	TOC ELEVATION:
GROUNDWATER MEASUREMENTS:	DATE STARTED: 6-27-19
	DATE FINISHED: 6-27-19
	DRILLER: Kenny and Logan
	INSPECTOR: C. Smith and M. Eyster
	DRILL RIG: CME 550C-07

DATE	TIME	WATER DEPTH	REFERENCE		CASING	SAMPLE	CORE	TUBE
				TYPE	HSA	SS		
				DIAMETER	4.25 inch	2 inch		
				WEIGHT		140 lbs		
				FALL		30"		

WELL CONSTRUCTION



DEPTH (ft)	SAMPLE NO.	RECOVERY (ft)	BLOWS PER 0.5 FOOT	CLASSIFICATION	PID (ppm) RF = 0.6
1	S-1	1.4 / 2.0	2	0-6": brown TOPSOIL, some Gravel, no odor, dry.	0.1
			6	6-12": tan/gray SAND, some Gravel, no odor, dry.	
2			4	12-24": tan SILT, some very fine Sand, no odor, dry.	0.0
			4		
3	S-2	1.9 / 2.0	12	24-30": tan SILT, some very fine Sand, trace gravel, no odor, dry.	0.0
			12	30-48": tan SILT, some very fine Sand, no odor, dry.	
4			11		0.1
			11		
5	S-3	2.0 / 2.0	6	48-52": brown SILT, some Gravel, dry, no odor.	0.3
			7	52-72": tan SILT, some very fine Sand, dry, no odor.	
6			8		0.3
			8		
7	S-4	1.55 / 2.0	4	72-76": brown/tan SILT, medium Gravel, dry, no odor.	0.4
			8	76-84": tan SILT, some very fine Sand, dry, no odor.	
8			9	84-96": light reddish brown SILT, some Gravel, dry, no odor.	0.3
			15		
9	S-5	1.65 / 2.0	5	96-100": tan SILT, little gravel, dry, no odor.	0.1
			9	100-110": brown SILT, some Gravel, dry, no odor.	
10			12	110-120": some gray Gravel, some brown Silt, dry, no odor.	0.1
			14		
11	S-6	2.0 / 2.0	12	120-128": brown SILT, some Gravel, dry, no odor.	0.1
			11	128-132": gray GRAVEL, some brown Silt, dry, no odor.	
12			35	132-144": gray GRAVEL, little gray Silt, dry, no odor.	0.1
			62		
13	S-7	1.7 / 2.0	42	144-150": gray GRAVEL, some brown Silt, dry, no odor.	0.1
			17	150-156": gray GRAVEL, trace gray silt, dry, no odor.	
14			19	150-168": blue/gray SILT, some gray Bedrock, minor clay, dry, no odor.	0.1
			21		
15	S-8	NA	17	168-170": brown SILT, minor clay, moist, no odor.	0.2
			50 for 5"	170-175.2": gray weathered BEDROCK, some gray Silt, dry, no odor.	
16				Wet @ 186".	
17				Split spoon hit refusal @ 14.5 ft bgs. Augered down to 16 ft bgs, hit refusal on bedrock @ 16 ft bgs. Well set @ 16 ft bgs.	
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29				HSA = hollow stem auger.	
30				SS = split spoon.	
31				ft (a/b)gs = feet (above/below) ground surface.	
32				PID = Photoionization detector, measuring organic vapors in parts per million (ppm) by volume.	
33				RF = Response factor.	

EXCEL FILENAME: STRT0001_Boring Logs

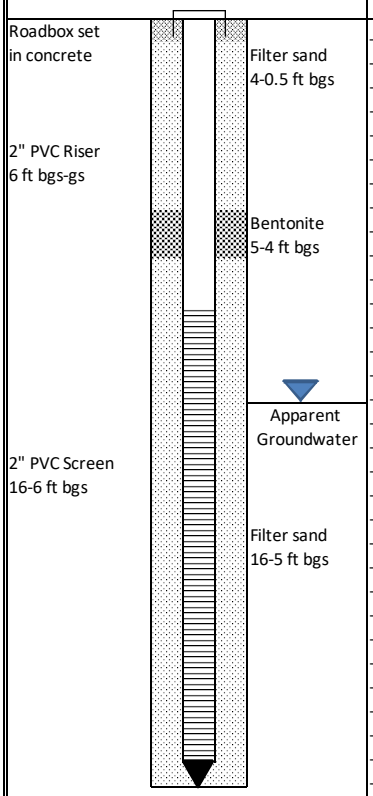
WILCOX & BARTON, INC.

SOIL BORING LOG
BORING NO: B(MW)-102

PROJECT: Stratham Fire Department	SHEET NO. : 1 of 1
CLIENT: Town of Stratham	JOB NO.: STRT0001
BORING CONTRACTOR: Geosearch, Inc.	TOC ELEVATION:
GROUNDWATER MEASUREMENTS:	DATE STARTED: 6-27-19
	DATE FINISHED: 6-28-19
	DRILLER: Kenny and Logan
	INSPECTOR: C. Smith and M. Eyster
	DRILL RIG: CME 550C-07

DATE	TIME	WATER DEPTH	REFERENCE		CASING	SAMPLE	CORE	TUBE
				TYPE	HSA	SS		
				DIAMETER	4.25 inch	2 inch		
				WEIGHT		140 lbs		
				FALL		30"		

WELL CONSTRUCTION



DEPTH (ft)	SAMPLE NO.	RECOVERY (ft)	BLOWS PER 0.5 FOOT	CLASSIFICATION	PID (ppm) RF = 0.6
1	S-1	0.9 / 2.0	9	0-6": ASPHALT.	0.1
			11	6-21": brown FM SAND, some Silt, some gray Gravel, dry, no odor.	
			11	21-24": tan SILT, some very fine Sand, dry, no odor.	0.1
2			8		
3	S-2	1.55 / 2.0	9	24-48": tan SILT, very fine Sand, dry, no odor.	0.1
			9		
			8		0.0
4			9		
5	S-3	1.45 / 2.0	5	48-72" tan SILT, some very fine Sand, dry, no odor	0.1
			6		
			6		0.0
6			7		
7	S-4	1.8 / 2.0	7	72-96": brownish tan SILT, some very fine Sand, moist, no odor.	0.0
			7		
			8		0.0
8			8	Wet @ 96".	
9	S-5	1.85 / 2.0	3	96-120": brownish tan SILT, some very fine Sand, wet, no odor.	0.0
			5		
			5		0.3
10			3		
11	S-6	1.75 / 2.0	2	120-138": brownish tan SILT, some very fine Sand, wet, no odor.	0.0
			2		
			2		0.0
12			2	138-144": brown/gray CLAY, little brown silt, wet, no odor.	
13	S-7	2.0 / 2.0	3	144-156": tanish brown very fine to fine SAND, some Silt, wet, no odor.	0.0
			7	156-168": brown SILT, some very fine Sand, moist, no odor.	
			7		0.0
14			7		
15	S-8	2.0 / 2.0	4	168-192": gray CLAY, minor silt, wet, no odor.	0.0
			4		
			7		0.0
16			7		
17				Boring terminated @ 16 ft bgs. Well set @ 16 ft bgs.	
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29				HSA = hollow stem auger.	
30				SS = split spoon.	
31				ft (a/b)gs = feet (above/below) ground surface.	
32				PID = Photoionization detector, measuring organic vapors in parts per million (ppm) by volume.	
33				RF = Response factor.	

EXCEL FILENAME: STRT0001_Boring Logs

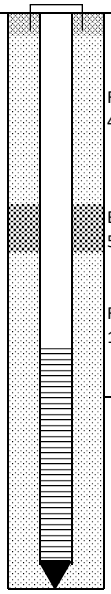
WILCOX & BARTON, INC.

SOIL BORING LOG
BORING NO: B(MW)-103

PROJECT: Stratham Fire Department	SHEET NO. : 1 of 1
CLIENT: Town of Stratham	JOB NO.: STRT0001
BORING CONTRACTOR: Geosearch, Inc.	TOC ELEVATION:
GROUNDWATER MEASUREMENTS:	DATE STARTED: 6-28-19
	DATE FINISHED: 6-28-19
	DRILLER: Kenny and Logan
	INSPECTOR: C. Smith and M. Eyster
	DRILL RIG: CME 550C-07

DATE	TIME	WATER DEPTH	REFERENCE		CASING	SAMPLE	CORE	TUBE
				TYPE	HSA	SS		
				DIAMETER	4.25 inch	2 inch		
				WEIGHT		140 lbs		
				FALL		30"		

WELL CONSTRUCTION



(ft)	SAMPLE NO.	RECOVERY (ft)	BLOWS PER 0.5 FOOT	CLASSIFICATION	PID (ppm) RF = 0.6
1	S-1	0.65 / 2.0	3	0-12": TOPSOIL, brownish black SILT, little gravel, dry, no odor .	0.0
			8	12-24": brown SILT, some Gravel, dry, no odor.	
			15	(rock inhibited recovery)	0.0
2			15		
3	S-2	2.0 / 2.0	10	24-36": tan SILT, some very fine Sand, dry, no odor.	0.0
			11	36-42": brown SILT, some fine to medium Sand, some gray Gravel, dry, no odor.	
			9		0.0
4			7	42-48": gray CLAY, some Silt, trace gravel, dry, no odor.	
5	S-3	2.0 / 2.0	4	48-66": blue/gray CLAY, some Silt, dry, no odor.	0.0
			4		
			12		0.0
6			10	66-72": brown SILT, some Gravel, dry, no odor.	
7	S-4	1.3 / 2.0	5	72-96": blueish gray CLAY, some weathered Rock, some brown Silt, dry, no odor.	0.0
			12		
			16	(rock inhibited recovery)	0.0
8			16	Wet @ 96".	
9	S-5	1.46 / 2.0	6	96-102": brown SILT, some Clay, some weathered Rock, moist, no odor.	0.0
			12	102-108": grayish blue CLAY, some weathered Rock, moist, no odor.	
			11	108-120": weathered BEDROCK, some Silt, moist, no odor.	0.0
10			15		
11	S-6	1.55 / 1.75	15	120-132": brown weathered BEDROCK, fine to medium Sand, little brown silt, wet, no odor.	0.0
			35		
			35	132-141": grayish tan weathered BEDROCK, some Silt, dry, no odor.	0.0
12			50 for 3"		
13				Hit refusal @ 11.75 ft bgs. Augered down to 12 ft bgs.	
				Well set @ 12 ft bgs.	
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29				HSA = hollow stem auger.	
				SS = split spoon.	
30				ft (a/b)gs = feet (above/below) ground surface.	
				PID = Photoionization detector, measuring organic vapors in parts per million (ppm) by volume.	
31				RF = Response factor.	
32					
33					

EXCEL FILENAME: STRT0001_Boring Logs

WILCOX & BARTON, INC.

SOIL BORING LOG
BORING NO: B(MW)-104

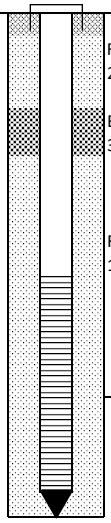
PROJECT: Stratham Fire Department	SHEET NO. : 1 of 1
CLIENT: Town of Stratham	JOB NO.: STRT0001
BORING CONTRACTOR: Geosearch, Inc.	TOC ELEVATION:
	DATE STARTED: 6-28-19
	DATE FINISHED: 6-28-19
	DRILLER: Kenny and Logan
	INSPECTOR: C. Smith and M. Eyster
	DRILL RIG: CME 550C-07

GROUNDWATER MEASUREMENTS:

DATE	TIME	WATER DEPTH	REFERENCE

	CASING	SAMPLE	CORE	TUBE
TYPE	HSA	SS		
DIAMETER	4.25 inch	2 inch		
WEIGHT		140 lbs		
FALL		30"		

WELL CONSTRUCTION



Roadbox set in concrete

Filter sand 2-0.5 ft bgs

Bentonite 3-2 ft bgs

2" PVC Riser 5.5 ft bgs-gs

Filter sand 10.5-3 ft bgs

2" PVC Screen 10.5-5.5 ft bgs

Apparent Groundwater

DEPTH (ft)	SAMPLE NO.	RECOVERY (ft)	BLOWS PER 0.5 FOOT	CLASSIFICATION	PID (ppm) RF = 0.6
1	S-1	2.0 / 2.0	12	0-4" brown TOPSOIL, some Silt, dry, no odor.	6.1
			5	4-8" gray GRAVEL, some fine to medium Sand, dry, no odor.	
			5	8-12" brown SILT, little clay, dry, no odor.	6.1
2			6	12-24" tan/rusty SILT, some very fine Sand, dry, no odor.	
3	S-2	1.1 / 2.0	11	24-25" tan/rusty SILT, some very fine Sand, dry, no odor.	1.0
			18	25-26" gray GRAVEL, some FM Sand, dry, no odor.	
			22	26-36" grayish rusty SILT, some Clay, some weathered Rock, no odor.	0.6
4			14	36-48" brown SILT, little weathered rock, dry, no odor.	
5	S-3	2.0 / 2.0	7	48-52": brown SILT, some MF Sand, some Gravel, dry, no odor.	0.0
			10	52-64": brown SILT, some weathered Rock, moist, no odor.	
			22	64-72": weathered ROCK, some Silt, moist, no odor.	0.0
6			24		
7	S-4	1.65 / 2.0	14	72-82": brown SILT, some fine to medium Sand, moist, no odor.	0.0
			14	82-84": gray GRAVEL, some brown Silt, dry, no odor.	
			20	84-96": brownish gray CLAY, some Silt, some weathered Rock, moist, no	0.0
8			20	odor. Wet @ 96".	
9	S-5	1.35 / 2.0	6	96-102": brown CLAY, some weathered Bedrock, wet, no odor.	0.0
			30	102-120": weathered BEDROCK, little brown silt, wet, no odor.	
			17	(rock inhibited recovery)	0.0
10			11		
11	S-6	0.95 / 0.58	11	120-127": gray weathered BEDROCK, some brown Clay, wet, no odor.	0.0
			50 for 1"		
12					0.0
13				Hit refusal @ 10.6 ft bgs. Well set @ 10.5 ft bgs.	
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29				HSA = hollow stem auger.	
				SS = split spoon.	
30				ft (a/b)gs = feet (above/below) ground surface.	
				PID = Photoionization detector, measuring organic vapors in parts per million (ppm) by volume.	
31				RF = Response factor.	
32					
33					

EXCEL FILENAME: STRT0001_Boring Logs

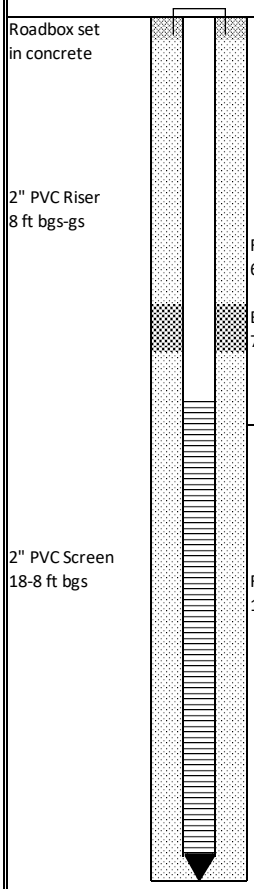
WILCOX & BARTON, INC.

SOIL BORING LOG
BORING NO: B(MW)-105

PROJECT: Stratham Fire Department	SHEET NO. : 1 of 1
CLIENT: Town of Stratham	JOB NO.: STRT0001
BORING CONTRACTOR: Geosearch, Inc.	TOC ELEVATION:
GROUNDWATER MEASUREMENTS:	DATE STARTED: 6-28-19
	DATE FINISHED: 6-28-19
	DRILLER: Kenny and Logan
	INSPECTOR: C. Smith and M. Eyster
	DRILL RIG: CME 550C-07

DATE	TIME	WATER DEPTH	REFERENCE		CASING	SAMPLE	CORE	TUBE
				TYPE	HSA	SS		
				DIAMETER	4.25 inch	2 inch		
				WEIGHT		140 lbs		
				FALL		30"		

WELL CONSTRUCTION



DEPTH (ft)	SAMPLE NO.	RECOVERY (ft)	BLOWS PER 0.5 FOOT	CLASSIFICATION	PID (ppm) RF = 0.6
1	S-1	1.4 / 2.0	15	0-6": ASPHALT.	0.1
			14	6-18": brown FM SAND, some brown Silt, some Gravel, dry, no odor.	
			14	18-24": tan SILT, some very fine Sand, dry, no odor.	0.0
2			21		
3	S-2	2.0 / 2.0	21	24-30": brown SILT, some Gravel, dry, no odor.	0.2
			21	30-48": tan SILT, some very fine Sand, dry, no odor.	
			18		0.0
4			14		
5	S-3	1.8 / 2.0	5	48-51": gray MC SAND, some Gravel, some Silt, dry, no odor.	0.0
			11	51-72": tan SILT, some very fine Sand, dry, no odor.	
			13		0.0
6			9		
7	S-4	1.9 / 2.0	8	72-96": tan SILT, some very fine Sand, trace gravel, moist, no odor.	0.1
			9		
			9		0.0
8			9		
9	S-5	1.1 / 2.0	5	96-120": tan/rusty SILT, some very fine Sand, wet, no odor.	0.0
			5	Wet @ 102".	
			6		0.0
10			7		
11	S-6	1.85 / 2.0	4	120-128": brownish gray CLAY, some Silt, wet, no odor.	0.0
			6	128-144": tan/gray SILT, some very fine Sand, wet, no odor.	
			3		0.0
12			3		
13	S-7	2.0 / 2.0	4	144-156": brownish tan SILT, some very fine Sand, wet, no odor.	0.1
			6		
			8	144-156": brownish tan CLAY, some Silt, wet, no odor.	0.1
14			10		
15	S-8	2.0 / 2.0	4	156-192": gray CLAY, trace brown silt, densly packed - water cannot	0.0
			6	penetrate, no odor.	
			6		0.0
16			9		
17	S-9	2.0 / 2.0	9	192-204": brownish tan SAND, some Clay, wet, no odor.	0.1
			10		
			15	204-216": grayish brown CLAY, some brown Silt, densly packed - water	0.0
18			14	cannot penetrate, no odor.	
19				Boring terminated @ 18 ft bgs	
20					
21					
22					
23					
24					
25					
26					
27					
28					
29				HSA = hollow stem auger.	
				SS = split spoon.	
30				ft (a/b)gs = feet (above/below) ground surface.	
				PID = Photoionization detector, measuring organic vapors in parts per million (ppm) by volume.	
31				RF = Response factor.	
32					
33					

EXCEL FILENAME: STRT0001_Boring Logs

APPENDIX D

Wilcox & Barton, Inc. Standard Operating Procedures

Wilcox & Barton INC.
CIVIL · ENVIRONMENTAL · GEOTECHNICAL

STANDARD OPERATING PROCEDURE

Title:	Groundwater Sampling for Per- and Polyfluoroalkyl Substances (PFAS)		**No:** **FP-17**
Approved:	R. Rooks	**Original Date:** 4/14/17	**Revised:**

Purpose:

To provide guidance on proper collection of groundwater samples that will be analyzed for Per- and Polyfluoroalkyl substances (PFAS).

Introduction:

PFAS are a large group of man-made fluorine-containing chemicals with unique properties to make materials to which they are applied stain and stick-resistant. Chemicals in this group have been used in many industries, including aerospace, automotive, construction, manufacturing, electronic, and textile. PFAS have been used since the 1940s as manufacturer-applied oil and water repellants on products such as clothing, upholstery, paper, and carpets, and were also used in making fluoropolymers for non-stick cookware. PFAS have also been used as mist suppressants that can be added to metal plating baths, to prevent air releases, and to firefighting foams used on fires involving flammable liquids.

EPA has established a Drinking Water Health Advisory Level of 70 parts per trillion (ppt, or 0.070 ppb), which is an order of magnitude lower than typical analytes at typical release sites. State-specific limits can be lower. Therefore, preparation and sampling technique are of critical importance to avoid cross- and background contamination. Further, much of our normal sampling equipment contains Teflon and other fluoropolymer materials (e.g., Teflon tubing, Teflon-lined container caps). Tyvek contains PFAS, as do Sharpies, waterproof field logbooks, cosmetics, moisturizers and sunscreens, fabric softener, aluminum foil, Post-it notes, and fast food wrappers. Such materials should not be present at the project site or contacted on the day of the planned sampling event, as discussed further below. Maintain separate coolers for PFAS sampling and do not store PFAS sample containers with other typical containers/glassware.

The mechanical process of groundwater sample collection is the same as sampling groundwater for volatile organics. The key and most important distinction is an ultra-high level of diligence to prevent cross-contamination and background contamination. Read this protocol in its entirety before preparing for a sampling event.

Equipment/Materials*:

1. Water-level indicator or oil/water interface probe.
2. Peristaltic pump and power source.
3. YSI Multi-Probe System.
4. High density polyethylene or silicone tubing (no Teflon) – shall be dedicated for each sampling event and disposable.
5. Bailers (HDPE, no Teflon) – shall be dedicated for each sampling event and disposable
6. Pre-cleaned, laboratory-supplied sampling containers in individual Ziploc bags. The laboratory will send multiple 250-mL polypropylene bottles with wide-mouth screw caps

for each sample location. If sampling groundwater or non-potable water, the bottles will be unpreserved.

7. Loose-leaf note paper for field notes (e.g., project checklist). Waterproof field books shall not be used.
8. Coolers/packing materials/wet ice (no Blu-Ice or chemical packs of any kind).
9. Ball point pen or pencil and metal or Masonite clipboard.

* Materials that are not allowed, per the above, shall not be present on the project site. Where prohibited items are part of routine sampling gear, they should be left inside the field vehicle and not contacted or handled by the field sampler prior to PFAS sample collection.

Sample Collection:

Actual collection of samples in the field shall be performed using low-flow techniques in accordance with *SOP# FP-07* or via bailer in accordance with *SOP# FP-08*. Analytical method SW-846 Method 537 should be specified on the chain of custody.

Duplicates and Blanks:

- Trip Blanks: At least one laboratory-prepared trip blank shall accompany each cooler of samples submitted for PFAS analysis.
- Equipment Blanks: At least one equipment blank shall be collected for each type of equipment for which decontamination is performed. In addition, one equipment blank shall be collected from a representative item of new (unused) equipment (e.g., sample tubing, bailer). Laboratory-supplied reagent-free water shall be used for development of all equipment blanks.
- Field Blanks: At least one field blank shall be collected during each sampling event. The field blank should be prepared by the sampler at the time and site of sample collection using the procedure below, **prior to** collecting any field samples.
    - Open the bottle labeled "reagent free water." Transfer the reagent free water by pouring it into the bottle labeled "Field Blank," then seal it. This is to assess whether contamination occurs during sample collection. The field blank and the empty bottle should be shipped back to the laboratory with the field samples.
- Duplicates: At least one blind replicate or field split shall be collected for each environmental medium sampled. Duplicates should be collected for each drinking water sample submitted, but held at the laboratory for analysis only if PFAS are detected in the original sample. Sample HOLD must be clearly indicated on the chain of custody.

Field Clothing and Personal Protective Equipment:

1. Do not wear water resistant, waterproof, or stain-treated clothing. Synthetic and natural fibers are acceptable. Field clothing must be laundered without the use of fabric softener, and washed at least six times from the time of purchase before use in the field. Do not wear new clothing while sampling.
2. Do not wear clothing or boots containing Gore-Tex or treated with DWR (Durable Water Resistant) coating. All safety footwear shall consist of steel-toed boots made with polyurethane or PVC.

3. Do not wear Tyvek clothing.
4. Disposable nitrile gloves must we worn at all times. Gloves should be changed frequently throughout the sampling operation. Anytime a distinct operation changes, such as between well purging and sample collection, and new pair of gloves should be donned.

Sample Containers:

1. Groundwater samples shall be collected in 250 mL polypropylene or HDPE bottles fitted with an unlined (no Teflon), polypropylene, or HDPE, wide-mouth screw cap. This requirement MUST be specified when ordering sampling supplies from the laboratory.
2. Container labels shall be completed using pen (no markers) after the caps have been placed back on each bottle.
3. Each sample should be placed into an individual, fully-sealed, Ziploc bag and placed in a cooler packed only with ice (wet ice only, no chemical packs).
4. PFAS samples should be placed in a dedicated cooler separate from all other non-PFAS samples.
5. Glass containers shall not be used due to potential loss of analyte through adsorption.

Wet Weather:

Field sampling during wet weather should be conducted while wearing appropriate clothing that will not pose a risk for cross contamination. Rain gear shall be made from polyurethane and wax-coated or oil-cloth materials. Treated textiles shall not be used.

Decontamination:

1. Re-usable equipment, including depth-to-water and oil/water interface meters, shall be decontaminated between measurement points (*i.e.*, wells).
2. Alconox and Liquinox soaps are acceptable. Decon-90 must not be used.
3. Water used for decontamination shall be laboratory-certified PFC-free. Standard de-ionized water shall not be used.
4. Decontamination shall follow the steps outlined in *SOP# FP-06*.

Personal Hygiene:

1. Field personnel may not use cosmetics, moisturizers, hand cream, or other related products as part of their personal cleaning/showering routine on the morning of the sampling event.
2. Sunblock and insect repellants, if used, should consist of 100% natural ingredients. Many manufactured products contain PFAS and are not to be brought to the project site.
3. No food or drink shall be brought on site, with the exception of bottled water and hydration drinks. Food for lunch, preferably from home, can be left in the field vehicle and consumed outside the work area.
4. Field personnel shall not have physical contact with fast food containers or wrappers on the day of the sampling event prior to sampling.

Sampling of Other Media:

When project plans require analysis of soil, sediment, or other non-aqueous media for PFAS, project teams should be aware that there are no established laboratory protocols at this time. However, it is possible that extraction techniques will be developed so that these matrices can be analyzed using EPA Method 537. The Project Manager shall contact the laboratory during the planning stage for sampling all environmental media for PFAS. In general, sample collection will be like normal, subject to the cross-contamination and sample container requirements outline above.

Documentation and Communication

Please note that you have followed PFAS sampling protocols in your field notes along with the weather. If a possible source of cross-contamination is discovered or recalled during or following sampling, please advise the Project Manager so that samples can be re-collected and/or data can be properly evaluated. Reference adherence to standard operating procedure FP-17 in the field notes.

APPENDIX E

Safety Data Sheets

Safety Data Sheet

Document Group:	26-7822-5	**Version Number:**	8.02
Issue Date:	06/20/18	**Supercedes Date:**	01/17/18

SECTION 1: Identification

1.1. Product identifier
D110, Detailer Hyper Wash (24-171E): D11001, D11005

Product Identification Numbers
14-1000-0186-7, 14-1000-0187-5

1.2. Recommended use and restrictions on use

Recommended use
Automotive, Car Wash

1.3. Supplier's details

MANUFACTURER:	Meguiar's, Inc.
DIVISION:	Meguiar's
ADDRESS:	17991 Mitchell South, Irvine, CA 92614, USA
Telephone:	949-752-8000 (Fax: 949-752-5784)

1.4. Emergency telephone number
CHEMTREC 1-800-424-9300 (24 hours)

SECTION 2: Hazard identification

The label elements below were prepared in accordance with OSHA Hazard Communication Standard, 29 CFR 1910.1200. This information may be different from the actual product label information for labels regulated by other agencies.

2.1. Hazard classification
Serious Eye Damage/Irritation: Category 2A.
Skin Corrosion/Irritation: Category 2.
Skin Sensitizer: Category 1A.

2.2. Label elements
Signal word
Warning

Symbols
Exclamation mark |

Pictograms

Hazard Statements
Causes serious eye irritation.
Causes skin irritation.
May cause an allergic skin reaction.

Precautionary Statements
General:
Keep out of reach of children.

Prevention:
Avoid breathing dust/fume/gas/mist/vapors/spray.
Wear protective gloves and eye/face protection.
Wash thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.

Response:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.

Disposal:
Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

3% of the mixture consists of ingredients of unknown acute oral toxicity.
3% of the mixture consists of ingredients of unknown acute dermal toxicity.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
Water	7732-18-5	60 - 80 Trade Secret *
Sodium Mono-C10-16 Alkyl Sulfates	68585-47-7	5 - 10 Trade Secret *
Alcohol Ethoxysulfate (Sodium Salt)	68585-34-2	1 - 5 Trade Secret *
Benzenesulfonic acid, mono-C10-16-alkyl derivs., sodium salts	68081-81-2	1 - 5 Trade Secret *
Cocoamidopropylbetaine	61789-40-0	1 - 5 Trade Secret *
Lauryldimethylamine Oxide	1643-20-5	1 - 5 Trade Secret *
Sodium Chloride	7647-14-5	1 - 5 Trade Secret *
Sodium Xylene Sulfonate	1300-72-7	1 - 5 Trade Secret *
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	68439-57-6	1 - 5 Trade Secret *

5-chloro-2-methyl-4-isothiazoline-3-one	26172-55-4	< 0.002
2-methyl-4-isothiazoline-3-one	2682-20-4	< 0.001

Any remaining components do not contribute to the hazards of this material.

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:
Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye Contact:
Immediately flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. Get medical attention.

If Swallowed:
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
Material will not burn.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Irritant Vapors or Gases	During Combustion

5.3. Special protective actions for fire-fighters
No special protective actions for fire-fighters are anticipated.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with water. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Keep out of reach of children. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage including any incompatibilities
No special storage requirements.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
No occupational exposure limit values exist for any of the components listed in Section 3 of this SDS.

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Indirect Vented Goggles

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. No chemical protective gloves are required. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended: Polymer laminate

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - polymer laminate

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Physical Form:	Liquid
Odor, Color, Grade:	Sweet, clean odor; Bright orange, pourable gel
Odor threshold	*No Data Available*
pH	9 - 9.8
Melting point	*Not Applicable*
Boiling Point	212 ºF
Flash Point	No flash point
Evaporation rate	*No Data Available*
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	*Not Applicable*
Flammable Limits(UEL)	*Not Applicable*
Vapor Pressure	*No Data Available*
Vapor Density	*No Data Available*
Density	1.065 - 1.075 g/ml
Specific Gravity	1.065 - 1.075 [*Ref Std:*WATER=1]
Solubility in Water	Complete
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*Not Applicable*
Decomposition temperature	*No Data Available*
Viscosity	900 - 1,800 centipoise
Molecular weight	*No Data Available*
Volatile Organic Compounds	0 % weight [*Test Method:*calculated per CARB title 2]
Volatile Organic Compounds	3 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Percent volatile	76.2 % weight
VOC Less H2O & Exempt Solvents	12 g/l [*Test Method:*calculated SCAQMD rule 443.1]

SECTION 10: Stability and reactivity

10.1. Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Temperatures above the boiling point

10.5. Incompatible materials
None known.

10.6. Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin Contact:
Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain.
Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye Contact:
Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Sodium Mono-C10-16 Alkyl Sulfates	Dermal	Rat	LD50 > 2,000 mg/kg
Sodium Mono-C10-16 Alkyl Sulfates	Ingestion	Rat	LD50 977 mg/kg
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Dermal	Rat	LD50 > 2,000 mg/kg

Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Ingestion	Rat	LD50 578 mg/kg
Sodium Xylene Sulfonate	Dermal		LD50 estimated to be > 5,000 mg/kg
Sodium Xylene Sulfonate	Ingestion	Rat	LD50 > 5,000 mg/kg
Alcohol Ethoxysulfate (Sodium Salt)	Dermal	Rabbit	LD50 > 2,000 mg/kg
Alcohol Ethoxysulfate (Sodium Salt)	Ingestion	Rat	LD50 > 2,000 mg/kg
Lauryldimethylamine Oxide	Ingestion	Mouse	LD50 2,700 mg/kg
Lauryldimethylamine Oxide	Dermal	Rabbit	LD50 3,536 mg/kg
Cocoamidopropylbetaine	Dermal	Rat	LD50 > 2,000 mg/kg
Cocoamidopropylbetaine	Ingestion	Rat	LD50 > 1,500 mg/kg
Sodium Chloride	Dermal	Rabbit	LD50 > 10,000 mg/kg
Sodium Chloride	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 10.5 mg/l
Sodium Chloride	Ingestion	Rat	LD50 3,550 mg/kg
5-chloro-2-methyl-4-isothiazoline-3-one	Dermal	Rabbit	LD50 87 mg/kg
5-chloro-2-methyl-4-isothiazoline-3-one	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.33 mg/l
5-chloro-2-methyl-4-isothiazoline-3-one	Ingestion	Rat	LD50 40 mg/kg
2-methyl-4-isothiazoline-3-one	Dermal	Rabbit	LD50 87 mg/kg
2-methyl-4-isothiazoline-3-one	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.33 mg/l
2-methyl-4-isothiazoline-3-one	Ingestion	Rat	LD50 40 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Overall product	In vitro data	Irritant
Sodium Mono-C10-16 Alkyl Sulfates	Rabbit	Irritant
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Rabbit	Mild irritant
Alcohol Ethoxysulfate (Sodium Salt)	Human	Irritant
Cocoamidopropylbetaine	Rabbit	Mild irritant
Sodium Chloride	Rabbit	No significant irritation
5-chloro-2-methyl-4-isothiazoline-3-one	Rabbit	Corrosive
2-methyl-4-isothiazoline-3-one	Rabbit	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
Overall product	In vitro data	Severe irritant
Sodium Mono-C10-16 Alkyl Sulfates	Rabbit	Corrosive
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Rabbit	Corrosive
Alcohol Ethoxysulfate (Sodium Salt)	Professional judgement	Severe irritant
Cocoamidopropylbetaine	Rabbit	Corrosive
Sodium Chloride	Rabbit	Mild irritant
5-chloro-2-methyl-4-isothiazoline-3-one	Rabbit	Corrosive
2-methyl-4-isothiazoline-3-one	Rabbit	Corrosive

Skin Sensitization

Name	Species	Value
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Guinea pig	Not classified
Alcohol Ethoxysulfate (Sodium Salt)	Human	Not classified
Cocoamidopropylbetaine	Multiple animal species	Not classified

5-chloro-2-methyl-4-isothiazoline-3-one	Human and animal	Sensitizing
2-methyl-4-isothiazoline-3-one	Human and animal	Sensitizing

Photosensitization

Name	Species	Value
5-chloro-2-methyl-4-isothiazoline-3-one	Human and animal	Not sensitizing
2-methyl-4-isothiazoline-3-one	Human and animal	Not sensitizing

Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	In Vitro	Not mutagenic
Cocoamidopropylbetaine	In Vitro	Not mutagenic
Cocoamidopropylbetaine	In vivo	Not mutagenic
Sodium Chloride	In Vitro	Some positive data exist, but the data are not sufficient for classification
Sodium Chloride	In vivo	Some positive data exist, but the data are not sufficient for classification
5-chloro-2-methyl-4-isothiazoline-3-one	In vivo	Not mutagenic
5-chloro-2-methyl-4-isothiazoline-3-one	In Vitro	Some positive data exist, but the data are not sufficient for classification
2-methyl-4-isothiazoline-3-one	In vivo	Not mutagenic
2-methyl-4-isothiazoline-3-one	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Dermal	Rat	Not carcinogenic
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Ingestion	Rat	Not carcinogenic
Sodium Chloride	Ingestion	Rat	Not carcinogenic
5-chloro-2-methyl-4-isothiazoline-3-one	Dermal	Mouse	Not carcinogenic
5-chloro-2-methyl-4-isothiazoline-3-one	Ingestion	Rat	Not carcinogenic
2-methyl-4-isothiazoline-3-one	Dermal	Mouse	Not carcinogenic
2-methyl-4-isothiazoline-3-one	Ingestion	Rat	Not carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Ingestion	Not classified for female reproduction	Rat	NOAEL 871 mg/kg	2 generation
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Ingestion	Not classified for male reproduction	Rat	NOAEL 891 mg/kg	2 generation
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Ingestion	Not classified for development	Rabbit	NOAEL 600 mg/kg	during organogenesis
5-chloro-2-methyl-4-isothiazoline-3-one	Ingestion	Not classified for female	Rat	NOAEL 10 mg/kg/day	2 generation

5-chloro-2-methyl-4-isothiazoline-3-one	Ingestion	Not classified for male reproduction	Rat	NOAEL 10	2 generation
5-chloro-2-methyl-4-isothiazoline-3-one	Ingestion	Not classified for development	Rat	NOAEL 15 mg/kg/d	during organogenesis
2-methyl-4-isothiazoline-3-one	Ingestion	Not classified for female reproduction	Rat	NOAEL 10	2 generation
2-methyl-4-isothiazoline-3-one	Ingestion	Not classified for male reproduction	Rat	NOAEL 10	2 generation
2-methyl-4-isothiazoline-3-one	Ingestion	Not classified for development	Rat	NOAEL 15 mg/kg/d	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Sodium Mono-C10-16 Alkyl Sulfates	Inhalation	respiratory irritation	May cause respiratory irritation	similar health hazards	NOAEL Not available	
Cocoamidopropylbetaine	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
5-chloro-2-methyl-4-isothiazoline-3-one	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
2-methyl-4-isothiazoline-3-one	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Ingestion	liver	Not classified	Rat	NOAEL 500 mg/kg/day	6 months
Sulfonic Acids, C14-16-Alkane Hydroxy and C14-16 Alkene, Sodium Salts	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 500 mg/kg	6 months
Cocoamidopropylbetaine	Ingestion	heart | endocrine system | hematopoietic system | liver | nervous system | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	92 days
Sodium Chloride	Ingestion	blood | kidney and/or bladder | vascular system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 2,240 mg/kg/day	9 months
Sodium Chloride	Ingestion	nervous system | eyes	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,700 mg/kg/day	90 days
Sodium Chloride	Ingestion	liver | respiratory system	Not classified	Rat	NOAEL 33 mg/kg/day	90 days

Aspiration Hazard
For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information Ecotoxicological information

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

SECTION 13: Disposal considerations

13.1. Disposal methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

SECTION 14: Transport Information

General Transportation Statement: This product does not require classification by DOT, IATA, ICAO or IMDG.

Please contact the emergency numbers listed on the first page of the SDS for Transportation Information for this material.

SECTION 15: Regulatory information

15.1. US Federal Regulations
Contact manufacturer for more information

EPCRA 311/312 Hazard Classifications:

Physical Hazards
Not applicable

Health Hazards
Respiratory or Skin Sensitization
Serious eye damage or eye irritation
Skin Corrosion or Irritation

15.2. State Regulations
Contact manufacturer for more information

15.3. Chemical Inventories
The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the new substance notification requirements of CEPA.

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are in compliance with the chemical notification requirements of TSCA.

Contact manufacturer for more information

15.4. International Regulations
Contact manufacturer for more information

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification
Health: 2 **Flammability:** 0 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

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HAZARD CONTROL TECHNOLOGIES, INC.
FIRE, VAPOR, AND CONTAMINATION CONTROL SOLUTIONS

F-500 Encapsulator Agent

F-500 ENCAPSULATOR AGENT (EA)

F-500 EA is the answer to many of today's firefighting challenges. In a world where fires have become hotter and more difficult to extinguish, F-500 Encapsulator Agent's unique capabilities meet those challenges. First, F-500 EA has a remarkable ability to cool a fire and surrounding structures, with the ability to absorb 6-10 times more heat energy than plain water. Instead of scalding steam, F-500 EA releases a warm vapor. Secondly, F-500 EA encapsulates fuels forming micelles or "chemical cocoons" that render the fuel nonflammable and nonignitable. Finally, F-500 EA interrupts the free radical chain reaction. Free radicals are unburned gases produced during the combustion process that turn into smoke and soot. Inhibiting the chain reaction results in less smoke and toxins and increases visibility.

- Rapid cooling
- Encapsulates the fuel
- Interrupts the free radical chain reaction
- Eliminates almost all cancer-causing toxins in smoke
- Contains no fluorines (PFOS/PFOA)
- Produces no scalding steam

F-500 Encapsulator Agent is not a foam, so it contains no fluorines, such as perfluorooctyl sulfonate (PFOS). F-500 EA is 100% biodegradable and is non-hazardous, containing no ingredients reportable under the Superfund Amendments and Reauthorization Act (SARA) Title III, Section 313 or the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Shelf life is 15 years and it can be discarded as a non-hazardous waste under RCRA CFR261.

These unique properties make F-500 Encapsulator Agent the most versatile firefighting agent available. Where foam has to form and maintain a perfect blanket to separate a fire from oxygen, F-500 EA merely needs to contact the fuel and vapors. F-500 EA is perfect for three-dimensional fires, plus F-500 EA is recommended for Class A, Class B (polar and nonpolar), Class K and Class D fires. There's no need to inventory Class A, AFFF and AR-AFFF foams and specialized agents for Class D fires. F-500 EA can do it all!

One Agent – One Solution!

Class A Fires	½ – 1%	Wood, paper, cloth, rubber, combustible granular and powders
Class B – nonpolar	3%	Gasoline, diesel fuel, heating oil, jet fuel, hydraulic oil
Class B – polar	3%	Ethanol and ethanol-blended fuels (E10 and E85), acetone
Class D	3%	Magnesium, titanium, aluminum

Brochures

BFL_F5_AM_F-500 Brochure_V5B [http://www.hct-world.com/wp-content/uploads/2018/04/BFL_F5_AM_F-500-Brochure_V5B.pdf]

CC_F5_AM_F-500 Advantages_V3 [http://www.hct-world.com/wp-content/uploads/2013/06/CC_F5_AM_F-500-Advantages_V3.pdf]

APP_F5_AM_F-500 US EPA NCP Web Listing [http://www.hct-world.com/wp-content/uploads/2013/06/APP_F5_AM_F-500-US-EPA-NCP-Web-Listing.pdf]

BFL_F5_AM_F-500 EA-3rd Category-Encapsulator Agents_V3 [http://www.hct-world.com/wp-content/uploads/2017/07/BFL_F5_AM_F-500-EA-3rd-Category-Encapsulator-Agents_V3.pdf]

SAFETY DATA SHEET – NMS#420
Universal Gold®C6 1%/3% Alcohol Resistant Aqueous Film Forming Foam Concentrate (AR-AFFF)

1. IDENTIFICATION

Product Name	Universal Gold®C6 1%/3% Alcohol Resistant Aqueous Film Forming Foam Concentrate (AR-AFFF)
Recommended use of the chemical and restrictions on use	
Identified uses	Firefighting Foam Concentrate
Restrictions on Use	See Section 15
Company Identification	National Foam 350 East Union Street West Chester, PA 19382
Customer Information Number	(610) 363-1400
Emergency Telephone Number	Infotrac at (800) 535-5053
Issue Date	February 7, 2019
Supersedes Date	June 18, 2018

Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200, the Canadian Hazardous Products Regulations (HPR) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

2. HAZARD IDENTIFICATION

Hazard Classification
Eye Damage/Irritation – Category 2A

Label Elements
Hazard Symbols

Signal Word: Warning

Hazard Statements
Causes serious eye irritation.

Precautionary Statements
Prevention
Wash hands thoroughly after handling.
Wear eye protection and face protection.
Response
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Storage
None
Disposal
None

Other Hazards
This product contains fluoroalkyl surfactants and should be disposed of by high temperature incineration. See Section 13 for additional information.

2. HAZARD IDENTIFICATION

Specific Concentration Limits
The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity	<5%
Acute dermal toxicity	5 - 15%
Acute inhalation toxicity	15 - 25%
Acute aquatic toxicity	15 - 25%

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CAS Number	Concentration*
Sodium decyl sulfate	142-87-0	1 - 5%
Alkylpolyglycoside	132778-08-6	1 - 5%
Dipropylene Glycol Monomethyl Ether	34590-94-8	1 - 5%

*Exact concentration withheld as trade secret.

4. FIRST- AID MEASURES

Description of necessary first-aid measures
Eyes
Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.
Skin
Wash skin thoroughly with soap and water. Obtain medical attention if irritation persists.
Ingestion
Dilute by drinking large quantities of water and obtain medical attention.
Inhalation
Move victim to fresh air. Obtain medical attention immediately for any breathing difficulty.

Most important symptoms/effects, acute and delayed
Aside from the information found under Description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed
Notes to Physicians
Treat symptomatically.

5. FIRE - FIGHTING MEASURES

Suitable Extinguishing Media
This preparation is used as an extinguishing agent and therefore is not a problem when trying to control a fire. Use extinguishing agent appropriate to other materials involved.

Specific hazards arising from the chemical
None known

5. FIRE - FIGHTING MEASURES

Special Protective Actions for Fire-Fighters
Wear full protective clothing and self-contained breathing apparatus as appropriate for specific fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear appropriate protective clothing. Prevent skin and eye contact.

Environmental Precautions
Prevent foam concentrate or foam solution from entering ground water, surface water, or storm drains. Discharge and disposal of concentrate or foam solution should be made in accordance with federal, state, and local regulations.

Methods and materials for containment and cleaning up
Contain and absorb using appropriate inert material and transfer into suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Wear appropriate protective clothing. Prevent skin and eye contact.

Conditions for safe storage
Store in original containers between 35°F and 120°F (2°C and 49°C). Storage area should be: - cool - dry - well ventilated - under cover - out of direct sunlight

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure limits are listed below, if they exist.

Dipropylene Glycol Monomethyl Ether
ACGIH: TLV 100 ppm, 8hr; 15 min STEL 150 ppm; Skin Designation: air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.
OSHA Z-1 PEL: 100 ppm (600 mg/m3) Limit applies to skin.

Appropriate engineering controls
Use with adequate ventilation. If this product is used in a pressurized system, there should be local procedures for the selection, training, inspection and maintenance of this equipment. When used in large volumes, use local exhaust ventilation.

Individual protection measures
Respiratory Protection
Wear respiratory protection if there is a risk of exposure to high vapor concentrations, aerosols or if applied to hot surfaces. A NIOSH approved full face respirator may be worn. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.
Skin Protection
Gloves

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye/Face Protection
Chemical goggles or safety glasses with side shields.
Body Protection
Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical State	Liquid
Color	Amber
Odor	Mild, pleasant
Odor Threshold	No data available
pH	8.2
Specific Gravity	1.03
Boiling Range/Point (°C/F)	No data available
Melting Point (°C/F)	No data available
Flash Point (°C/F)	>200°F
Vapor Pressure	No data available
Evaporation Rate (BuAc=1)	No data available
Solubility in Water	Soluble
Vapor Density (Air = 1)	Not applicable
VOC (%)	No data available
Partition coefficient (n-octanol/water)	No data available
Viscosity	No data available
Auto-ignition Temperature	Not applicable
Decomposition Temperature	No data available
Upper explosive limit	Not applicable
Lower explosive limit	Not applicable
Flammability (solid, gas)	Not applicable

10. STABILITY AND REACTIVITY

Reactivity
No data available.

Chemical Stability
Stable under normal conditions.

Possibility of hazardous reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Contact with incompatible materials

Incompatible Materials
Water reactive materials – burning metals – electronically energized equipment

Hazardous Decomposition Products
Oxides of carbon – hydrogen fluoride – aldehydes – ketones – organic acids

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Product
Oral LD50 (rat) >5000mg/kg
Alkylpolyglycoside
Oral LD50 (rat) >5000mg/kg
Dipropylene Glycol Monomethyl Ether
Oral LD50 (rat) >5000 mg/kg
Dermal LD5 (rabbit) >9510 mg/kg
Inhalation LC50 (rat) > 3.35 mg/l,7h, vapour, no deaths occurred at this concentration

Specific Target Organ Toxicity (STOT) – single exposure
Available data indicates this product is not expected to cause target organ effects after a single exposure.

Specific Target Organ Toxicity (STOT) – repeat exposure
Available data indicates this component not expected to cause target organ effects after repeated exposure.

Serious Eye damage/Irritation
Product: Primary irritant (rabbit) (tested on a similar product)
Sodium decyl sulfate: Severe eye irritant (based on similar material)
Alkylpolyglycoside: Severely irritating (rabbit) (50% solution)

Skin Corrosion/Irritation
Product: Not a primary irritant (rabbit) (tested on a similar product)

Respiratory or Skin Sensitization
Available data indicates this product is not expected to cause skin sensitization.

Carcinogenicity
Not considered carcinogenic by NTP, IARC, and OSHA.

Germ Cell Mutagenicity
Available data indicates this product is is not expected to be mutagenic.

Reproductive Toxicity
Available data indicates this product is not expected to cause reproductive toxicity or birth defects.

Aspiration Hazard
Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity
No relevant studies identified.

Mobility in soil
No relevant studies identified.

Persistence/Degradability
No relevant studies identified.

12. ECOLOGICAL INFORMATION

Bioaccumulative Potential
No relevant studies identified.

Other adverse effects
No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods
This product, as sold, is not a RCRA-listed waste or hazardous waste as characterized by 40 CFR 261. However, state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Therefore, applicable local and state regulatory agencies should be contacted regarding disposal of waste foam concentrate or foam/foam solution.
Concentrate
Prevent foam concentrate from entering ground water, surface water or storm drains. Small quantities of foam concentrate may be collected on absorbents which can then be disposed of. Disposal should be made in accordance with local, state and federal regulations. High temperature incineration is recommended.
Foam/Foam Solution
Prevent foam/foam solution from entering ground water, surface water or storm drains. Small quantities of foam solution may be collected on absorbents which can then be disposed of. Disposal should be made in accordance with local, state and federal regulations, high temperature incineration is recommended.
NOTE: Please consult National Foam for additional information regarding the disposal of foam concentrates and foam solutions.

14. TRANSPORT INFORMATION

Shipping Information

Shipping Description	Fire Extinguisher Charges or Compounds N.O.I., Class 70
National Motor Freight Code	69160 Sub 0

This information is not intended to convey all transportation classifications that may apply to this product. Classifications may vary by container volume and by regional regulations. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules when transporting this material.

15. REGULATORY INFORMATION

United States TSCA Inventory
This product contains an ingredient that has restricted use under the EPA Toxic Substance Control Act This product may only be used as a fire fighting foam. Any other use of this product is strictly prohibited.

Canada DSL Inventory
This product contains an ingredient that is not listed on the Domestic Substance List (DSL) or the Non-Domestic Substance List (NDSL).

SARA Title III Sect. 311/312 Categorization
Eye irritation

15. REGULATORY INFORMATION

SARA Title III Sect. 313
This product does not contain any chemicals that are listed in Section 313 at or above de minimis concentrations.

California Proposition 65
WARNING: This product can expose you to chemicals including diethanolamine and formaldehyde, which are known to the State of California to cause cancer, and perfluorooctanoic acid and methanol, which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov."

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
None

16. OTHER INFORMATION

NFPA Ratings
NFPA Code for Health - 0
NFPA Code for Flammability - 0
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards - None

Legend
ACGIH: American Conference of Governmental Industrial Hygienists
CAS#: Chemical Abstracts Service Number
EC50: Effect Concentration 50%
IARC: International Agency for Research on Cancer
LC50: Lethal Concentration 50%
LD50: Lethal Dose 50%
N/A: Denotes no applicable information found or available
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
RQ: Reportable Quantity
STEL: Short Term Exposure Limit
N/A: Denotes no applicable information found or available
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
RQ: Reportable Quantity
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TSCA: Toxic Substance Control Act

Revision Date: February 7, 2019
Replaces: June 18, 2018
Changes made: Added California Proposition 65 information.

Information Source and References
This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

16. OTHER INFORMATION

Prepared By: EnviroNet LLC.

Universal Gold is a registered trademark of Angus International.

The information and recommendations presented in this SDS are based on sources believed to be accurate. National Foam assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the material for their particular purposes. In particular, we make NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use or disposal of the material is in accordance with applicable Federal, State, and local laws and regulations.

APPENDIX F

Laboratory Analytical Reports

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

July 30, 2019

Kevin Kitchin
Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660

Project Location: 2 College Rd., Stratham, NH
Client Job Number:
Project Number: STRT0001
Laboratory Work Order Number: 19G0729

Enclosed are results of analyses for samples received by the laboratory on July 16, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Raymond J. McCarthy
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660
ATTN: Kevin Kitchin

REPORT DATE: 7/30/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: STRT0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19G0729

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 2 College Rd., Stratham, NH

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
2 College Rd	19G0729-01	Drinking Water		EPA 537	

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537

Qualifications:

L-02

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:

8:2 Fluorotelomersulfonate (8:2 FT
B236184-BS1

L-05

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)
B236184-BS1

S-13

Surrogate recovery is outside of control limits on both columns.
Data validation is not affected since all results are "not detected" and bias is on the high side.

Analyte & Samples(s) Qualified:

13C-PFHxA
B236184-BLK1

S-26

Surrogate outside of control limits.

Analyte & Samples(s) Qualified:

13C-PFHxA
19G0729-01[2 College Rd]

d5-NEtFOSAA
19G0729-01[2 College Rd]

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)
S038603-CCV1, S038603-CCV2

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT
S038603-CCV1

8:2 Fluorotelomersulfonate (8:2 FT
S038603-CCV1

Z-01

Sample cannot be re-extracted due to hold time.

Analyte & Samples(s) Qualified:

19G0729-01[2 College Rd]

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Tod E. Kopyscinski
Laboratory Director

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 College Rd., Stratham, NH Sample Description: Work Order: 19G0729

Date Received: 7/16/2019

Field Sample #: 2 College Rd Sampled: 7/15/2019 11:40

Sample ID: 19G0729-01

Sample Matrix: Drinking Water

Sample Flags: Z-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	5.7	2.0		ng/L	1		EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorohexanoic acid (PFHxA)	9.2	2.0		ng/L	1		EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluoroheptanoic acid (PFHpA)	2.6	2.0		ng/L	1		EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorobutanoic acid (PFBA)	6.2	2.0		ng/L	1		EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluoropentanoic acid (PFPeA)	6.2	2.0		ng/L	1		EPA 537	7/23/19	7/29/19 21:53	JFC
6:2 Fluorotelomersulfonate (6:2 FTS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
8:2 Fluorotelomersulfonate (8:2 FTS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorohexanesulfonic acid (PFHxS)	36	2.0		ng/L	1		EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorooctanoic acid (PFOA)	19	2.0		ng/L	1		EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorooctanesulfonic acid (PFOS)	26	2.0		ng/L	1		EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/29/19 21:53	JFC

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	**147**	*	70-130	S-26	7/29/19 21:53
13C-PFDA	70.0		70-130		7/29/19 21:53
d5-NEtFOSAA	**53.8**	*	70-130	S-26	7/29/19 21:53

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Sample Extraction Data

Prep Method: EPA 537-EPA 537

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0729-01 [2 College Rd]	B236184	250	1.00	07/23/19

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B236184 - EPA 537											
Blank (B236184-BLK1)				Prepared: 07/23/19 Analyzed: 07/29/19							
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L								U
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L								U
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L								U
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L								U
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L								U
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L								U
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L								U
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L								U
6:2 Fluorotelomersulfonate (6:2 FTS)	ND	2.0	ng/L								U
8:2 Fluorotelomersulfonate (8:2 FTS)	ND	2.0	ng/L								U
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L								U
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L								U
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L								U
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L								U
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L								U
N-MeFOSAA	ND	2.0	ng/L								U
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L								U
N-EtFOSAA	ND	2.0	ng/L								U
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L								U
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L								U
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L								U
Surrogate: 13C-PFHxA	*53.1*		ng/L	40.0		**133**	*	70-130			S-13
Surrogate: 13C-PFDA	*34.8*		ng/L	40.0		87.0		70-130			
Surrogate: d5-NEtFOSAA	*127*		ng/L	160		79.2		70-130			
LCS (B236184-BS1)				Prepared: 07/23/19 Analyzed: 07/29/19							
Perfluorobutanesulfonic acid (PFBS)	17.9	2.0	ng/L	17.7		101		70-130			
Perfluorohexanoic acid (PFHxA)	20.9	2.0	ng/L	20.0		104		70-130			
Perfluoroheptanoic acid (PFHpA)	16.1	2.0	ng/L	20.0		80.7		70-130			
Perfluorobutanoic acid (PFBA)	28.7	2.0	ng/L	20.0		**143**	*	70-130			L-05
Perfluorodecanesulfonic acid (PFDS)	14.9	2.0	ng/L	19.3		77.2		70-130			
Perfluoroheptanesulfonic acid (PFHpS)	13.8	2.0	ng/L	19.0		72.5		70-130			
Perfluorooctanesulfonamide (FOSA)	15.3	2.0	ng/L	20.0		76.6		70-130			
Perfluoropentanoic acid (PFPeA)	18.1	2.0	ng/L	20.0		90.7		70-130			
6:2 Fluorotelomersulfonate (6:2 FTS)	24.1	2.0	ng/L	19.0		127		70-130			
8:2 Fluorotelomersulfonate (8:2 FTS)	26.3	2.0	ng/L	19.2		**137**	*	70-130			L-02
Perfluorohexanesulfonic acid (PFHxS)	18.7	2.0	ng/L	18.2		103		70-130			
Perfluorooctanoic acid (PFOA)	19.5	2.0	ng/L	20.0		97.6		70-130			
Perfluorooctanesulfonic acid (PFOS)	18.4	2.0	ng/L	18.5		99.5		70-130			
Perfluorononanoic acid (PFNA)	16.2	2.0	ng/L	20.0		81.1		70-130			
Perfluorodecanoic acid (PFDA)	17.6	2.0	ng/L	20.0		88.0		70-130			
N-MeFOSAA	16.2	2.0	ng/L	20.0		81.0		70-130			
Perfluoroundecanoic acid (PFUnA)	16.5	2.0	ng/L	20.0		82.3		70-130			
N-EtFOSAA	14.7	2.0	ng/L	20.0		73.6		70-130			
Perfluorododecanoic acid (PFDoA)	15.2	2.0	ng/L	20.0		75.8		70-130			
Perfluorotridecanoic acid (PFTrDA)	15.2	2.0	ng/L	20.0		76.2		70-130			
Perfluorotetradecanoic acid (PFTA)	15.5	2.0	ng/L	20.0		77.5		70-130			
Surrogate: 13C-PFHxA	*45.0*		ng/L	40.0		112		70-130			
Surrogate: 13C-PFDA	*35.1*		ng/L	40.0		87.8		70-130			
Surrogate: d5-NEtFOSAA	*153*		ng/L	160		95.5		70-130			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-05	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.
S-13	Surrogate recovery is outside of control limits on both columns. Data validation is not affected since all results are "not detected" and bias is on the high side.
S-26	Surrogate outside of control limits.
U	Analyte included in the analysis, but not detected
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
Z-01	Sample cannot be re-extracted due to hold time.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 537 in Drinking Water	
Perfluorobutanesulfonic acid (PFBS)	NH,ME,RI,NJ,CT,PA
Perfluorohexanoic acid (PFHxA)	NH,ME,RI,NJ,CT,PA
Perfluoroheptanoic acid (PFHpA)	NH,ME,RI,NJ,CT,PA
Perfluorobutanoic acid (PFBA)	NH
Perfluorohexanesulfonic acid (PFHxS)	NH,ME,RI,NJ,CT,PA
Perfluorooctanoic acid (PFOA)	NH,NY,ME,RI,NJ,CT,PA
Perfluorooctanesulfonic acid (PFOS)	NH,NY,ME,RI,NJ,CT,PA
Perfluorononanoic acid (PFNA)	NH,ME,RI,NJ,CT,PA
Perfluorodecanoic acid (PFDA)	NH,ME,RI,NJ,CT,PA
N-MeFOSAA	NH,RI,NJ,CT,PA
Perfluoroundecanoic acid (PFUnA)	NH,ME,RI,NJ,CT,PA
N-EtFOSAA	NH,RI,NJ,CT,PA
Perfluorododecanoic acid (PFDoA)	NH,ME,RI,NJ,CT,PA
Perfluorotridecanoic acid (PFTrDA)	NH,ME,RI,NJ,CT,PA
Perfluorotetradecanoic acid (PFTA)	ME,RI,NJ,CT,PA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2019
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

con-test® ANALYTICAL LABORATORY

RJM

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

19G0729

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

Page 1 of 1

Company Name: Wilcox + Barton
Address: #1B Commons Dr, Unit 12B, Londonderry, NH
Phone: 860-389-3984
Project Name: STRT0001
Project Location: 2 College Rd, Stratham, NH
Project Number:
Project Manager: Kevin Kitchin
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: M. Fuster

Requested Turnaround Time
7-Day ☐ 10-Day ☐
PFAS 10-Day (std) ☒ Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Drinking Water Samples
○ Field Filtered
○ Lab to Filter

Wastewater Samples
○ Field Filtered
○ Lab to Filter

Data Delivery
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: kkitchin@wilcoxandbarton.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS 537.1
1	2 College Rd.	7-15-19	1140	GRAB	DW				X			2

Relinquished by: (signature) Date/Time: 7-15-19 1400
Received by: (signature) Date/Time: 7/16/19 1110
Relinquished by: (signature) Date/Time: 7/16/19 416
Received by: (signature) 2.8 Date/Time: 7/16/19 1675
Relinquished by: (signature) Date/Time:
Received by: (signature) Date/Time:
Relinquished by: (signature) Date/Time:
Received by: (signature) Date/Time:

Client Comments: Preservation code O: Trizma (B)

Detection Limit Requirements
MA
CT
Other: NH AGQS

Special Requirements
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAC and AIHA-LAP, LLC Accredited

Project Entity
Government ☐ Municipality ☐ MWRA ☐ WRTA ☐
Federal ☐ 21 J ☐ School ☐
City ☐ Brownfield ☐ MBTA ☐

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

[2] Preservation Code

Courier Use Only
Total Number Of:
VIALS
GLASS
PLASTIC
BACTERIA
ENCORE

Glassware in the fridge? Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N
*Contest is not responsible for missing samples from prepacked coolers

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Comments:

Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. T
Chain of Custody is a legal document that must be complete and accurate and is used to determine w
analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. (
Test values your partnership on each project and will try to assist with missing information, but will no
held accountable.

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____

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Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client WtB

Received By AP Date 7/16/19 Time 16:15

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____

Direct from Sampling ____ Ambient ____ Melted Ice ____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 2.8

By Blank # ____ Actual Temp -

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F

Are there Rushes? F Who was notified? ____

Are there Short Holds? F Who was notified? ____

Is there enough Volume? F Who was notified? ____

Is there Headspace where applicable? T

Proper Media/Containers Used? N/A MS/MSD? F

Were trip blanks received? T Is splitting samples required? F

Do all samples have the proper pH? F On COC? F

Acid N/A Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	2	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 5 College Road Sampled: 11/12/2019 11:30

Sample ID: 19K0755-01

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorobutanesulfonic acid (PFBS)	29	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoropentanoic acid (PFPeA)	9.2	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorohexanoic acid (PFHxA)	18	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorohexanesulfonic acid (PFHxS)	15	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoroheptanoic acid (PFHpA)	3.7	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorooctanoic acid (PFOA)	22	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorooctanesulfonic acid (PFOS)	41	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorononanoic acid (PFNA)	3.0	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorodecanoic acid (PFDA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
N-EtFOSAA	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
N-MeFOSAA	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	**266**	*	70-130	PF-01	11/29/19 18:39
13C-PFDA	**180**	*	70-130	PF-01	11/29/19 18:39
d5-NEtFOSAA	**140**	*	70-130	PF-01	11/29/19 18:39

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August 2, 2019

Kevin Kitchin
Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660

Project Location: 137 Portsmouth Ave., Stratham, NH
Client Job Number:
Project Number: STRT0001
Laboratory Work Order Number: 19G0730

Enclosed are results of analyses for samples received by the laboratory on July 16, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Raymond J. McCarthy
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660
ATTN: Kevin Kitchin

REPORT DATE: 8/2/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: STRT0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19G0730

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 137 Portsmouth Ave., Stratham, NH

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
137 Portsmouth Ave	19G0730-01	Drinking Water		EPA 537	

con-test® ANALYTICAL LABORATORY

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

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EPA 537

Qualifications:

L-02

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:

8:2 Fluorotelomersulfonate (8:2 FT
B236184-BS1

L-05

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)
B236184-BS1

S-13

Surrogate recovery is outside of control limits on both columns.
Data validation is not affected since all results are "not detected" and bias is on the high side.

Analyte & Samples(s) Qualified:

13C-PFHxA
B236184-BLK1

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)
S038603-CCV1, S038603-CCV2

V-17

Internal standard area <50% of associated calibration standard internal standard area. Reanalysis yielded similar internal standard non-conformance.

Analyte & Samples(s) Qualified:

d3-NMeFOSAA
19G0730-01[137 Portsmouth Ave]

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT
S038603-CCV1, S038744-CCV1

8:2 Fluorotelomersulfonate (8:2 FT
S038603-CCV1, S038744-CCV1

Perfluorobutanoic acid (PFBA)
S038744-CCV1, S038744-CCV2

Z-01

Surrogate Recovery is outside of method Control limits, sample was not re-extracted due to sample hold time non-conformance. Sample was re-analyzed. Original result is reported

Analyte & Samples(s) Qualified:

13C-PFDA
19G0730-01[137 Portsmouth Ave]

13C-PFHxA
19G0730-01[137 Portsmouth Ave]

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 137 Portsmouth Ave., Stratham, N Sample Description: Work Order: 19G0730

Date Received: 7/16/2019

Field Sample #: 137 Portsmouth Ave Sampled: 7/15/2019 12:00

Sample ID: 19G0730-01

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorobutanesulfonic acid (PFBS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluoropentanoic acid (PFPeA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorohexanesulfonic acid (PFHxS)	4.5	2.0		ng/L	1		EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorooctanoic acid (PFOA)	3.6	2.0		ng/L	1		EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorooctanesulfonic acid (PFOS)	2.3	2.0		ng/L	1		EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/31/19 14:44	JFC

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	**139**	*	70-130	Z-01	7/31/19 14:44
13C-PFDA	**46.4**	*	70-130	Z-01	7/31/19 14:44
d5-NEtFOSAA	74.6		70-130		7/31/19 14:44

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Sample Extraction Data

Prep Method: EPA 537-EPA 537

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0730-01 [137 Portsmouth Ave]	B236184	250	1.00	07/23/19

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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B236184 - EPA 537											
Blank (B236184-BLK1)				Prepared: 07/23/19 Analyzed: 07/29/19							
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L								U
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L								U
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L								U
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L								U
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L								U
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L								U
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L								U
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L								U
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L								U
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L								U
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L								U
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L								U
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L								U
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L								U
N-EtFOSAA	ND	2.0	ng/L								U
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L								U
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L								U
N-MeFOSAA	ND	2.0	ng/L								U
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L								U
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L								U
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L								U
Surrogate: 13C-PFHxA	*53.1*		ng/L	40.0		**133**	*	70-130			S-13
Surrogate: 13C-PFDA	*34.8*		ng/L	40.0		87.0		70-130			
Surrogate: d5-NEtFOSAA	*127*		ng/L	160		79.2		70-130			
LCS (B236184-BS1)				Prepared: 07/23/19 Analyzed: 07/29/19							
Perfluorobutanoic acid (PFBA)	28.7	2.0	ng/L	20.0		**143**	*	70-130			L-05
Perfluorobutanesulfonic acid (PFBS)	17.9	2.0	ng/L	17.7		101		70-130			
Perfluoropentanoic acid (PFPeA)	18.1	2.0	ng/L	20.0		90.7		70-130			
Perfluorohexanoic acid (PFHxA)	20.9	2.0	ng/L	20.0		104		70-130			
Perfluorohexanesulfonic acid (PFHxS)	18.7	2.0	ng/L	18.2		103		70-130			
Perfluoroheptanoic acid (PFHpA)	16.1	2.0	ng/L	20.0		80.7		70-130			
Perfluoroheptanesulfonic acid (PFHpS)	13.8	2.0	ng/L	19.0		72.5		70-130			
Perfluorooctanoic acid (PFOA)	19.5	2.0	ng/L	20.0		97.6		70-130			
Perfluorooctanesulfonic acid (PFOS)	18.4	2.0	ng/L	18.5		99.5		70-130			
Perfluorooctanesulfonamide (FOSA)	15.3	2.0	ng/L	20.0		76.6		70-130			
6:2 Fluorotelomersulfonate (6:2 FTS A)	24.1	2.0	ng/L	19.0		127		70-130			
Perfluorononanoic acid (PFNA)	16.2	2.0	ng/L	20.0		81.1		70-130			
Perfluorodecanoic acid (PFDA)	17.6	2.0	ng/L	20.0		88.0		70-130			
Perfluorodecanesulfonic acid (PFDS)	14.9	2.0	ng/L	19.3		77.2		70-130			
N-EtFOSAA	14.7	2.0	ng/L	20.0		73.6		70-130			
8:2 Fluorotelomersulfonate (8:2 FTS A)	26.3	2.0	ng/L	19.2		**137**	*	70-130			L-02
Perfluoroundecanoic acid (PFUnA)	16.5	2.0	ng/L	20.0		82.3		70-130			
N-MeFOSAA	16.2	2.0	ng/L	20.0		81.0		70-130			
Perfluorododecanoic acid (PFDoA)	15.2	2.0	ng/L	20.0		75.8		70-130			
Perfluorotridecanoic acid (PFTrDA)	15.2	2.0	ng/L	20.0		76.2		70-130			
Perfluorotetradecanoic acid (PFTA)	15.5	2.0	ng/L	20.0		77.5		70-130			
Surrogate: 13C-PFHxA	*45.0*		ng/L	40.0		112		70-130			
Surrogate: 13C-PFDA	*35.1*		ng/L	40.0		87.8		70-130			
Surrogate: d5-NEtFOSAA	*153*		ng/L	160		95.5		70-130			

con-test® ANALYTICAL LABORATORY

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-05	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.
S-13	Surrogate recovery is outside of control limits on both columns. Data validation is not affected since all results are "not detected" and bias is on the high side.
U	Analyte included in the analysis, but not detected
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-17	Internal standard area <50% of associated calibration standard internal standard area. Reanalysis yielded similar internal standard non-conformance.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
Z-01	Surrogate Recovery is outside of method Control limits, sample was not re-extracted due to sample hold time non-conformance. Sample was re-analyzed. Original result is reported

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 537 in Drinking Water	
Perfluorobutanoic acid (PFBA)	NH
Perfluorobutanesulfonic acid (PFBS)	NH,ME,RI,NJ,CT,PA
Perfluorohexanoic acid (PFHxA)	NH,ME,RI,NJ,CT,PA
Perfluorohexanesulfonic acid (PFHxS)	NH,ME,RI,NJ,CT,PA
Perfluoroheptanoic acid (PFHpA)	NH,ME,RI,NJ,CT,PA
Perfluorooctanoic acid (PFOA)	NH,NY,ME,RI,NJ,CT,PA
Perfluorooctanesulfonic acid (PFOS)	NH,NY,ME,RI,NJ,CT,PA
Perfluorononanoic acid (PFNA)	NH,ME,RI,NJ,CT,PA
Perfluorodecanoic acid (PFDA)	NH,ME,RI,NJ,CT,PA
N-EtFOSAA	NH,RI,NJ,CT,PA
Perfluoroundecanoic acid (PFUnA)	NH,ME,RI,NJ,CT,PA
N-MeFOSAA	NH,RI,NJ,CT,PA
Perfluorododecanoic acid (PFDoA)	NH,ME,RI,NJ,CT,PA
Perfluorotridecanoic acid (PFTrDA)	NH,ME,RI,NJ,CT,PA
Perfluorotetradecanoic acid (PFTA)	ME,RI,NJ,CT,PA

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2019
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

con-test® ANALYTICAL LABORATORY

RJM

Phone: 413-525-2332 1960730
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

Page 1 of 1

Company Name: WILCOX + BARTON
Address: #1B Commons Dr., Unit 1AB, Londonderry NH
Phone: 800-389-3989
Project Name: STRTOOO1
Project Location: 137 Portsmouth Ave., Stratham, NH
Project Number:
Project Manager: Kchn Kitchin
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: M. Alister, M. Broussard

Requested Turnaround Time
7-Day ☐ 10-Day ☐
PFAS 10-Day (std) ☒ Due Date:

Rush Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Preserved Containers Provided
○ Field Filtered
○ Lab to Filter

Optional Sample Containers
○ Field Filtered
○ Lab to Filter

Data Delivery
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: kkitchin@wilcoxandbarton.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1]Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS 537.1
1	137 Portsmouth Ave.	7-15-19	1200	GRAB	DW				X			2

[2] Preservation Code

Cooler Use Only
Total Number Of:
VIALS
GLASS
PLASTIC
BACTERIA
ENCORE

Glassware in the fridge? Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N

*Contest is not responsible for missing samples from prepacked coolers

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Relinquished by: (signature)	Date/Time:
	7-15-19 1400
Received by: (signature)	Date/Time: 7/16/19 11:40
Relinquished by: (signature)	Date/Time: 7/16/19 415
Received by: (signature)	Date/Time: 7/16/19 16:15
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments: O: Trizma (B)

Detection Limit Requirements
MA
CT
Other: NH AGQS

Special Requirements
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAC and AIHA-LAP, LLC Accredited

Project Entity
Government ☐ Municipality ☐ MWRA ☐ WRTA ☐
Federal ☐ 21 J ☐ School ☐
City ☐ Brownfield ☐ MBTA ☐

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Comments:

Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. Th Chain of Custody is a legal document that must be complete and accurate and is used to determine wh analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Co Test values your partnership on each project and will try to assist with missing information, but will not held accountable.

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I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client WtB

Received By AP Date 7/16/19 Time 16:15

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____
Direct from Sampling ____ Ambient ____ Melted Ice ____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 2.8
By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A
Was COC Relinquished ? T Does Chain Agree With Samples? T
Are there broken/leaking/loose caps on any samples? F
Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all pertinent Information? Client T Analysis T Sampler Name T
Project T ID's T Collection Dates/Times T
Are Sample labels filled out and legible? T
Are there Lab to Filters? F Who was notified? ____
Are there Rushes? F Who was notified? ____
Are there Short Holds? F Who was notified? ____
Is there enough Volume? T
Is there Headspace where applicable? N/A MS/MSD? F
Proper Media/Containers Used? T Is splitting samples required? F
Were trip blanks received? F On COC? F
Do all samples have the proper pH? N/A Acid ____ Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	2	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

August 5, 2019

Kevin Kitchin
Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660

Project Location: 142 Portsmouth Ave., Stratham, NH
Client Job Number:
Project Number: STRT0001
Laboratory Work Order Number: 19G0733

Enclosed are results of analyses for samples received by the laboratory on July 16, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Raymond J. McCarthy
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660
ATTN: Kevin Kitchin

REPORT DATE: 8/5/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: STRT0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19G0733

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 142 Portsmouth Ave., Stratham, NH

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
142 Portsmouth Ave	19G0733-01	Drinking Water		EPA 537	

con-test® ANALYTICAL LABORATORY

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

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EPA 537

Qualifications:

L-02

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:

8:2 Fluorotelomersulfonate (8:2 FT

B236184-BS1

L-05

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)

B236184-BS1

MS-07

Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery.Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated.

Analyte & Samples(s) Qualified:

Perfluorohexanoic acid (PFHxA)

B236184-MS1

MS-07A

Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possiblity of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.

Analyte & Samples(s) Qualified:

Perfluorobutanesulfonic acid (PFB

B236184-MS1, B236184-MSD1

Perfluorododecanoic acid (PFDoA)

B236184-MS1, B236184-MSD1

Perfluorohexanesulfonic acid (PFH

B236184-MS1, B236184-MSD1

Perfluorooctanesulfonamide (FOS

B236184-MS1, B236184-MSD1

Perfluorooctanesulfonic acid (PFO

B236184-MS1, B236184-MSD1

Perfluorotetradecanoic acid (PFTA

B236184-MS1, B236184-MSD1

Perfluorotridecanoic acid (PFTrD

B236184-MS1, B236184-MSD1

MS-12

Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT

B236184-MS1, B236184-MSD1

MS-22

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

Analyte & Samples(s) Qualified:

8:2 Fluorotelomersulfonate (8:2 FT

B236184-MSD1

Perfluorodecanesulfonic acid (PFD

B236184-MSD1

MS-23

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

N-EtFOSAA

B236184-MSD1

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

R-06

Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample.

Analyte & Samples(s) Qualified:

Perfluorotetradecanoic acid (PFTA
B236184-MSD1

Perfluorotridecanoic acid (PFTrDA
B236184-MSD1

S-13

Surrogate recovery is outside of control limits on both columns.
Data validation is not affected since all results are "not detected" and bias is on the high side.

Analyte & Samples(s) Qualified:

13C-PFHxA
B236184-BLK1

S-26

Surrogate outside of control limits.

Analyte & Samples(s) Qualified:

13C-PFHxA
S038809-CCV3

d5-NEtFOSAA
B236184-MSD1

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)
S038603-CCV1, S038603-CCV2, S038809-CCV3

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT
S038603-CCV1, S038809-CCV2

8:2 Fluorotelomersulfonate (8:2 FT
S038603-CCV1, S038809-CCV1, S038809-CCV2

Z-01

Surrogate Recovery is outside of method Control limits, sample was not re-extracted due to sample hold time non-conformance. Sample was re-analyzed. Original result is reported

Analyte & Samples(s) Qualified:

13C-PFDA
19G0733-01[142 Portsmouth Ave]

d5-NEtFOSAA
19G0733-01[142 Portsmouth Ave]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 142 Portsmouth Ave., Stratham, N Sample Description: Work Order: 19G0733

Date Received: 7/16/2019

Field Sample #: 142 Portsmouth Ave Sampled: 7/15/2019 12:55

Sample ID: 19G0733-01

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	3.0	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorobutanesulfonic acid (PFBS)	10	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluoropentanoic acid (PFPeA)	3.9	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorohexanoic acid (PFHxA)	18	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorohexanesulfonic acid (PFHxS)	110	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluoroheptanoic acid (PFHpA)	4.0	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorooctanoic acid (PFOA)	45	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorooctanesulfonic acid (PFOS)	41	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:57	JFC

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	128		70-130		7/30/19 15:57
13C-PFDA	**49.0**	*	70-130	Z-01	7/30/19 15:57
d5-NEtFOSAA	**48.9**	*	70-130	Z-01	7/30/19 15:57

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Sample Extraction Data

Prep Method: EPA 537-EPA 537

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0733-01 [142 Portsmouth Ave]	B236184	250	1.00	07/23/19

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B236184 - EPA 537											
Blank (B236184-BLK1)				Prepared: 07/23/19 Analyzed: 07/29/19							
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L								U
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L								U
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L								U
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L								U
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L								U
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L								U
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L								U
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L								U
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L								U
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L								U
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L								U
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L								U
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L								U
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L								U
N-EtFOSAA	ND	2.0	ng/L								U
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L								U
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L								U
N-MeFOSAA	ND	2.0	ng/L								U
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L								U
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L								U
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L								U
Surrogate: 13C-PFHxA	*53.1*		ng/L	40.0		**133**	*	70-130			S-13
Surrogate: 13C-PFDA	*34.8*		ng/L	40.0		87.0		70-130			
Surrogate: d5-NEtFOSAA	*127*		ng/L	160		79.2		70-130			
LCS (B236184-BS1)				Prepared: 07/23/19 Analyzed: 07/29/19							
Perfluorobutanoic acid (PFBA)	28.7	2.0	ng/L	20.0		**143**	*	70-130			L-05
Perfluorobutanesulfonic acid (PFBS)	17.9	2.0	ng/L	17.7		101		70-130			
Perfluoropentanoic acid (PFPeA)	18.1	2.0	ng/L	20.0		90.7		70-130			
Perfluorohexanoic acid (PFHxA)	20.9	2.0	ng/L	20.0		104		70-130			
Perfluorohexanesulfonic acid (PFHxS)	18.7	2.0	ng/L	18.2		103		70-130			
Perfluoroheptanoic acid (PFHpA)	16.1	2.0	ng/L	20.0		80.7		70-130			
Perfluoroheptanesulfonic acid (PFHpS)	13.8	2.0	ng/L	19.0		72.5		70-130			
Perfluorooctanoic acid (PFOA)	19.5	2.0	ng/L	20.0		97.6		70-130			
Perfluorooctanesulfonic acid (PFOS)	18.4	2.0	ng/L	18.5		99.5		70-130			
Perfluorooctanesulfonamide (FOSA)	15.3	2.0	ng/L	20.0		76.6		70-130			
6:2 Fluorotelomersulfonate (6:2 FTS A)	24.1	2.0	ng/L	19.0		127		70-130			
Perfluorononanoic acid (PFNA)	16.2	2.0	ng/L	20.0		81.1		70-130			
Perfluorodecanoic acid (PFDA)	17.6	2.0	ng/L	20.0		88.0		70-130			
Perfluorodecanesulfonic acid (PFDS)	14.9	2.0	ng/L	19.3		77.2		70-130			
N-EtFOSAA	14.7	2.0	ng/L	20.0		73.6		70-130			
8:2 Fluorotelomersulfonate (8:2 FTS A)	26.3	2.0	ng/L	19.2		**137**	*	70-130			L-02
Perfluoroundecanoic acid (PFUnA)	16.5	2.0	ng/L	20.0		82.3		70-130			
N-MeFOSAA	16.2	2.0	ng/L	20.0		81.0		70-130			
Perfluorododecanoic acid (PFDoA)	15.2	2.0	ng/L	20.0		75.8		70-130			
Perfluorotridecanoic acid (PFTrDA)	15.2	2.0	ng/L	20.0		76.2		70-130			
Perfluorotetradecanoic acid (PFTA)	15.5	2.0	ng/L	20.0		77.5		70-130			
Surrogate: 13C-PFHxA	*45.0*		ng/L	40.0		112		70-130			
Surrogate: 13C-PFDA	*35.1*		ng/L	40.0		87.8		70-130			
Surrogate: d5-NEtFOSAA	*153*		ng/L	160		95.5		70-130			

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B236184 - EPA 537											
Matrix Spike (B236184-MS1)		**Source: 19G0733-01**		Prepared: 07/23/19 Analyzed: 07/30/19							
Perfluorobutanoic acid (PFBA)	12.8	2.0	ng/L	10.0	3.01	97.9		70-130			
Perfluorobutanesulfonic acid (PFBS)	16.1	2.0	ng/L	8.85	10.4	**64.4**	*	70-130			MS-07A
Perfluoropentanoic acid (PFPeA)	13.8	2.0	ng/L	10.0	3.88	98.9		70-130			
Perfluorohexanoic acid (PFHxA)	22.0	2.0	ng/L	10.0	17.7	**42.5**	*	70-130			MS-07
Perfluorohexanesulfonic acid (PFHxS)	81.5	2.0	ng/L	9.10	110	**-312**	*	70-130			MS-07A
Perfluoroheptanoic acid (PFHpA)	12.8	2.0	ng/L	10.0	4.01	87.5		70-130			
Perfluoroheptanesulfonic acid (PFHpS)	9.46	2.0	ng/L	9.50	ND	99.6		70-130			
Perfluorooctanoic acid (PFOA)	55.1	2.0	ng/L	10.0	45.2	99.1		70-130			
Perfluorooctanesulfonic acid (PFOS)	43.3	2.0	ng/L	9.25	40.7	**28.2**	*	70-130			MS-07A
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	10.0	ND		*	70-130			MS-07A, U
6:2 Fluorotelomersulfonate (6:2 FTS A)	16.2	2.0	ng/L	9.50	ND	**170**	*	70-130			MS-12
Perfluorononanoic acid (PFNA)	10.6	2.0	ng/L	10.0	ND	106		70-130			
Perfluorodecanoic acid (PFDA)	7.72	2.0	ng/L	10.0	ND	77.2		70-130			
Perfluorodecanesulfonic acid (PFDS)	7.83	2.0	ng/L	9.65	ND	81.2		70-130			
N-EtFOSAA	8.39	2.0	ng/L	10.0	ND	83.9		70-130			
8:2 Fluorotelomersulfonate (8:2 FTS A)	11.0	2.0	ng/L	9.60	ND	115		70-130			
Perfluoroundecanoic acid (PFUnA)	7.55	2.0	ng/L	10.0	ND	75.5		70-130			
N-MeFOSAA	8.44	2.0	ng/L	10.0	ND	84.4		70-130			
Perfluorododecanoic acid (PFDoA)	6.38	2.0	ng/L	10.0	ND	**63.8**	*	70-130			MS-07A
Perfluorotridecanoic acid (PFTrDA)	5.82	2.0	ng/L	10.0	ND	**58.2**	*	70-130			MS-07A
Perfluorotetradecanoic acid (PFTA)	5.66	2.0	ng/L	10.0	ND	**56.6**	*	70-130			MS-07A
Surrogate: 13C-PFHxA	*47.7*		ng/L	40.0		119		70-130			
Surrogate: 13C-PFDA	*36.9*		ng/L	40.0		92.2		70-130			
Surrogate: d5-NEtFOSAA	*119*		ng/L	160		74.6		70-130			
Matrix Spike Dup (B236184-MSD1)		**Source: 19G0733-01**		Prepared: 07/23/19 Analyzed: 07/30/19							
Perfluorobutanoic acid (PFBA)	12.2	2.0	ng/L	10.0	3.01	91.8		70-130	4.91	30	
Perfluorobutanesulfonic acid (PFBS)	14.8	2.0	ng/L	8.85	10.4	**49.2**	*	70-130	8.71	30	MS-07A
Perfluoropentanoic acid (PFPeA)	15.6	2.0	ng/L	10.0	3.88	117		70-130	12.5	30	
Perfluorohexanoic acid (PFHxA)	26.4	2.0	ng/L	10.0	17.7	86.8		70-130	18.3	30	
Perfluorohexanesulfonic acid (PFHxS)	86.3	2.0	ng/L	9.10	110	**-258**	*	70-130	5.82	30	MS-07A
Perfluoroheptanoic acid (PFHpA)	11.6	2.0	ng/L	10.0	4.01	76.0		70-130	9.42	30	
Perfluoroheptanesulfonic acid (PFHpS)	8.81	2.0	ng/L	9.50	ND	92.7		70-130	7.16	30	
Perfluorooctanoic acid (PFOA)	55.2	2.0	ng/L	10.0	45.2	99.8		70-130	0.129	30	
Perfluorooctanesulfonic acid (PFOS)	45.6	2.0	ng/L	9.25	40.7	**52.6**	*	70-130	5.08	30	MS-07A
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	10.0	ND		*	70-130		30	MS-07A, U
6:2 Fluorotelomersulfonate (6:2 FTS A)	13.1	2.0	ng/L	9.50	ND	**137**	*	70-130	21.3	30	MS-12
Perfluorononanoic acid (PFNA)	10.4	2.0	ng/L	10.0	ND	104		70-130	2.02	30	
Perfluorodecanoic acid (PFDA)	7.98	2.0	ng/L	10.0	ND	79.8		70-130	3.36	30	
Perfluorodecanesulfonic acid (PFDS)	6.48	2.0	ng/L	9.65	ND	**67.2**	*	70-130	18.9	30	MS-22
N-EtFOSAA	5.81	2.0	ng/L	10.0	ND	**58.1**	*	70-130	**36.3** *	30	MS-23
8:2 Fluorotelomersulfonate (8:2 FTS A)	13.0	2.0	ng/L	9.60	ND	**135**	*	70-130	16.4	30	MS-22
Perfluoroundecanoic acid (PFUnA)	7.33	2.0	ng/L	10.0	ND	73.3		70-130	2.99	30	
N-MeFOSAA	9.09	2.0	ng/L	10.0	ND	90.9		70-130	7.45	30	
Perfluorododecanoic acid (PFDoA)	4.88	2.0	ng/L	10.0	ND	**48.8**	*	70-130	26.7	30	MS-07A
Perfluorotridecanoic acid (PFTrDA)	4.08	2.0	ng/L	10.0	ND	**40.8**	*	70-130	**35.1** *	30	MS-07A, R-06
Perfluorotetradecanoic acid (PFTA)	3.07	2.0	ng/L	10.0	ND	**30.7**	*	70-130	**59.5** *	30	MS-07A, R-06
Surrogate: 13C-PFHxA	*47.6*		ng/L	40.0		119		70-130			
Surrogate: 13C-PFDA	*32.0*		ng/L	40.0		80.1		70-130			
Surrogate: d5-NEtFOSAA	*92.2*		ng/L	160		**57.6**	*	70-130			S-26

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-05	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.
MS-07	Matrix spike recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery.Possibility of sample matrix effects that lead to low bias for reported result or non-homogeneous sample aliquot cannot be eliminated.
MS-07A	Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possiblity of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.
MS-12	Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
MS-23	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.
R-06	Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample.
S-13	Surrogate recovery is outside of control limits on both columns. Data validation is not affected since all results are "not detected" and bias is on the high side.
S-26	Surrogate outside of control limits.
U	Analyte included in the analysis, but not detected
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
Z-01	Surrogate Recovery is outside of method Control limits, sample was not re-extracted due to sample hold time non-conformance. Sample was re-analyzed. Original result is reported

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 537 in Drinking Water	
Perfluorobutanoic acid (PFBA)	NH
Perfluorobutanesulfonic acid (PFBS)	NH,ME,RI,NJ,CT,PA
Perfluorohexanoic acid (PFHxA)	NH,ME,RI,NJ,CT,PA
Perfluorohexanesulfonic acid (PFHxS)	NH,ME,RI,NJ,CT,PA
Perfluoroheptanoic acid (PFHpA)	NH,ME,RI,NJ,CT,PA
Perfluorooctanoic acid (PFOA)	NH,NY,ME,RI,NJ,CT,PA
Perfluorooctanesulfonic acid (PFOS)	NH,NY,ME,RI,NJ,CT,PA
Perfluorononanoic acid (PFNA)	NH,ME,RI,NJ,CT,PA
Perfluorodecanoic acid (PFDA)	NH,ME,RI,NJ,CT,PA
N-EtFOSAA	NH,RI,NJ,CT,PA
Perfluoroundecanoic acid (PFUnA)	NH,ME,RI,NJ,CT,PA
N-MeFOSAA	NH,RI,NJ,CT,PA
Perfluorododecanoic acid (PFDoA)	NH,ME,RI,NJ,CT,PA
Perfluorotridecanoic acid (PFTrDA)	NH,ME,RI,NJ,CT,PA
Perfluorotetradecanoic acid (PFTA)	ME,RI,NJ,CT,PA
SOP 434-PFAAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
6:2 Fluorotelomersulfonate (6:2 FTS A)	NH-P
Perfluorononanoic acid (PFNA)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
N-EtFOSAA	NH-P
8:2 Fluorotelomersulfonate (8:2 FTS A)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
N-MeFOSAA	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2019
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

con-test® ANALYTICAL LABORATORY

Phone: 413-525-2332 19G0733
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http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

Page 1 of 1

RJM

Company Name: WILCOX + BARTON
Address: #1B Commons Dr., Unit 12B, Londonderry, NH
Phone: 800-389-3984
Project Name: STRT0001
Project Location: 142 Portsmouth Ave., Stratham, NH
Project Number:
Project Manager: Kevin Kitchin
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: M. Elster, M. Broussard

Requested Turnaround Time
7-Day ☐ 10-Day ☐
PFAS 10-Day (std) ☒ Due Date:

Rush - Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

Data Delivery
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: kkitchin@wilcoxandbarton.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1]Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS 537.1											
1	142 Portsmouth Ave	7-15-19	1255	GRAB	DW				X			2											
1	142 Portsmouth MS/MSD	7-15-19	1255	GRAB	DW				X			4											

[2] Preservation Code: 0

Courier Use Only
Total Number Of:
VIALS
GLASS
PLASTIC
BACTERIA
ENCORE

Glassware in the fridge? Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N
*Contest is not responsible for missing samples from prepacked coolers

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Relinquished by: (signature)	Date/Time: 7-15-19 1400
Received by: (signature)	Date/Time: 7/16/19 1100
Relinquished by: (signature)	Date/Time: 7/16/19 4:15
Received by: (signature)	Date/Time: 7/16/19 16:15
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments: Preservation code 0: trizma
Lab requested MS/MSD
(B)

Detection Limit Requirements
MA
CT
Other: NH AGGS

Special Requirements
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAC and AIHA-LAP, LLC Accredited

Project Entity
Government ☐ Municipality ☐ MWRA ☐ WRTA ☐
Federal ☐ 21 J ☐ School ☐
City ☐ Brownfield ☐ MBTA ☐

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Comments:

Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. T
Chain of Custody is a legal document that must be complete and accurate and is used to determine w
analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. (
Test values your partnership on each project and will try to assist with missing information, but will nc
held accountable.

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client WtB

Received By AP Date 7/16/19 Time 16:15

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____

Direct from Sampling ____ Ambient ____ Melted Ice ____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 2.8

By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F

Are there Rushes? F Who was notified? ____

Are there Short Holds? F Who was notified? ____

Is there enough Volume? T Who was notified? ____

Is there Headspace where applicable? N/A MS/MSD? T

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? N/A Acid ____ Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	6	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

con-test® ANALYTICAL LABORATORY
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August 5, 2019

Kevin Kitchin
Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660

Project Location: 160 Portsmouth Ave., Stratham, NH
Client Job Number:
Project Number: STRT0001
Laboratory Work Order Number: 19G0731

Enclosed are results of analyses for samples received by the laboratory on July 16, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Raymond J. McCarthy
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660
ATTN: Kevin Kitchin

REPORT DATE: 8/5/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: STRT0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19G0731

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 160 Portsmouth Ave., Stratham, NH

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
160 Portsmouth	19G0731-01	Drinking Water		EPA 537	

con-test® ANALYTICAL LABORATORY

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537

Qualifications:

L-02

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:

8:2 Fluorotelomersulfonate (8:2 FT
B236184-BS1

L-05

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)
B236184-BS1

S-13

Surrogate recovery is outside of control limits on both columns.
Data validation is not affected since all results are "not detected" and bias is on the high side.

Analyte & Samples(s) Qualified:

13C-PFHxA
B236184-BLK1

S-26

Surrogate outside of control limits.

Analyte & Samples(s) Qualified:

13C-PFHxA
S038809-CCV3

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)
S038603-CCV1, S038603-CCV2, S038809-CCV3

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT
S038603-CCV1, S038809-CCV2

8:2 Fluorotelomersulfonate (8:2 FT
S038603-CCV1, S038809-CCV1, S038809-CCV2

Z-01

Surrogate Recovery is outside of method Control limits, sample was not re-extracted due to sample hold time non-conformance. Sample was re-analyzed. Original result is reported

Analyte & Samples(s) Qualified:

d5-NEtFOSAA
19G0731-01[160 Portsmouth]

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The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 160 Portsmouth Ave., Stratham, N Sample Description: Work Order: 19G0731

Date Received: 7/16/2019

Field Sample #: 160 Portsmouth Sampled: 7/15/2019 16:00

Sample ID: 19G0731-01

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	2.7	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorobutanesulfonic acid (PFBS)	5.6	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluoropentanoic acid (PFPeA)	7.5	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorohexanoic acid (PFHxA)	8.9	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorohexanesulfonic acid (PFHxS)	13	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluoroheptanoic acid (PFHpA)	3.1	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorooctanoic acid (PFOA)	8.8	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:07	JFC

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	120		70-130		7/30/19 15:07
13C-PFDA	85.1		70-130		7/30/19 15:07
d5-NEtFOSAA	**60.5**	*	70-130	Z-01	7/30/19 15:07

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Sample Extraction Data

Prep Method: EPA 537-EPA 537

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0731-01 [160 Portsmouth]	B236184	250	1.00	07/23/19

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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B236184 - EPA 537											
Blank (B236184-BLK1)				Prepared: 07/23/19 Analyzed: 07/29/19							
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L								U
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L								U
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L								U
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L								U
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L								U
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L								U
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L								U
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L								U
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L								U
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L								U
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L								U
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L								U
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L								U
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L								U
N-EtFOSAA	ND	2.0	ng/L								U
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L								U
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L								U
N-MeFOSAA	ND	2.0	ng/L								U
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L								U
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L								U
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L								U
Surrogate: 13C-PFHxA	*53.1*		ng/L	40.0		**133**	*	70-130			S-13
Surrogate: 13C-PFDA	*34.8*		ng/L	40.0		87.0		70-130			
Surrogate: d5-NEtFOSAA	*127*		ng/L	160		79.2		70-130			
LCS (B236184-BS1)				Prepared: 07/23/19 Analyzed: 07/29/19							
Perfluorobutanoic acid (PFBA)	28.7	2.0	ng/L	20.0		**143**	*	70-130			L-05
Perfluorobutanesulfonic acid (PFBS)	17.9	2.0	ng/L	17.7		101		70-130			
Perfluoropentanoic acid (PFPeA)	18.1	2.0	ng/L	20.0		90.7		70-130			
Perfluorohexanoic acid (PFHxA)	20.9	2.0	ng/L	20.0		104		70-130			
Perfluorohexanesulfonic acid (PFHxS)	18.7	2.0	ng/L	18.2		103		70-130			
Perfluoroheptanoic acid (PFHpA)	16.1	2.0	ng/L	20.0		80.7		70-130			
Perfluoroheptanesulfonic acid (PFHpS)	13.8	2.0	ng/L	19.0		72.5		70-130			
Perfluorooctanoic acid (PFOA)	19.5	2.0	ng/L	20.0		97.6		70-130			
Perfluorooctanesulfonic acid (PFOS)	18.4	2.0	ng/L	18.5		99.5		70-130			
Perfluorooctanesulfonamide (FOSA)	15.3	2.0	ng/L	20.0		76.6		70-130			
6:2 Fluorotelomersulfonate (6:2 FTS A)	24.1	2.0	ng/L	19.0		127		70-130			
Perfluorononanoic acid (PFNA)	16.2	2.0	ng/L	20.0		81.1		70-130			
Perfluorodecanoic acid (PFDA)	17.6	2.0	ng/L	20.0		88.0		70-130			
Perfluorodecanesulfonic acid (PFDS)	14.9	2.0	ng/L	19.3		77.2		70-130			
N-EtFOSAA	14.7	2.0	ng/L	20.0		73.6		70-130			
8:2 Fluorotelomersulfonate (8:2 FTS A)	26.3	2.0	ng/L	19.2		**137**	*	70-130			L-02
Perfluoroundecanoic acid (PFUnA)	16.5	2.0	ng/L	20.0		82.3		70-130			
N-MeFOSAA	16.2	2.0	ng/L	20.0		81.0		70-130			
Perfluorododecanoic acid (PFDoA)	15.2	2.0	ng/L	20.0		75.8		70-130			
Perfluorotridecanoic acid (PFTrDA)	15.2	2.0	ng/L	20.0		76.2		70-130			
Perfluorotetradecanoic acid (PFTA)	15.5	2.0	ng/L	20.0		77.5		70-130			
Surrogate: 13C-PFHxA	*45.0*		ng/L	40.0		112		70-130			
Surrogate: 13C-PFDA	*35.1*		ng/L	40.0		87.8		70-130			
Surrogate: d5-NEtFOSAA	*153*		ng/L	160		95.5		70-130			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-05	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.
S-13	Surrogate recovery is outside of control limits on both columns. Data validation is not affected since all results are "not detected" and bias is on the high side.
S-26	Surrogate outside of control limits.
U	Analyte included in the analysis, but not detected
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
Z-01	Surrogate Recovery is outside of method Control limits, sample was not re-extracted due to sample hold time non-conformance. Sample was re-analyzed. Original result is reported

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 537 in Drinking Water	
Perfluorobutanoic acid (PFBA)	NH
Perfluorobutanesulfonic acid (PFBS)	NH,ME,RI,NJ,CT,PA
Perfluorohexanoic acid (PFHxA)	NH,ME,RI,NJ,CT,PA
Perfluorohexanesulfonic acid (PFHxS)	NH,ME,RI,NJ,CT,PA
Perfluoroheptanoic acid (PFHpA)	NH,ME,RI,NJ,CT,PA
Perfluorooctanoic acid (PFOA)	NH,NY,ME,RI,NJ,CT,PA
Perfluorooctanesulfonic acid (PFOS)	NH,NY,ME,RI,NJ,CT,PA
Perfluorononanoic acid (PFNA)	NH,ME,RI,NJ,CT,PA
Perfluorodecanoic acid (PFDA)	NH,ME,RI,NJ,CT,PA
N-EtFOSAA	NH,RI,NJ,CT,PA
Perfluoroundecanoic acid (PFUnA)	NH,ME,RI,NJ,CT,PA
N-MeFOSAA	NH,RI,NJ,CT,PA
Perfluorododecanoic acid (PFDoA)	NH,ME,RI,NJ,CT,PA
Perfluorotridecanoic acid (PFTrDA)	NH,ME,RI,NJ,CT,PA
Perfluorotetradecanoic acid (PFTA)	ME,RI,NJ,CT,PA
SOP 434-PFAAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
6:2 Fluorotelomersulfonate (6:2 FTS A)	NH-P
Perfluorononanoic acid (PFNA)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
N-EtFOSAA	NH-P
8:2 Fluorotelomersulfonate (8:2 FTS A)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
N-MeFOSAA	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2019
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

con-test ANALYTICAL LABORATORY

RJM

Phone: 413-525-2332 146073

Fax: 413-525-6405

Email: info@contestlabs.com

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

Page 1 of 1

Company Name: Wilcox + Barton

Address: #1 Commons Dr. Unit 12B, Londonderry NH

Phone: 860-389-3984

Project Name: SERTOOOI

Project Location: 1160 Portsmouth Ave, Stratham NH

Project Number:

Project Manager: Kevin Kitchin

Con-Test Quote Name/Number:

Invoice Recipient:

Sampled By: M. Elster

Requested Turnaround Time: 7-Day ☐ 10-Day ☐ PFAS 10-Day (std) ☒ Due Date:

Rush Approval Required: 1-Day ☐ 3-Day ☐ 2-Day ☐ 4-Day ☐

Preservation/Filtering Samples: ○ Field Filtered ○ Lab to Filter

Organic/Inorganic Samples: ○ Field Filtered ○ Lab to Filter

Data Delivery: Format: PDF ☒ EXCEL ☒

Other:

CLP Like Data Pkg Required: ☐

Email To: KKitchin@wilcoxandbarton.com

Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1]Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS 537.1
1	1160 Portsmouth	7-15-19	1600	GRAB	DW				X			2

[2] Preservation Code

Courier Use Only

Total Number Of:

VIALS_____

GLASS_____

PLASTIC_____

BACTERIA_____

ENCORE_____

Glassware in the fridge? Y / N

Glassware in freezer? Y / N

Prepackaged Cooler? Y / N

*Contest is not responsible for missing samples from prepacked coolers

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments: O: Trizma (B)

Detection Limit Requirements: MA / CT / Other: NHAGQS

Special Requirements: ☐ MA MCP Required; MCP Certification Form Required; ☐ CT RCP Required; RCP Certification Form Required; ☐ MA State DW Required; PWSID #

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAC and AIHA-LAP, LLC Accredited

Project Entity: Government ☐ Municipality ☐ MWRA ☐ WRTA ☐ Federal ☐ 21 J ☐ School ☐ City ☐ Brownfield ☐ MBTA ☐

Other: ☐ Chromatogram ☐ AIHA-LAP,LLC

PCB ONLY: ☐ Soxhlet ☐ Non Soxhlet

Comments:

Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. Chain of Custody is a legal document that must be complete and accurate and is used to determine v analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Test values your partnership on each project and will try to assist with missing information, but will n held accountable.

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client WtB

Received By up Date 7/16/19 Time 16:15

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____
Direct from Sampling ____ Ambient ____ Melted Ice ____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 2.8
By Blank # ____ Actual Temp -

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A
Was COC Relinquished ? T Does Chain Agree With Samples? T
Are there broken/leaking/loose caps on any samples? F
Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all pertinent Information? Client T Analysis T Sampler Name T
Project T ID's T Collection Dates/Times T
Are Sample labels filled out and legible? T
Are there Lab to Filters? F Who was notified? ____
Are there Rushes? F Who was notified? ____
Are there Short Holds? F Who was notified? ____
Is there enough Volume? T
Is there Headspace where applicable? N/A MS/MSD? F
Proper Media/Containers Used? T Is splitting samples required? F
Were trip blanks received? F On COC? F
Do all samples have the proper pH? N/A Acid ____ Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	2	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

August 5, 2019

Kevin Kitchin
Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660

Project Location: 164 Portsmouth Ave., Stratham, NH
Client Job Number:
Project Number: STRT0001
Laboratory Work Order Number: 19G0732

Enclosed are results of analyses for samples received by the laboratory on July 16, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Raymond J. McCarthy
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660
ATTN: Kevin Kitchin

REPORT DATE: 8/5/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: STRT0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19G0732

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 164 Portsmouth Ave., Stratham, NH

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
164 Portsmouth Ave	19G0732-01	Drinking Water		EPA 537	

con-test® ANALYTICAL LABORATORY

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA 537

Qualifications:

L-02

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:

8:2 Fluorotelomersulfonate (8:2 FT
B236184-BS1

L-05

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)
B236184-BS1

S-13

Surrogate recovery is outside of control limits on both columns.
Data validation is not affected since all results are "not detected" and bias is on the high side.

Analyte & Samples(s) Qualified:

13C-PFHxA
B236184-BLK1

S-26

Surrogate outside of control limits.

Analyte & Samples(s) Qualified:

13C-PFHxA
S038809-CCV3

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)
S038603-CCV1, S038603-CCV2, S038809-CCV3

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT
S038603-CCV1, S038809-CCV2

8:2 Fluorotelomersulfonate (8:2 FT
S038603-CCV1, S038809-CCV1, S038809-CCV2

Z-01

Surrogate Recovery is outside of method Control limits, sample was not re-extracted due to sample hold time non-conformance. Sample was re-analyzed. Original result is reported

Analyte & Samples(s) Qualified:

13C-PFDA
19G0732-01[164 Portsmouth Ave]

d5-NEtFOSAA
19G0732-01[164 Portsmouth Ave]

con-test® ANALYTICAL LABORATORY

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The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 164 Portsmouth Ave., Stratham, N Sample Description: Work Order: 19G0732

Date Received: 7/16/2019

Field Sample #: 164 Portsmouth Ave Sampled: 7/16/2019 12:20

Sample ID: 19G0732-01

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	2.1	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorobutanesulfonic acid (PFBS)	9.0	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluoropentanoic acid (PFPeA)	6.0	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorohexanoic acid (PFHxA)	6.7	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorohexanesulfonic acid (PFHxS)	26	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluoroheptanoic acid (PFHpA)	2.5	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorooctanoic acid (PFOA)	12	2.0		ng/L	1		EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	7/23/19	7/30/19 15:19	JFC

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	95.7		70-130		7/30/19 15:19
13C-PFDA	**41.4**	*	70-130	Z-01	7/30/19 15:19
d5-NEtFOSAA	**29.2**	*	70-130	Z-01	7/30/19 15:19

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Sample Extraction Data

Prep Method: EPA 537-EPA 537

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0732-01 [164 Portsmouth Ave]	B236184	250	1.00	07/23/19

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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B236184 - EPA 537											
Blank (B236184-BLK1)				Prepared: 07/23/19 Analyzed: 07/29/19							
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L								U
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L								U
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L								U
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L								U
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L								U
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L								U
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L								U
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L								U
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L								U
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L								U
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L								U
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L								U
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L								U
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L								U
N-EtFOSAA	ND	2.0	ng/L								U
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L								U
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L								U
N-MeFOSAA	ND	2.0	ng/L								U
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L								U
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L								U
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L								U
Surrogate: 13C-PFHxA	*53.1*		ng/L	40.0		**133**	*	70-130			S-13
Surrogate: 13C-PFDA	*34.8*		ng/L	40.0		87.0		70-130			
Surrogate: d5-NEtFOSAA	*127*		ng/L	160		79.2		70-130			
LCS (B236184-BS1)				Prepared: 07/23/19 Analyzed: 07/29/19							
Perfluorobutanoic acid (PFBA)	28.7	2.0	ng/L	20.0		**143**	*	70-130			L-05
Perfluorobutanesulfonic acid (PFBS)	17.9	2.0	ng/L	17.7		101		70-130			
Perfluoropentanoic acid (PFPeA)	18.1	2.0	ng/L	20.0		90.7		70-130			
Perfluorohexanoic acid (PFHxA)	20.9	2.0	ng/L	20.0		104		70-130			
Perfluorohexanesulfonic acid (PFHxS)	18.7	2.0	ng/L	18.2		103		70-130			
Perfluoroheptanoic acid (PFHpA)	16.1	2.0	ng/L	20.0		80.7		70-130			
Perfluoroheptanesulfonic acid (PFHpS)	13.8	2.0	ng/L	19.0		72.5		70-130			
Perfluorooctanoic acid (PFOA)	19.5	2.0	ng/L	20.0		97.6		70-130			
Perfluorooctanesulfonic acid (PFOS)	18.4	2.0	ng/L	18.5		99.5		70-130			
Perfluorooctanesulfonamide (FOSA)	15.3	2.0	ng/L	20.0		76.6		70-130			
6:2 Fluorotelomersulfonate (6:2 FTS A)	24.1	2.0	ng/L	19.0		127		70-130			
Perfluorononanoic acid (PFNA)	16.2	2.0	ng/L	20.0		81.1		70-130			
Perfluorodecanoic acid (PFDA)	17.6	2.0	ng/L	20.0		88.0		70-130			
Perfluorodecanesulfonic acid (PFDS)	14.9	2.0	ng/L	19.3		77.2		70-130			
N-EtFOSAA	14.7	2.0	ng/L	20.0		73.6		70-130			
8:2 Fluorotelomersulfonate (8:2 FTS A)	26.3	2.0	ng/L	19.2		**137**	*	70-130			L-02
Perfluoroundecanoic acid (PFUnA)	16.5	2.0	ng/L	20.0		82.3		70-130			
N-MeFOSAA	16.2	2.0	ng/L	20.0		81.0		70-130			
Perfluorododecanoic acid (PFDoA)	15.2	2.0	ng/L	20.0		75.8		70-130			
Perfluorotridecanoic acid (PFTrDA)	15.2	2.0	ng/L	20.0		76.2		70-130			
Perfluorotetradecanoic acid (PFTA)	15.5	2.0	ng/L	20.0		77.5		70-130			
Surrogate: 13C-PFHxA	*45.0*		ng/L	40.0		112		70-130			
Surrogate: 13C-PFDA	*35.1*		ng/L	40.0		87.8		70-130			
Surrogate: d5-NEtFOSAA	*153*		ng/L	160		95.5		70-130			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-05	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.
S-13	Surrogate recovery is outside of control limits on both columns. Data validation is not affected since all results are "not detected" and bias is on the high side.
S-26	Surrogate outside of control limits.
U	Analyte included in the analysis, but not detected
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
Z-01	Surrogate Recovery is outside of method Control limits, sample was not re-extracted due to sample hold time non-conformance. Sample was re-analyzed. Original result is reported

con-test® ANALYTICAL LABORATORY

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 537 in Drinking Water	
Perfluorobutanoic acid (PFBA)	NH
Perfluorobutanesulfonic acid (PFBS)	NH,ME,RI,NJ,CT,PA
Perfluorohexanoic acid (PFHxA)	NH,ME,RI,NJ,CT,PA
Perfluorohexanesulfonic acid (PFHxS)	NH,ME,RI,NJ,CT,PA
Perfluoroheptanoic acid (PFHpA)	NH,ME,RI,NJ,CT,PA
Perfluorooctanoic acid (PFOA)	NH,NY,ME,RI,NJ,CT,PA
Perfluorooctanesulfonic acid (PFOS)	NH,NY,ME,RI,NJ,CT,PA
Perfluorononanoic acid (PFNA)	NH,ME,RI,NJ,CT,PA
Perfluorodecanoic acid (PFDA)	NH,ME,RI,NJ,CT,PA
N-EtFOSAA	NH,RI,NJ,CT,PA
Perfluoroundecanoic acid (PFUnA)	NH,ME,RI,NJ,CT,PA
N-MeFOSAA	NH,RI,NJ,CT,PA
Perfluorododecanoic acid (PFDoA)	NH,ME,RI,NJ,CT,PA
Perfluorotridecanoic acid (PFTrDA)	NH,ME,RI,NJ,CT,PA
Perfluorotetradecanoic acid (PFTA)	ME,RI,NJ,CT,PA
SOP 434-PFAAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
6:2 Fluorotelomersulfonate (6:2 FTS A)	NH-P
Perfluorononanoic acid (PFNA)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
N-EtFOSAA	NH-P
8:2 Fluorotelomersulfonate (8:2 FTS A)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
N-MeFOSAA	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2019
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

con-test ANALYTICAL LABORATORY

RJM

Phone: 413-525-2332 1960732
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Email: info@contestlabs.com

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

Page 1 of 1

Company Name: Wilcox & Barton
Address: #1B Commons Dr, Unit 12B, Londonderry NH
Phone: 860-389-3984
Report Name: STR-T0001
Project Location: 164 Portsmouth Ave, Stratham NH
Project Number: STR-T0001
Project Manager: Kevin Kitchin
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: M. Eyster & M. Broussard

Requested Turnaround Time:
7-Day ☐ 10-Day ☐
PFAS 10-Day (std) ☑ Due Date:

Rush Approval Required:
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Preservation Samples:
○ Field Filtered
○ Lab to Filter

Preservation Samples:
○ Field Filtered
○ Lab to Filter

Data Delivery:
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: KKitchin@wilcoxandbarton.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1] Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS (537.1)												[2] Preservation Code
1	164 Portsmouth Ave	7/15/19	1220	GRAB	DW	V			X			2												

Cooler Use Only
Total Number Of:
VIALS
GLASS
PLASTIC
BACTERIA
ENCORE

Glassware in the fridge? Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N
*Contest is not responsible for missing samples from prepacked coolers

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Relinquished by: (signature)	Date/Time:
MBB	7/15/19 1400
Received by: (signature)	Date/Time:
[signature]	7/15/19 4:4
Relinquished by: (signature)	Date/Time:
[signature]	7/16/19 4:15
Received by: (signature)	Date/Time:
[signature] 2-8	7/16/19 6:15
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments: O: Trizma (B)

Data Deliverable Requirements:
QA

Special Requirements:
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Other: NH AGQS
PWSID #

NELAC and AIHA-LAP, LLC Accredited

Project Entity
Government ☐ Municipality ☐ MWRA ☐ WRTA ☐
Federal ☐ 21 J ☐ School ☐
City ☐ Brownfield ☐ MBTA ☐

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Lab Comments:

Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. Chain of Custody is a legal document that must be complete and accurate and is used to determine analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Test values your partnership on each project and will try to assist with missing information, but will not be held accountable.

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client WtB

Received By AP Date 7/16/19 Time 16:15

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____
Direct from Sampling ____ Ambient ____ Melted Ice ____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 2.8
By Blank # ____ Actual Temp -

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A
Was COC Relinquished ? T Does Chain Agree With Samples? T
Are there broken/leaking/loose caps on any samples? F
Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all pertinent Information? Client T Analysis T Sampler Name T
Project T ID's T Collection Dates/Times T
Are Sample labels filled out and legible? T
Are there Lab to Filters? F Who was notified? ____
Are there Rushes? F Who was notified? ____
Are there Short Holds? F Who was notified? ____
Is there enough Volume? T
Is there Headspace where applicable? N/A MS/MSD? F
Proper Media/Containers Used? T Is splitting samples required? F
Were trip blanks received? F On COC? F
Do all samples have the proper pH? N/A Acid ____ Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	2	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

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December 11, 2019

Jim Ricker
Wilcox & Barton
85 Jenkins Farm Rd
Chester, NH 03036

Project Location: 2 Winnicutt Rd., Stratham, NH
Client Job Number:
Project Number: STRT0001
Laboratory Work Order Number: 19K0755

Enclosed are results of analyses for samples received by the laboratory on November 13, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Raymond J. McCarthy
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Wilcox & Barton
85 Jenkins Farm Rd
Chester, NH 03036
ATTN: Jim Ricker

REPORT DATE: 12/11/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: STRT0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19K0755

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 2 Winnicutt Rd., Stratham, NH

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
5 College Road	19K0755-01	Drinking Water		EPA 537	
9 College Road	19K0755-02	Drinking Water		EPA 537	
131 Portsmouth Ave	19K0755-03	Drinking Water		EPA 537	
132 Portsmouth Ave	19K0755-04	Drinking Water		EPA 537	
Pond SW-1	19K0755-05	Water		SOP 434-PFAAS	
Field Blank	19K0755-06	Field Blank		SOP 434-PFAAS	
5 French Lane	19K0755-08	Drinking Water		EPA 537	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

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EPA 537

Qualifications:

L-01

Laboratory fortified blank /laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT
B246285-BS1

Perfluorobutanoic acid (PFBA)
B246285-BS1

L-05

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

8:2 Fluorotelomersulfonate (8:2 FT
B246285-BS1

Perfluorooctanesulfonic acid (PFO
B246285-BS1

Perfluorooctanoic acid (PFOA)
B246285-BS1

PF-01

Surrogate recovery is outside of control limits. Sample not re-extracted past holding time per method.

Analyte & Samples(s) Qualified:

13C-PFDA
19K0755-01[5 College Road], 19K0755-04[132 Portsmouth Ave], 19K0755-08[5 French Lane], B246285-BLK1

13C-PFHxA
19K0755-01[5 College Road], 19K0755-08[5 French Lane], B246285-BLK1

d5-NEtFOSAA
19K0755-01[5 College Road], 19K0755-03[131 Portsmouth Ave]

PF-04

Internal standard area <50% of associated calibration standard internal standard area. Re-analysis yielded similar internal standard non-conformance. Original results reported.

Analyte & Samples(s) Qualified:

13C-PFOA
19K0755-01[5 College Road]

13C-PFOS
19K0755-04[132 Portsmouth Ave], 19K0755-08[5 French Lane]

d3-NMeFOSAA
19K0755-01[5 College Road], 19K0755-04[132 Portsmouth Ave], 19K0755-08[5 French Lane]

PF-05

Opening calibration verification was within control criteria. Closing calibration verification was outside of criteria and biased on the low side. Re-analysis yielded similar non-conformance.

Analyte & Samples(s) Qualified:

13C-PFDA
S043591-CCV2

13C-PFHxA
S043591-CCV2

Perfluorododecanoic acid (PFDoA)
S043591-CCV2

Perfluoroheptanoic acid (PFHpA)
S043591-CCV2

Perfluorohexanoic acid (PFHxA)
S043591-CCV2

Perfluorotetradecanoic acid (PFTA
S043591-CCV2

Perfluorotridecanoic acid (PFTrDA
S043591-CCV2

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V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

N-EtFOSAA
S043591-CCV1

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT
S043591-CCV1, S043591-CCV2

Perfluoroheptanesulfonic acid (PFl
S043591-CCV2

SOP 434-PFAAS

Qualifications:

PF-05

Opening calibration verification was within control criteria. Closing calibration verification was outside of criteria and biased on the low side. Re-analysis yielded similar non-conformance.

Analyte & Samples(s) Qualified:

13C-PFDA
S043184-CCV3

13C-PFHxA
S043184-CCV3

S-17

Surrogate recovery is outside of control limits. Data validation is not affected since all associated results are less than the reporting limit and bias is on the high side.

Analyte & Samples(s) Qualified:

13C-PFOA
B246429-BLK1

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Perfluoropentanoic acid (PFPeA)
S043184-CCV1

EPA 537

If more than the compound list from method EPA 537 has been reported, prep and analysis has been conducted by method SOP 434-PFAAS.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 5 College Road Sampled: 11/12/2019 11:30

Sample ID: 19K0755-01

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorobutanesulfonic acid (PFBS)	29	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoropentanoic acid (PFPeA)	9.2	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorohexanoic acid (PFHxA)	18	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorohexanesulfonic acid (PFHxS)	15	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoroheptanoic acid (PFHpA)	3.7	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorooctanoic acid (PFOA)	22	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorooctanesulfonic acid (PFOS)	41	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorononanoic acid (PFNA)	3.0	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorodecanoic acid (PFDA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
N-EtFOSAA	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
N-MeFOSAA	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	**266**	*	70-130	PF-01	11/29/19 18:39
13C-PFDA	**180**	*	70-130	PF-01	11/29/19 18:39
d5-NEtFOSAA	**140**	*	70-130	PF-01	11/29/19 18:39

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 9 College Road Sampled: 11/12/2019 11:00

Sample ID: 19K0755-02

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorobutanesulfonic acid (PFBS)	5.5	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluoropentanoic acid (PFPeA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorohexanoic acid (PFHxA)	5.4	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorohexanesulfonic acid (PFHxS)	5.8	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorooctanoic acid (PFOA)	12	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorooctanesulfonic acid (PFOS)	16	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	2.0	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	114	70-130		11/29/19 18:51
13C-PFDA	119	70-130		11/29/19 18:51
d5-NEtFOSAA	122	70-130		11/29/19 18:51

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Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 131 Portsmouth Ave Sampled: 11/12/2019 13:00

Sample ID: 19K0755-03

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorobutanesulfonic acid (PFBS)	3.1	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluoropentanoic acid (PFPeA)	2.0	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorohexanoic acid (PFHxA)	2.3	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorohexanesulfonic acid (PFHxS)	6.1	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorooctanoic acid (PFOA)	4.0	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorooctanesulfonic acid (PFOS)	5.4	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	115		70-130		11/27/19 10:15
13C-PFDA	119		70-130		11/27/19 10:15
d5-NEtFOSAA	**140**	*	70-130	PF-01	11/27/19 10:15

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Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 132 Portsmouth Ave Sampled: 11/12/2019 12:00

Sample ID: 19K0755-04

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorobutanesulfonic acid (PFBS)	3.7	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluoropentanoic acid (PFPeA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorohexanesulfonic acid (PFHxS)	16	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	113		70-130		11/29/19 19:04
13C-PFDA	**34.4**	*	70-130	PF-01	11/29/19 19:04
d5-NEtFOSAA	77.3		70-130		11/29/19 19:04

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: Pond SW-1 Sampled: 11/12/2019 12:30

Sample ID: 19K0755-05

Sample Matrix: Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluoropentanoic acid (PFPeA)	7.8	2.0	ng/L	1		SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorohexanoic acid (PFHxA)	2.3	2.0	ng/L	1		SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorohexanesulfonic acid (PFHxS)	3.4	2.0	ng/L	1		SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorooctanoic acid (PFOA)	2.5	2.0	ng/L	1		SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 8:47	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	93.4	70-130		11/27/19 8:47
13C-PFDA	76.9	70-130		11/27/19 8:47
d5-NEtFOSAA	75.4	70-130		11/27/19 8:47

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: Field Blank Sampled: 11/12/2019 10:45

Sample ID: 19K0755-06

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	11/19/19	11/27/19 9:00	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	93.1	70-130		11/27/19 9:00
13C-PFDA	90.8	70-130		11/27/19 9:00
d5-NEtFOSAA	92.6	70-130		11/27/19 9:00

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 5 French Lane Sampled: 11/12/2019 15:15

Sample ID: 19K0755-08

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorobutanesulfonic acid (PFBS)	5.4	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluoropentanoic acid (PFPeA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorohexanesulfonic acid (PFHxS)	12	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorooctanoic acid (PFOA)	3.4	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	**156**	*	70-130	PF-01	11/29/19 19:17
13C-PFDA	**26.6**	*	70-130	PF-01	11/29/19 19:17
d5-NEtFOSAA	111		70-130		11/29/19 19:17

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: EPA 537-EPA 537

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K0755-01 [5 College Road]	B246285	240	1.00	11/18/19
19K0755-02 [9 College Road]	B246285	250	1.00	11/18/19
19K0755-03 [131 Portsmouth Ave]	B246285	250	1.00	11/18/19
19K0755-04 [132 Portsmouth Ave]	B246285	250	1.00	11/18/19
19K0755-08 [5 French Lane]	B246285	250	1.00	11/18/19

Prep Method: SOP 434-PFAAS-SOP 434-PFAAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19K0755-05 [Pond SW-1]	B246429	250	1.00	11/19/19
19K0755-06 [Field Blank]	B246429	250	1.00	11/19/19

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B246285 - EPA 537											
Blank (B246285-BLK1)				Prepared: 11/18/19 Analyzed: 11/29/19							
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L								U
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L								U
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L								U
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L								U
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L								U
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L								U
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L								U
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L								U
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L								U
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L								U
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L								U
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L								U
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L								U
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L								U
N-EtFOSAA	ND	2.0	ng/L								U
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L								U
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L								U
N-MeFOSAA	ND	2.0	ng/L								U
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L								U
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L								U
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L								U
Surrogate: 13C-PFHxA	*25.9*		ng/L	40.0		**64.8**	*	70-130			PF-01
Surrogate: 13C-PFDA	*24.2*		ng/L	40.0		**60.4**	*	70-130			PF-01
Surrogate: d5-NEtFOSAA	*151*		ng/L	160		94.1		70-130			
LCS (B246285-BS1)				Prepared: 11/18/19 Analyzed: 11/27/19							
Perfluorobutanoic acid (PFBA)	14.5	2.0	ng/L	10.0		**145**	*	70-130			L-01
Perfluorobutanesulfonic acid (PFBS)	10.6	2.0	ng/L	10.0		106		70-130			
Perfluoropentanoic acid (PFPeA)	12.2	2.0	ng/L	10.0		122		70-130			
Perfluorohexanoic acid (PFHxA)	9.24	2.0	ng/L	10.0		92.4		70-130			
Perfluorohexanesulfonic acid (PFHxS)	11.8	2.0	ng/L	9.10		129		70-130			
Perfluoroheptanoic acid (PFHpA)	9.87	2.0	ng/L	10.0		98.7		70-130			
Perfluoroheptanesulfonic acid (PFHpS)	10.6	2.0	ng/L	9.50		111		70-130			
Perfluorooctanoic acid (PFOA)	14.1	2.0	ng/L	10.0		**141**	*	70-130			L-05
Perfluorooctanesulfonic acid (PFOS)	12.4	2.0	ng/L	9.25		**135**	*	70-130			L-05
Perfluorooctanesulfonamide (FOSA)	10.2	2.0	ng/L	10.0		102		70-130			
6:2 Fluorotelomersulfonate (6:2 FTS A)	12.8	2.0	ng/L	9.50		**135**	*	70-130			L-01
Perfluorononanoic acid (PFNA)	12.4	2.0	ng/L	10.0		124		70-130			
Perfluorodecanoic acid (PFDA)	9.22	2.0	ng/L	10.0		92.2		70-130			
Perfluorodecanesulfonic acid (PFDS)	11.6	2.0	ng/L	9.65		120		70-130			
N-EtFOSAA	11.2	2.0	ng/L	10.0		112		70-130			
8:2 Fluorotelomersulfonate (8:2 FTS A)	13.3	2.0	ng/L	9.60		**139**	*	70-130			L-05
Perfluoroundecanoic acid (PFUnA)	10.2	2.0	ng/L	10.0		102		70-130			
N-MeFOSAA	12.7	2.0	ng/L	10.0		127		70-130			
Perfluorododecanoic acid (PFDoA)	9.38	2.0	ng/L	10.0		93.8		70-130			
Perfluorotridecanoic acid (PFTrDA)	8.95	2.0	ng/L	10.0		89.5		70-130			
Perfluorotetradecanoic acid (PFTA)	10.0	2.0	ng/L	10.0		100		70-130			
Surrogate: 13C-PFHxA	*29.1*		ng/L	40.0		72.8		70-130			
Surrogate: 13C-PFDA	*30.5*		ng/L	40.0		76.2		70-130			
Surrogate: d5-NEtFOSAA	*148*		ng/L	160		92.8		70-130			

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B246429 - SOP 434-PFAAS										
Blank (B246429-BLK1)				Prepared: 11/19/19 Analyzed: 11/27/19						
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L							U
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							U
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							U
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							U
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							U
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							U
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L							U
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							U
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							U
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L							U
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L							U
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							U
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							U
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L							U
N-EtFOSAA	ND	2.0	ng/L							U
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L							U
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							U
N-MeFOSAA	ND	2.0	ng/L							U
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							U
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							U
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							U
Surrogate: 13C-PFHxA	*33.2*		ng/L	40.0		83.0	70-130			
Surrogate: 13C-PFDA	*32.9*		ng/L	40.0		82.1	70-130			
Surrogate: d5-NEtFOSAA	*154*		ng/L	160		96.5	70-130			
LCS (B246429-BS1)				Prepared: 11/19/19 Analyzed: 11/29/19						
Perfluorobutanoic acid (PFBA)	2.18	2.0	ng/L	2.00		109	50-150			
Perfluorobutanesulfonic acid (PFBS)	2.02	2.0	ng/L	1.77		114	50-150			
Perfluoropentanoic acid (PFPeA)	2.21	2.0	ng/L	2.00		110	50-150			
Perfluorohexanoic acid (PFHxA)	1.96	2.0	ng/L	2.00		97.9	50-150			U
Perfluorohexanesulfonic acid (PFHxS)	1.21	2.0	ng/L	1.82		66.3	50-150			U
Perfluoroheptanoic acid (PFHpA)	1.27	2.0	ng/L	2.00		63.6	50-150			U
Perfluoroheptanesulfonic acid (PFHpS)	1.44	2.0	ng/L	1.90		75.9	50-150			U
Perfluorooctanoic acid (PFOA)	2.06	2.0	ng/L	2.00		103	50-150			
Perfluorooctanesulfonic acid (PFOS)	1.51	2.0	ng/L	1.85		81.4	50-150			U
Perfluorooctanesulfonamide (FOSA)	1.86	2.0	ng/L	2.00		93.1	50-150			U
6:2 Fluorotelomersulfonate (6:2 FTS A)	1.47	2.0	ng/L	1.90		77.6	50-150			U
Perfluorononanoic acid (PFNA)	1.47	2.0	ng/L	2.00		73.7	50-150			U
Perfluorodecanoic acid (PFDA)	1.88	2.0	ng/L	2.00		93.8	50-150			U
Perfluorodecanesulfonic acid (PFDS)	2.39	2.0	ng/L	1.93		124	50-150			
N-EtFOSAA	2.19	2.0	ng/L	2.00		109	50-150			
8:2 Fluorotelomersulfonate (8:2 FTS A)	1.97	2.0	ng/L	1.92		103	50-150			U
Perfluoroundecanoic acid (PFUnA)	1.74	2.0	ng/L	2.00		86.8	50-150			U
N-MeFOSAA	2.20	2.0	ng/L	2.00		110	50-150			
Perfluorododecanoic acid (PFDoA)	1.51	2.0	ng/L	2.00		75.3	50-150			U
Perfluorotridecanoic acid (PFTrDA)	1.47	2.0	ng/L	2.00		73.7	50-150			U
Perfluorotetradecanoic acid (PFTA)	1.36	2.0	ng/L	2.00		68.2	50-150			U
Surrogate: 13C-PFHxA	*29.8*		ng/L	40.0		74.6	70-130			
Surrogate: 13C-PFDA	*37.6*		ng/L	40.0		94.0	70-130			
Surrogate: d5-NEtFOSAA	*184*		ng/L	160		115	70-130			

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-01	Laboratory fortified blank /laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.
L-05	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.
PF-01	Surrogate recovery is outside of control limits. Sample not re-extracted past holding time per method.
PF-04	Internal standard area <50% of associated calibration standard internal standard area. Re-analysis yielded similar internal standard non-conformance. Original results reported.
PF-05	Opening calibration verification was within control criteria. Closing calibration verification was outside of criteria and biased on the low side. Re-analysis yielded similar non-conformance.
S-17	Surrogate recovery is outside of control limits. Data validation is not affected since all associated results are less than the reporting limit and bias is on the high side.
U	Analyte included in the analysis, but not detected
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 537 in Drinking Water	
Perfluorobutanoic acid (PFBA)	NH
Perfluorobutanesulfonic acid (PFBS)	NH,ME,RI,NJ,CT,PA
Perfluorohexanoic acid (PFHxA)	NH,ME,RI,NJ,CT,PA
Perfluorohexanesulfonic acid (PFHxS)	NH,ME,RI,NJ,CT,PA
Perfluoroheptanoic acid (PFHpA)	NH,ME,RI,NJ,CT,PA
Perfluorooctanoic acid (PFOA)	NH,NY,ME,RI,NJ,CT,PA
Perfluorooctanesulfonic acid (PFOS)	NH,NY,ME,RI,NJ,CT,PA
Perfluorononanoic acid (PFNA)	NH,ME,RI,NJ,CT,PA
Perfluorodecanoic acid (PFDA)	NH,ME,RI,NJ,CT,PA
N-EtFOSAA	NH,RI,NJ,CT,PA
Perfluoroundecanoic acid (PFUnA)	NH,ME,RI,NJ,CT,PA
N-MeFOSAA	NH,RI,NJ,CT,PA
Perfluorododecanoic acid (PFDoA)	NH,ME,RI,NJ,CT,PA
Perfluorotridecanoic acid (PFTrDA)	NH,ME,RI,NJ,CT,PA
Perfluorotetradecanoic acid (PFTA)	ME,RI,NJ,CT,PA
SOP 434-PFAAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
6:2 Fluorotelomersulfonate (6:2 FTS A)	NH-P
Perfluorononanoic acid (PFNA)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
N-EtFOSAA	NH-P
8:2 Fluorotelomersulfonate (8:2 FTS A)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
N-MeFOSAA	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2022
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2020
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2020
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

RJM 19K0755

con-test ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

Page 1 of 1

Company Name: Willcox & Barton, Inc.
Address: #1B Commons Drive, Unit 12B, Londonderry, NH
Phone: 978-491-9943
Project Name: STBT0001
Project Location: 2 Winnicutt Road, Stratham, NH
Project Number: STBT0001
Project Manager: Jim Bicker
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: Chelsea Hennky

Requested Turnaround Time
7-Day ☐ 10-Day ☐
PFAS 10-Day (std) ☒ Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

Data Delivery
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: jricker@willcoxandbarton.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS (O)
	5 College Road	11.12.19	1130	G	DW	U			X			X
	9 College Road	↓	1100	G	DW	U			X			X
	131 Portsmouth Ave	↓	1300	G	DW	U			X			X
	132 Portsmouth Ave	↓	1200	G	DW	U			X			X
	Pond SW-1	↓	1230	G	G	U			X			X
	Field Blank	11.12.19	1045	G	G	U			X			X
	Trip Blank			G					X			X
	5 French Lane	11.12.19	1515	G	DW	U			X			X

[2] Preservation Code

Courier Use Only
Total Number Of:
VIALS_____
GLASS_____
PLASTIC_____
BACTERIA_____
ENCORE_____

Glassware in the fridge? Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N
*Contest is not responsible for missing samples from prepacked coolers

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define) Trizma

Relinquished by: (signature)	Date/Time:
Chelsea Hennky	
Received by: (signature) B Barton	Date/Time: 11:00 11/13/19
Relinquished by: (signature) Brandon Hodgkins	Date/Time: 11/13/19 6:20
Received by: (signature)	Date/Time: 11/13/19 20
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments: (A)

Detection Limit Requirements
MA
CT

Special Requirements
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAC and AIHA-LAP, LLC Accredited

Other: NH AGQS

Project Entity
Government ☐ Municipality ☐ MWRA ☐ WRTA ☐
Federal ☐ 21 J ☐ School ☐
City ☐ Brownfield ☐ MBTA ☐

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Comments:

Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. Th Chain of Custody is a legal document that must be complete and accurate and is used to determine wh analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Co Test values your partnership on each project and will try to assist with missing information, but will not held accountable.

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Wilcox & Barton

Received By SA Date 11/13 Time 1920

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____ Direct from Sampling ____ Ambient ____ Melted Ice ____

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 23 By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? ____

Are there Rushes? F Who was notified? ____

Are there Short Holds? F Who was notified? ____

Is there enough Volume? T

Is there Headspace where applicable? NA MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? ~~F~~ T On COC? T

Do all samples have the proper pH? Acid NA Base NA

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	14	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 320-55026-12
Laboratory SDG: 13 College Rd - Stratham, NH
Client Project/Site: Public Notice

For:
New Hampshire Dept of Environmental Serv
Waste Mgmt Div MtBe Remediation Bureau
29 Hazen Dr
PO BOX 95
Concord, New Hampshire 03302-0095

Attn: Mr. Derek Bennett

Authorized for release by:
11/5/2019 8:11:32 AM

Orlette Johnson, Senior Project Manager
(484)685-0864
orlette.johnson@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.

Table of Contents

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	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)

Job ID: 320-55026-12

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-55026-12

Receipt
The samples were received on 10/4/2019 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0º C.

LCMS
Methods EPA 537(Mod): Due to a shortage in the marketplace for 13C3-PFBS, the target analyte PFBS and/or Perfluoropentanesulfonic acid (PFPeS) could not be quantitated against 13C3-PFBS (its labeled variant) as listed in the SOP. PFBS and Perfluoropentanesulfonic acid (PFPeS) was quantitated versus 18O2-PFHxS instead. (ICV 320-330187/11)

Methods EPA 537(Mod): The first level standard from the initial calibration curve is used to evaluate the tune criteria. The instrument mass windows are set at +/- 0.5amu; therefore, detection of the analyte serves as verification that the assigned mass is within +/- 0.5amu of the true value, which meets the DoD/DOE QSM tune criterion.

Methods EPA 537(Mod): Due to a shortage in the marketplace for 13C3-PFBS, the target analyte PFBS and/or Perfluoropentanesulfonic acid (PFPeS) could not be quantitated against 13C3-PFBS (its labeled variant) as listed in the SOP. PFBS and Perfluoropentanesulfonic acid (PFPeS) was quantitated versus 18O2-PFHxS instead. (ICV 320-334767/11)

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit for 13C2 PFHxDA: MTBE_1694 (320-55026-12). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples. The samples were re-analyzed with concurring results; therefore data have been reported.

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-330658.

Method Code: 3535 PFC

Method 3535: The following samples were observed to contain trizma prior to extraction so the MB, LCS, LCSD contained Trizma: MTBE_1694 (320-55026-12).

Method Code: 3535 PFC
preparation batch 320-330658

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

Detection Summary

Client: New Hampshire Dept of Environmental Serv
Project/Site: Public Notice

Job ID: 320-55026-12
SDG: 13 College Rd - Stratham, NH

Client Sample ID: MTBE_1694

Lab Sample ID: 320-55026-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	5.4		1.9	0.33	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.0		1.9	0.47	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA)	10		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.1		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	33		1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.65	J	1.9	0.26	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.1		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	73	B	1.9	0.16	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	0.64	J	1.9	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	17		1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: New Hampshire Dept of Environmental Serv
Project/Site: Public Notice

Job ID: 320-55026-12
SDG: 13 College Rd - Stratham, NH

Client Sample ID: MTBE_1694

Date Collected: 10/02/19 09:35
Date Received: 10/04/19 09:10

Lab Sample ID: 320-55026-12

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.1, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**5.4**		1.9	0.33	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluoropentanoic acid (PFPeA)	**3.0**		1.9	0.47	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorohexanoic acid (PFHxA)	**10**		1.9	0.55	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluoroheptanoic acid (PFHpA)	**3.1**		1.9	0.24	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorooctanoic acid (PFOA)	**33**		1.9	0.81	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorononanoic acid (PFNA)	**0.65**	**J**	1.9	0.26	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.28	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorobutanesulfonic acid (PFBS)	**7.1**		1.9	0.19	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorohexanesulfonic acid (PFHxS)	**73**	**B**	1.9	0.16	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.64**	**J**	1.9	0.18	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorooctanesulfonic acid (PFOS)	**17**		1.9	0.52	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.31	ng/L		10/14/19 06:35	10/31/19 22:46	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	1.2	ng/L		10/14/19 06:35	10/31/19 22:46	1
6:2 FTS	ND		9.6	1.9	ng/L		10/14/19 06:35	10/31/19 22:46	1
8:2 FTS	ND		1.9	0.36	ng/L		10/14/19 06:35	10/31/19 22:46	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.9	0.85	ng/L		10/14/19 06:35	10/31/19 22:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*88*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C5 PFPeA	*101*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C2 PFHxA	*96*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C4 PFHpA	*99*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C4 PFOA	*103*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C5 PFNA	*100*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C2 PFDA	*94*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C2 PFUnA	*90*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C2 PFDoA	*86*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C2 PFTeDA	*66*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C2 PFHxDA	*24*	*	*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
18O2 PFHxS	*109*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
13C4 PFOS	*93*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
d3-NMeFOSAA	*81*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
M2-6:2 FTS	*109*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*
M2-8:2 FTS	*89*		*50 - 150*	*10/14/19 06:35*	*10/31/19 22:46*	*1*

Isotope Dilution Summary

Client: New Hampshire Dept of Environmental Serv
Project/Site: Public Notice

Job ID: 320-55026-12
SDG: 13 College Rd - Stratham, NH

Method: EPA 537(Mod) - PFAS for QSM 5.1, Table B-15

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (50-150)	PFPeA (50-150)	PFHxA (50-150)	PFHpA (50-150)	PFOA (50-150)	PFNA (50-150)	PFDA (50-150)	PFUnA (50-150)
320-55026-12	MTBE_1694	88	101	96	99	103	100	94	90
LCS 320-330658/2-A	Lab Control Sample	102	109	103	104	103	103	97	97
LCSD 320-330658/3-A	Lab Control Sample Dup	102	106	100	102	104	103	99	98
MB 320-330658/1-A	Method Blank	102	107	99	103	103	102	100	98

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (50-150)	PFTDA (50-150)	PFHxDA (50-150)	PFHxS (50-150)	PFOS (50-150)	-NMeFOS/ (50-150)	M262FTS (50-150)	M282FTS (50-150)
320-55026-12	MTBE_1694	86	66	24 *	109	93	81	109	89
LCS 320-330658/2-A	Lab Control Sample	99	90	57	112	99	90	108	99
LCSD 320-330658/3-A	Lab Control Sample Dup	100	86	52	112	103	93	105	99
MB 320-330658/1-A	Method Blank	97	93	57	110	99	87	115	110

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
PFHxDA = 13C2 PFHxDA
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d3-NMeFOSAA = d3-NMeFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

Method: EPA 537(Mod) - PFAS for QSM 5.1, Table B-15

Lab Sample ID: MB 320-330658/1-A
Matrix: Water
Analysis Batch: 335053

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 330658

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.35	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorotetradecanoic acid (PFTeA)	0.402	J	2.0	0.29	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorohexanesulfonic acid (PFHxS)	0.337	J	2.0	0.17	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.19	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32	ng/L		10/14/19 06:35	10/31/19 20:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	1.2	ng/L		10/14/19 06:35	10/31/19 20:22	1
6:2 FTS	ND		10	2.0	ng/L		10/14/19 06:35	10/31/19 20:22	1
8:2 FTS	ND		2.0	0.38	ng/L		10/14/19 06:35	10/31/19 20:22	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		2.0	0.89	ng/L		10/14/19 06:35	10/31/19 20:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*102*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C5 PFPeA	*107*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C2 PFHxA	*99*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C4 PFHpA	*103*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C4 PFOA	*103*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C5 PFNA	*102*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C2 PFDA	*100*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C2 PFUnA	*98*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C2 PFDoA	*97*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C2 PFTeDA	*93*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C2 PFHxDA	*57*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
18O2 PFHxS	*110*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
13C4 PFOS	*99*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
d3-NMeFOSAA	*87*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
M2-6:2 FTS	*115*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*
M2-8:2 FTS	*110*		*50 - 150*	*10/14/19 06:35*	*10/31/19 20:22*	*1*

Lab Sample ID: LCS 320-330658/2-A
Matrix: Water
Analysis Batch: 335053

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 330658

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	43.8		ng/L		110	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	39.1		ng/L		98	66 - 126

Method: EPA 537(Mod) - PFAS for QSM 5.1, Table B-15 (Continued)

Lab Sample ID: LCS 320-330658/2-A
Matrix: Water
Analysis Batch: 335053

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 330658

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	40.0	42.8		ng/L		107	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	41.9		ng/L		105	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	41.0		ng/L		103	64 - 124
Perfluorononanoic acid (PFNA)	40.0	42.5		ng/L		106	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	44.9		ng/L		112	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	39.5		ng/L		99	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	41.7		ng/L		104	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	42.0		ng/L		105	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	39.8		ng/L		99	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	34.9		ng/L		99	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.5		ng/L		92	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	44.0		ng/L		115	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	38.1		ng/L		103	67 - 127
Perfluorodecanesulfonic acid (PFDS)	38.6	40.4		ng/L		105	68 - 128
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	46.2		ng/L		115	67 - 127
6:2 FTS	37.9	40.5		ng/L		107	66 - 126
8:2 FTS	38.3	41.5		ng/L		108	67 - 127
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	43.2		ng/L		108	72 - 132

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*102*		*50 - 150*
13C5 PFPeA	*109*		*50 - 150*
13C2 PFHxA	*103*		*50 - 150*
13C4 PFHpA	*104*		*50 - 150*
13C4 PFOA	*103*		*50 - 150*
13C5 PFNA	*103*		*50 - 150*
13C2 PFDA	*97*		*50 - 150*
13C2 PFUnA	*97*		*50 - 150*
13C2 PFDoA	*99*		*50 - 150*
13C2 PFTeDA	*90*		*50 - 150*
13C2 PFHxDA	*57*		*50 - 150*
18O2 PFHxS	*112*		*50 - 150*
13C4 PFOS	*99*		*50 - 150*
d3-NMeFOSAA	*90*		*50 - 150*
M2-6:2 FTS	*108*		*50 - 150*
M2-8:2 FTS	*99*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.1, Table B-15 (Continued)

Lab Sample ID: LCSD 320-330658/3-A
Matrix: Water
Analysis Batch: 335053

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 330658

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	42.7		ng/L		107	70 - 130	3	30
Perfluoropentanoic acid (PFPeA)			40.0	40.1		ng/L		100	66 - 126	3	30
Perfluorohexanoic acid (PFHxA)			40.0	42.7		ng/L		107	66 - 126	0	30
Perfluoroheptanoic acid (PFHpA)			40.0	42.1		ng/L		105	66 - 126	1	30
Perfluorooctanoic acid (PFOA)			40.0	40.8		ng/L		102	64 - 124	0	30
Perfluorononanoic acid (PFNA)			40.0	43.7		ng/L		109	68 - 128	3	30
Perfluorodecanoic acid (PFDA)			40.0	44.8		ng/L		112	69 - 129	0	30
Perfluoroundecanoic acid (PFUnA)			40.0	39.8		ng/L		99	60 - 120	1	30
Perfluorododecanoic acid (PFDoA)			40.0	41.0		ng/L		103	71 - 131	2	30
Perfluorotridecanoic acid (PFTriA)			40.0	43.5		ng/L		109	72 - 132	4	30
Perfluorotetradecanoic acid (PFTeA)			40.0	40.6		ng/L		101	68 - 128	2	30
Perfluorobutanesulfonic acid (PFBS)			35.4	34.8		ng/L		98	73 - 133	0	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	33.1		ng/L		91	63 - 123	1	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	40.9		ng/L		107	68 - 128	7	30
Perfluorooctanesulfonic acid (PFOS)			37.1	38.1		ng/L		103	67 - 127	0	30
Perfluorodecanesulfonic acid (PFDS)			38.6	39.1		ng/L		102	68 - 128	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	44.6		ng/L		112	67 - 127	3	30
6:2 FTS			37.9	39.9		ng/L		105	66 - 126	1	30
8:2 FTS			38.3	42.5		ng/L		111	67 - 127	3	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			40.0	42.9		ng/L		107	72 - 132	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*102*		*50 - 150*
13C5 PFPeA	*106*		*50 - 150*
13C2 PFHxA	*100*		*50 - 150*
13C4 PFHpA	*102*		*50 - 150*
13C4 PFOA	*104*		*50 - 150*
13C5 PFNA	*103*		*50 - 150*
13C2 PFDA	*99*		*50 - 150*
13C2 PFUnA	*98*		*50 - 150*
13C2 PFDoA	*100*		*50 - 150*
13C2 PFTeDA	*86*		*50 - 150*
13C2 PFHxDA	*52*		*50 - 150*
18O2 PFHxS	*112*		*50 - 150*
13C4 PFOS	*103*		*50 - 150*
d3-NMeFOSAA	*93*		*50 - 150*
M2-6:2 FTS	*105*		*50 - 150*
M2-8:2 FTS	*99*		*50 - 150*

QC Association Summary

Client: New Hampshire Dept of Environmental Serv
Project/Site: Public Notice

Job ID: 320-55026-12
SDG: 13 College Rd - Stratham, NH

LCMS

Prep Batch: 330658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-55026-12	MTBE_1694	Total/NA	Water	3535	
MB 320-330658/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-330658/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-330658/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 335053

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-55026-12	MTBE_1694	Total/NA	Water	EPA 537(Mod)	330658
MB 320-330658/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	330658
LCS 320-330658/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	330658
LCSD 320-330658/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	330658

Lab Chronicle

Client: New Hampshire Dept of Environmental Serv
Project/Site: Public Notice

Job ID: 320-55026-12
SDG: 13 College Rd - Stratham, NH

Client Sample ID: MTBE_1694

Date Collected: 10/02/19 09:35
Date Received: 10/04/19 09:10

Lab Sample ID: 320-55026-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			261.5 mL	10 mL	330658	10/14/19 06:35	AF	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			335053	10/31/19 22:46	P1N	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: New Hampshire Dept of Environmental Serv
Job ID: 320-55026-12
Project/Site: Public Notice
SDG: 13 College Rd - Stratham, NH

Laboratory: Eurofins TestAmerica, Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
ANAB	DoD	L2468	01-20-21

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
EPA 537(Mod)	3535	Water	6:2 FTS
EPA 537(Mod)	3535	Water	8:2 FTS
EPA 537(Mod)	3535	Water	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)
EPA 537(Mod)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
EPA 537(Mod)	3535	Water	Perfluorobutanoic acid (PFBA)
EPA 537(Mod)	3535	Water	Perfluorodecanesulfonic acid (PFDS)
EPA 537(Mod)	3535	Water	Perfluorodecanoic acid (PFDA)
EPA 537(Mod)	3535	Water	Perfluorododecanoic acid (PFDoA)
EPA 537(Mod)	3535	Water	Perfluoroheptanesulfonic Acid (PFHpS)
EPA 537(Mod)	3535	Water	Perfluoroheptanoic acid (PFHpA)
EPA 537(Mod)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
EPA 537(Mod)	3535	Water	Perfluorohexanoic acid (PFHxA)
EPA 537(Mod)	3535	Water	Perfluoro-n-hexadecanoic acid (PFHxDA)
EPA 537(Mod)	3535	Water	Perfluorononanoic acid (PFNA)
EPA 537(Mod)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
EPA 537(Mod)	3535	Water	Perfluorooctanoic acid (PFOA)
EPA 537(Mod)	3535	Water	Perfluoropentanoic acid (PFPeA)
EPA 537(Mod)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
EPA 537(Mod)	3535	Water	Perfluorotridecanoic acid (PFTriA)
EPA 537(Mod)	3535	Water	Perfluoroundecanoic acid (PFUnA)

Laboratory: Eurofins TestAmerica, Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New Hampshire	NELAP	2337	11-17-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: New Hampshire Dept of Environmental Serv
Project/Site: Public Notice

Job ID: 320-55026-12
SDG: 13 College Rd - Stratham, NH

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.1, Table B-15	EPA	TAL SAC
3535	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.

Laboratory References:

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

Sample Summary

Client: New Hampshire Dept of Environmental Serv
Project/Site: Public Notice

Job ID: 320-55026-12
SDG: 13 College Rd - Stratham, NH

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-55026-12	MTBE_1694	Water	10/02/19 09:35	10/04/19 09:10	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

August 6, 2019

Kevin Kitchin
Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660

Project Location: 4 Winnicutt Rd., Stratham, NH
Client Job Number:
Project Number: STRT0001
Laboratory Work Order Number: 19G0734

Enclosed are results of analyses for samples received by the laboratory on July 16, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Raymond J. McCarthy
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660
ATTN: Kevin Kitchin

REPORT DATE: 8/6/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: STRT0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19G0734

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 4 Winnicutt Rd., Stratham, NH

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-101	19G0734-01	Ground Water		SOP 434-PFAAS	
MW-102	19G0734-02	Ground Water		SOP 434-PFAAS	
MW-103	19G0734-03	Ground Water		SOP 434-PFAAS	
MW-104	19G0734-04	Ground Water		SOP 434-PFAAS	
MW-105	19G0734-05	Ground Water		SOP 434-PFAAS	
MW-1	19G0734-06	Ground Water		SOP 434-PFAAS	
MW-3	19G0734-07	Ground Water		SOP 434-PFAAS	
MW-5	19G0734-08	Ground Water		SOP 434-PFAAS	
Equipment Blank	19G0734-09	Equipment Blank Water		SOP 434-PFAAS	

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

SOP 434-PFAAS

Qualifications:

MS-07A

Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possiblity of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.

Analyte & Samples(s) Qualified:

N-EtFOSAA
B236181-MS1, B236181-MSD1

Perfluorododecanoic acid (PFDoA)
B236181-MS1, B236181-MSD1

Perfluorooctanesulfonamide (FOS
B236181-MS1, B236181-MSD1

Perfluorotetradecanoic acid (PFTA
B236181-MS1, B236181-MSD1

Perfluorotridecanoic acid (PFTrD
B236181-MS1, B236181-MSD1

MS-12

Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT
B236181-MS1, B236181-MSD1

Perfluorobutanesulfonic acid (PFB
B236181-MS1, B236181-MSD1

MS-22

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

Analyte & Samples(s) Qualified:

Perfluorodecanesulfonic acid (PFD
B236181-MS1

Perfluorodecanoic acid (PFDA)
B236181-MSD1

Perfluoroundecanoic acid (PFUnA)
B236181-MSD1

MS-23

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

Perfluorooctanesulfonic acid (PFO
B236181-MSD1

S-01

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:

13C-PFDA
19G0734-02RE1[MW-102], 19G0734-03RE1[MW-103], 19G0734-04RE1[MW-104], 19G0734-05RE1[MW-105], 19G0734-07RE1[MW-3], 19G0734-08RE1[MW-5]

13C-PFHxA
19G0734-02RE1[MW-102], 19G0734-03RE1[MW-103], 19G0734-04RE1[MW-104], 19G0734-05RE1[MW-105], 19G0734-07RE1[MW-3], 19G0734-08RE1[MW-5]

d5-NEtFOSAA
19G0734-02RE1[MW-102], 19G0734-03RE1[MW-103], 19G0734-04RE1[MW-104], 19G0734-05RE1[MW-105], 19G0734-07RE1[MW-3], 19G0734-08RE1[MW-5]

V-17

Internal standard area <50% of associated calibration standard internal standard area. Reanalysis yielded similar internal standard non-conformance.

Analyte & Samples(s) Qualified:

d3-NMeFOSAA
19G0734-09[Equipment Blank]

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Z-01

Surrogate Recovery is outside of method Control limits, sample was not re-extracted due to sample hold time non-conformance. Sample was re-analyzed. Original result is reported

Analyte & Samples(s) Qualified:

13C-PFDA

19G0734-01[MW-101], 19G0734-06[MW-1]

d5-NEtFOSAA

19G0734-01[MW-101], 19G0734-05[MW-105], 19G0734-06[MW-1]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Tod E. Kopyscinski
Laboratory Director

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19G0734

Date Received: 7/16/2019

Field Sample #: MW-101 Sampled: 7/15/2019 10:50

Sample ID: 19G0734-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluoropentanoic acid (PFPeA)	2.2	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorohexanoic acid (PFHxA)	2.6	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorohexanesulfonic acid (PFHxS)	4.0	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorooctanoic acid (PFOA)	5.7	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 19:39	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	111	70-130		7/30/19 19:39
13C-PFDA	**60.6** *	70-130	Z-01	7/30/19 19:39
d5-NEtFOSAA	**60.4** *	70-130	Z-01	7/30/19 19:39

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Project Location: 4 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19G0734

Date Received: 7/16/2019

Field Sample #: MW-102 Sampled: 7/15/2019 11:10

Sample ID: 19G0734-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	6.7	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorobutanesulfonic acid (PFBS)	6.5	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluoropentanoic acid (PFPeA)	13	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorohexanoic acid (PFHxA)	55	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorohexanesulfonic acid (PFHxS)	520	200	ng/L	100		SOP 434-PFAAS	7/23/19	8/1/19 19:35	BLM
Perfluoroheptanoic acid (PFHpA)	7.8	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluoroheptanesulfonic acid (PFHpS)	35	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorooctanoic acid (PFOA)	33	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorooctanesulfonic acid (PFOS)	870	200	ng/L	100		SOP 434-PFAAS	7/23/19	8/1/19 19:35	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:30	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	119	70-130		7/30/19 20:30
13C-PFHxA	*	70-130	S-01, U	8/1/19 19:35
13C-PFDA	88.3	70-130		7/30/19 20:30
13C-PFDA	*	70-130	S-01, U	8/1/19 19:35
d5-NEtFOSAA	90.2	70-130		7/30/19 20:30
d5-NEtFOSAA	*	70-130	S-01, U	8/1/19 19:35

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19G0734

Date Received: 7/16/2019

Field Sample #: MW-103 Sampled: 7/15/2019 11:05

Sample ID: 19G0734-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	14	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorobutanesulfonic acid (PFBS)	13	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluoropentanoic acid (PFPeA)	35	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorohexanoic acid (PFHxA)	32	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorohexanesulfonic acid (PFHxS)	250	10	ng/L	5		SOP 434-PFAAS	7/23/19	8/1/19 19:48	BLM
Perfluoroheptanoic acid (PFHpA)	20	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluoroheptanesulfonic acid (PFHpS)	14	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorooctanoic acid (PFOA)	39	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorooctanesulfonic acid (PFOS)	80	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorononanoic acid (PFNA)	3.3	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:42	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	101	70-130		7/30/19 20:42
13C-PFHxA	*	70-130	S-01, U	8/1/19 19:48
13C-PFDA	79.6	70-130		7/30/19 20:42
13C-PFDA	*	70-130	S-01, U	8/1/19 19:48
d5-NEtFOSAA	71.6	70-130		7/30/19 20:42
d5-NEtFOSAA	*	70-130	S-01, U	8/1/19 19:48

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Project Location: 4 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19G0734

Date Received: 7/16/2019

Field Sample #: MW-104 Sampled: 7/15/2019 11:10

Sample ID: 19G0734-04

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	7.9	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorobutanesulfonic acid (PFBS)	11	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluoropentanoic acid (PFPeA)	17	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorohexanoic acid (PFHxA)	39	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorohexanesulfonic acid (PFHxS)	310	20	ng/L	10		SOP 434-PFAAS	7/23/19	8/1/19 20:01	BLM
Perfluoroheptanoic acid (PFHpA)	13	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluoroheptanesulfonic acid (PFHpS)	10	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorooctanoic acid (PFOA)	140	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorooctanesulfonic acid (PFOS)	420	20	ng/L	10		SOP 434-PFAAS	7/23/19	8/1/19 20:01	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 20:55	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	107	70-130		7/30/19 20:55
13C-PFHxA	*	70-130	S-01, U	8/1/19 20:01
13C-PFDA	72.9	70-130		7/30/19 20:55
13C-PFDA	*	70-130	S-01, U	8/1/19 20:01
d5-NEtFOSAA	71.4	70-130		7/30/19 20:55
d5-NEtFOSAA	*	70-130	S-01, U	8/1/19 20:01

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Project Location: 4 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19G0734

Date Received: 7/16/2019

Field Sample #: MW-105 Sampled: 7/15/2019 10:50

Sample ID: 19G0734-05

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	5.0	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorobutanesulfonic acid (PFBS)	3.7	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluoropentanoic acid (PFPeA)	9.9	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorohexanoic acid (PFHxA)	19	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorohexanesulfonic acid (PFHxS)	64	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluoroheptanoic acid (PFHpA)	2.9	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluoroheptanesulfonic acid (PFHpS)	7.1	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorooctanoic acid (PFOA)	15	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorooctanesulfonic acid (PFOS)	2400	200	ng/L	100		SOP 434-PFAAS	7/23/19	8/1/19 20:13	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:07	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	102		70-130		7/30/19 21:07
13C-PFHxA		*	70-130	S-01, U	8/1/19 20:13
13C-PFDA	71.8		70-130		7/30/19 21:07
13C-PFDA		*	70-130	S-01, U	8/1/19 20:13
d5-NEtFOSAA	**54.8**	*	70-130	Z-01	7/30/19 21:07
d5-NEtFOSAA		*	70-130	S-01, U	8/1/19 20:13

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19G0734

Date Received: 7/16/2019

Field Sample #: MW-1 Sampled: 7/15/2019 10:45

Sample ID: 19G0734-06

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	25	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorobutanesulfonic acid (PFBS)	22	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluoropentanoic acid (PFPeA)	81	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorohexanoic acid (PFHxA)	65	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorohexanesulfonic acid (PFHxS)	180	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluoroheptanoic acid (PFHpA)	23	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluoroheptanesulfonic acid (PFHpS)	4.3	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorooctanoic acid (PFOA)	78	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorooctanesulfonic acid (PFOS)	25	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:20	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	119		70-130		7/30/19 21:20
13C-PFDA	**48.6**	*	70-130	Z-01	7/30/19 21:20
d5-NEtFOSAA	**45.2**	*	70-130	Z-01	7/30/19 21:20

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19G0734

Date Received: 7/16/2019

Field Sample #: MW-3 Sampled: 7/15/2019 10:55

Sample ID: 19G0734-07

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	45	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorobutanesulfonic acid (PFBS)	23	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluoropentanoic acid (PFPeA)	130	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorohexanoic acid (PFHxA)	100	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorohexanesulfonic acid (PFHxS)	800	20	ng/L	10		SOP 434-PFAAS	7/23/19	8/1/19 20:26	BLM
Perfluoroheptanoic acid (PFHpA)	93	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluoroheptanesulfonic acid (PFHpS)	12	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorooctanoic acid (PFOA)	320	20	ng/L	10		SOP 434-PFAAS	7/23/19	8/1/19 20:26	BLM
Perfluorooctanesulfonic acid (PFOS)	170	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorononanoic acid (PFNA)	4.0	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:33	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	108	70-130		7/30/19 21:33
13C-PFHxA	*	70-130	S-01, U	8/1/19 20:26
13C-PFDA	70.9	70-130		7/30/19 21:33
13C-PFDA	*	70-130	S-01, U	8/1/19 20:26
d5-NEtFOSAA	71.1	70-130		7/30/19 21:33
d5-NEtFOSAA	*	70-130	S-01, U	8/1/19 20:26

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19G0734

Date Received: 7/16/2019

Field Sample #: MW-5 Sampled: 7/15/2019 13:20

Sample ID: 19G0734-08

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	19	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorobutanesulfonic acid (PFBS)	29	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluoropentanoic acid (PFPeA)	45	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorohexanoic acid (PFHxA)	38	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorohexanesulfonic acid (PFHxS)	300	20	ng/L	10		SOP 434-PFAAS	7/23/19	8/1/19 20:38	BLM
Perfluoroheptanoic acid (PFHpA)	19	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluoroheptanesulfonic acid (PFHpS)	4.7	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorooctanoic acid (PFOA)	83	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorooctanesulfonic acid (PFOS)	99	2.0	ng/L	1		SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	7/30/19 21:45	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	119	70-130		7/30/19 21:45
13C-PFHxA	*	70-130	S-01, U	8/1/19 20:38
13C-PFDA	70.9	70-130		7/30/19 21:45
13C-PFDA	*	70-130	S-01, U	8/1/19 20:38
d5-NEtFOSAA	74.6	70-130		7/30/19 21:45
d5-NEtFOSAA	*	70-130	S-01, U	8/1/19 20:38

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19G0734

Date Received: 7/16/2019

Field Sample #: Equipment Blank Sampled: 7/15/2019 07:55

Sample ID: 19G0734-09

Sample Matrix: Equipment Blank Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	7/23/19	8/1/19 20:51	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	109	70-130		8/1/19 20:51
13C-PFDA	80.1	70-130		8/1/19 20:51
d5-NEtFOSAA	127	70-130		8/1/19 20:51

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SOP 434-PFAAS-SOP 434-PFAAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G0734-01 [MW-101]	B236181	250	1.00	07/23/19
19G0734-02 [MW-102]	B236181	250	1.00	07/23/19
19G0734-02RE1 [MW-102]	B236181	250	1.00	07/23/19
19G0734-03 [MW-103]	B236181	250	1.00	07/23/19
19G0734-03RE1 [MW-103]	B236181	250	1.00	07/23/19
19G0734-04 [MW-104]	B236181	250	1.00	07/23/19
19G0734-04RE1 [MW-104]	B236181	250	1.00	07/23/19
19G0734-05 [MW-105]	B236181	250	1.00	07/23/19
19G0734-05RE1 [MW-105]	B236181	250	1.00	07/23/19
19G0734-06 [MW-1]	B236181	250	1.00	07/23/19
19G0734-07 [MW-3]	B236181	250	1.00	07/23/19
19G0734-07RE1 [MW-3]	B236181	250	1.00	07/23/19
19G0734-08 [MW-5]	B236181	250	1.00	07/23/19
19G0734-08RE1 [MW-5]	B236181	250	1.00	07/23/19
19G0734-09 [Equipment Blank]	B236181	250	1.00	07/23/19

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B236181 - SOP 434-PFAAS										
Blank (B236181-BLK1)				Prepared: 07/23/19 Analyzed: 08/06/19						
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L							U
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							U
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							U
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							U
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							U
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							U
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L							U
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							U
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							U
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L							U
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L							U
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							U
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							U
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L							U
N-EtFOSAA	ND	2.0	ng/L							U
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L							U
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							U
N-MeFOSAA	ND	2.0	ng/L							U
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							U
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							U
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							U
Surrogate: 13C-PFHxA	*45.9*		ng/L	40.0		115	70-130			
Surrogate: 13C-PFDA	*42.4*		ng/L	40.0		106	70-130			
Surrogate: d5-NEtFOSAA	*158*		ng/L	160		99.0	70-130			
LCS (B236181-BS1)				Prepared: 07/23/19 Analyzed: 08/06/19						
Perfluorobutanoic acid (PFBA)	1.92	2.0	ng/L	2.00		96.0	50-150			U
Perfluorobutanesulfonic acid (PFBS)	1.77	2.0	ng/L	1.77		100	50-150			U
Perfluoropentanoic acid (PFPeA)	1.35	2.0	ng/L	2.00		67.4	50-150			U
Perfluorohexanoic acid (PFHxA)	2.06	2.0	ng/L	2.00		103	50-150			
Perfluorohexanesulfonic acid (PFHxS)	1.23	2.0	ng/L	1.82		67.8	50-150			U
Perfluoroheptanoic acid (PFHpA)	1.78	2.0	ng/L	2.00		89.1	50-150			U
Perfluoroheptanesulfonic acid (PFHpS)	1.47	2.0	ng/L	1.90		77.3	50-150			U
Perfluorooctanoic acid (PFOA)	2.46	2.0	ng/L	2.00		123	50-150			
Perfluorooctanesulfonic acid (PFOS)	2.01	2.0	ng/L	1.85		109	50-150			
Perfluorooctanesulfonamide (FOSA)	2.75	2.0	ng/L	2.00		137	50-150			
6:2 Fluorotelomersulfonate (6:2 FTS A)	1.18	2.0	ng/L	1.90		62.3	50-150			U
Perfluorononanoic acid (PFNA)	2.20	2.0	ng/L	2.00		110	50-150			
Perfluorodecanoic acid (PFDA)	2.28	2.0	ng/L	2.00		114	50-150			
Perfluorodecanesulfonic acid (PFDS)	1.88	2.0	ng/L	1.93		97.6	50-150			U
N-EtFOSAA	1.82	2.0	ng/L	2.00		91.0	50-150			U
8:2 Fluorotelomersulfonate (8:2 FTS A)	1.20	2.0	ng/L	1.92		62.7	50-150			U
Perfluoroundecanoic acid (PFUnA)	2.31	2.0	ng/L	2.00		115	50-150			
N-MeFOSAA	2.86	2.0	ng/L	2.00		143	50-150			
Perfluorododecanoic acid (PFDoA)	2.15	2.0	ng/L	2.00		108	50-150			
Perfluorotridecanoic acid (PFTrDA)	2.32	2.0	ng/L	2.00		116	50-150			
Perfluorotetradecanoic acid (PFTA)	2.33	2.0	ng/L	2.00		117	50-150			
Surrogate: 13C-PFHxA	*48.3*		ng/L	40.0		121	70-130			
Surrogate: 13C-PFDA	*46.8*		ng/L	40.0		117	70-130			
Surrogate: d5-NEtFOSAA	*206*		ng/L	160		128	70-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B236181 - SOP 434-PFAAS											
Matrix Spike (B236181-MS1)		**Source: 19G0734-01**		Prepared: 07/23/19 Analyzed: 07/30/19							
Perfluorobutanoic acid (PFBA)	3.74	2.0	ng/L	2.00	1.93	90.2		50-150			
Perfluorobutanesulfonic acid (PFBS)	4.98	2.0	ng/L	1.77	1.90	**174**	*	50-150			MS-12
Perfluoropentanoic acid (PFPeA)	4.80	2.0	ng/L	2.00	2.16	132		50-150			
Perfluorohexanoic acid (PFHxA)	4.11	2.0	ng/L	2.00	2.60	75.7		50-150			
Perfluorohexanesulfonic acid (PFHxS)	6.53	2.0	ng/L	1.82	3.96	141		50-150			
Perfluoroheptanoic acid (PFHpA)	2.94	2.0	ng/L	2.00	ND	147		50-150			
Perfluoroheptanesulfonic acid (PFHpS)	1.77	2.0	ng/L	1.90	ND	93.4		50-150			U
Perfluorooctanoic acid (PFOA)	8.02	2.0	ng/L	2.00	5.66	118		50-150			
Perfluorooctanesulfonic acid (PFOS)	1.60	2.0	ng/L	1.85	ND	86.4		50-150			U
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	2.00	ND		*	50-150			MS-07A, U
6:2 Fluorotelomersulfonate (6:2 FTS A)	3.24	2.0	ng/L	1.90	ND	**170**	*	50-150			MS-12
Perfluorononanoic acid (PFNA)	1.48	2.0	ng/L	2.00	ND	74.0		50-150			U
Perfluorodecanoic acid (PFDA)	1.28	2.0	ng/L	2.00	ND	64.2		50-150			U
Perfluorodecanesulfonic acid (PFDS)	0.965	2.0	ng/L	1.93	ND	50.0		50-150			MS-22, U
N-EtFOSAA	0.609	2.0	ng/L	2.00	ND	**30.5**	*	50-150			MS-07A, U
8:2 Fluorotelomersulfonate (8:2 FTS A)	2.05	2.0	ng/L	1.92	ND	107		50-150			
Perfluoroundecanoic acid (PFUnA)	1.30	2.0	ng/L	2.00	ND	65.0		50-150			U
N-MeFOSAA	1.82	2.0	ng/L	2.00	ND	90.8		50-150			U
Perfluorododecanoic acid (PFDoA)	0.802	2.0	ng/L	2.00	ND	**40.1**	*	50-150			MS-07A, U
Perfluorotridecanoic acid (PFTrDA)	0.700	2.0	ng/L	2.00	ND	**35.0**	*	50-150			MS-07A, U
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	2.00	ND		*	50-150			MS-07A, U
Surrogate: 13C-PFHxA	*43.9*		ng/L	40.0		110		70-130			
Surrogate: 13C-PFDA	*31.5*		ng/L	40.0		78.8		70-130			
Surrogate: d5-NEtFOSAA	*133*		ng/L	160		82.9		70-130			
Matrix Spike Dup (B236181-MSD1)		**Source: 19G0734-01**		Prepared: 07/23/19 Analyzed: 07/30/19							
Perfluorobutanoic acid (PFBA)	3.94	2.0	ng/L	2.00	1.93	100		50-150	5.26	30	
Perfluorobutanesulfonic acid (PFBS)	5.28	2.0	ng/L	1.77	1.90	**191**	*	50-150	5.79	30	MS-12
Perfluoropentanoic acid (PFPeA)	5.06	2.0	ng/L	2.00	2.16	145		50-150	5.29	30	
Perfluorohexanoic acid (PFHxA)	3.85	2.0	ng/L	2.00	2.60	63.0		50-150	6.38	30	
Perfluorohexanesulfonic acid (PFHxS)	5.34	2.0	ng/L	1.82	3.96	75.8		50-150	20.1	30	
Perfluoroheptanoic acid (PFHpA)	2.55	2.0	ng/L	2.00	ND	127		50-150	14.4	30	
Perfluoroheptanesulfonic acid (PFHpS)	1.66	2.0	ng/L	1.90	ND	87.1		50-150		30	U
Perfluorooctanoic acid (PFOA)	7.62	2.0	ng/L	2.00	5.66	97.9		50-150	5.16	30	
Perfluorooctanesulfonic acid (PFOS)	3.14	2.0	ng/L	1.85	ND	**170**	*	50-150		30	MS-23
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	2.00	ND		*	50-150		30	MS-07A, U
6:2 Fluorotelomersulfonate (6:2 FTS A)	2.91	2.0	ng/L	1.90	ND	**153**	*	50-150	10.7	30	MS-12
Perfluorononanoic acid (PFNA)	1.18	2.0	ng/L	2.00	ND	58.8		50-150		30	U
Perfluorodecanoic acid (PFDA)	0.983	2.0	ng/L	2.00	ND	**49.1**	*	50-150		30	MS-22, U
Perfluorodecanesulfonic acid (PFDS)	1.06	2.0	ng/L	1.93	ND	54.8		50-150		30	U
N-EtFOSAA	ND	2.0	ng/L	2.00	ND		*	50-150		30	MS-07A, U
8:2 Fluorotelomersulfonate (8:2 FTS A)	2.06	2.0	ng/L	1.92	ND	107		50-150	0.332	30	
Perfluoroundecanoic acid (PFUnA)	0.861	2.0	ng/L	2.00	ND	**43.0**	*	50-150		30	MS-22, U
N-MeFOSAA	1.38	2.0	ng/L	2.00	ND	69.0		50-150		30	U
Perfluorododecanoic acid (PFDoA)	0.704	2.0	ng/L	2.00	ND	**35.2**	*	50-150		30	MS-07A, U
Perfluorotridecanoic acid (PFTrDA)	0.525	2.0	ng/L	2.00	ND	**26.2**	*	50-150		30	MS-07A, U
Perfluorotetradecanoic acid (PFTA)	1.84	2.0	ng/L	2.00	ND	91.9		50-150		30	MS-07A, U
Surrogate: 13C-PFHxA	*43.9*		ng/L	40.0		110		70-130			
Surrogate: 13C-PFDA	*33.2*		ng/L	40.0		83.0		70-130			
Surrogate: d5-NEtFOSAA	*116*		ng/L	160		72.3		70-130			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
MS-07A	Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possiblity of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.
MS-12	Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
MS-23	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.
U	Analyte included in the analysis, but not detected
V-17	Internal standard area <50% of associated calibration standard internal standard area. Reanalysis yielded similar internal standard non-conformance.
Z-01	Surrogate Recovery is outside of method Control limits, sample was not re-extracted due to sample hold time non-conformance. Sample was re-analyzed. Original result is reported

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP 434-PFAAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
6:2 Fluorotelomersulfonate (6:2 FTS A)	NH-P
Perfluorononanoic acid (PFNA)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
N-EtFOSAA	NH-P
8:2 Fluorotelomersulfonate (8:2 FTS A)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
N-MeFOSAA	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

con-test ANALYTICAL LABORATORY

RJM

Phone: 413-525-2332 1960734

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Email: info@contestlabs.com

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

Page 1 of 1

Company Name: Wilcox & Barton
Address: #1B Commons Dr, Unit 12B, Londonderry NH
Phone: 860-389-3984
Project Name: STRT0001
Project Location: 4 Winnicutt Rd, Stratham NH
Project Number: STRT0001
Project Manager: Kevin Kitchin
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: M. Eyster & M. Broussard

Requested Turnaround Time				Preserved Aqueous Samples	
7-Day	☐	10-Day	☐	○	Field Filtered
PFAS 10-Day (std)	✓	Due Date:		○	Lab to Filter
Rush Approval Required				**Orthophosphate Samples**	
1-Day	☐	3-Day	☐	○	Field Filtered
2-Day	☐	4-Day	☐	○	Lab to Filter

Data Delivery

Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: kkitchin@wilcoxandbarton.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1]Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS (537.1)
1	MW-101	7/15	1050	GRAB	GW	U			X			2
2	MW-102		1110	GRAB	GW	U			X			2
3	MW-103		1105	GRAB	GW	U			X			2
4	MW-104		1110	GRAB	GW	U			X			2
5	MW-105		1105	GRAB	GW	U			X			2
6	MW-1		1050	GRAB	GW	U			X			2
7	MW-3		1045	GRAB	GW	U			X			2
8	MW-5		1055	GRAB	GW	U			X			2
1	MW-101 MS/MSD		1320	GRAB	GW	U			X			4
9	Equipment Blank		0755	GRAB					X			1

[2] Preservation Code

Cooler Use Only

Total Number Of:

VIALS
GLASS
PLASTIC
BACTERIA
ENCORE

Glassware in the fridge? Y / N

Glassware in freezer? Y / N

Prepackaged Cooler? Y / N

*Contest is not responsible for missing samples from prepacked coolers

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Relinquished by: (signature)	Date/Time:
MGB	7/15/19 1400
Received by: (signature)	Date/Time:
	7/16/19 1110
Relinquished by: (signature)	Date/Time:
	7/16/19 4:15
Received by: (signature)	Date/Time:
2.8	7/16/19 6:15
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments: ~~[illegible]~~ lab requested MS/MSD samples, no preservation, please run GW w/ the 1 equipment blank, do not run field blank (D)

Detection Limit Requirements		Special Requirements	
MA		☐	MA MCP Required
			MCP Certification Form Required
		☐	CT RCP Required
CT			RCP Certification Form Required
		☐	MA State DW Required
Other:	NH AGQS	PWSID #	

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAC and AIHA-LAP, LLC Accredited

Project Entity

Government	☐	Municipality	☐	MWRA	☐	WRTA	☐
Federal	☐	21 J	☐	School	☐		
City	☐	Brownfield	☐	MBTA	☐		

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Lab Comments:

Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. Chain of Custody is a legal document that must be complete and accurate and is used to determine analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Test values your partnership on each project and will try to assist with missing information, but will n held accountable.

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I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

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Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client W+B

Received By [illegible] Date 7/16/19 Time 16:15

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____

Direct from Sampling ____ Ambient ____ Melted Ice ____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 2.8

By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F

Are there Rushes? F Who was notified? ____

Are there Short Holds? F Who was notified? ____

Is there enough Volume? T Who was notified? ____

Is there Headspace where applicable? N/A

Proper Media/Containers Used? T MS/MSD? T

Were trip blanks received? F Is splitting samples required? F

Do all samples have the proper pH? N/A On COC? F

Acid ____ Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	22	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

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August 20, 2019

Kevin Kitchin
Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660

Project Location: 4 Winnicut Rd., Stratham, NH
Client Job Number:
Project Number: STRT0001
Laboratory Work Order Number: 19G1626

Enclosed are results of analyses for samples received by the laboratory on July 30, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Raymond J. McCarthy
Project Manager

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Wilcox & Barton
1115 Route 100B, Suite 200
Moretown, VT 05660
ATTN: Kevin Kitchin

REPORT DATE: 8/20/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: STRT0001

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19G1626

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 4 Winnicut Rd., Stratham, NH

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-101	19G1626-01	Ground Water		SOP 434-PFAAS	
MW-102	19G1626-02	Ground Water		SOP 434-PFAAS	
MW-103	19G1626-03	Ground Water		SOP 434-PFAAS	
MW-104	19G1626-04	Ground Water		SOP 434-PFAAS	
MW-105	19G1626-05	Ground Water		SOP 434-PFAAS	
MW-1	19G1626-06	Ground Water		SOP 434-PFAAS	
MW-3	19G1626-07	Ground Water		SOP 434-PFAAS	
MW-5	19G1626-08	Ground Water		SOP 434-PFAAS	
Equipment Blank	19G1626-09	Equipment Blank Water		SOP 434-PFAAS	

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SOP 434-PFAAS

Qualifications:

L-01

Laboratory fortified blank /laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonate (6:2 FT

B237570-BS1

S-01

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

Analyte & Samples(s) Qualified:

13C-PFDA

19G1626-02RE1[MW-102], 19G1626-03RE1[MW-103], 19G1626-04RE1[MW-104], 19G1626-05RE1[MW-105], 19G1626-07RE1[MW-3], 19G1626-08RE1[MW-5]

13C-PFHxA

19G1626-02RE1[MW-102], 19G1626-03RE1[MW-103], 19G1626-04RE1[MW-104], 19G1626-05RE1[MW-105], 19G1626-07RE1[MW-3], 19G1626-08RE1[MW-5]

d5-NEtFOSAA

19G1626-02RE1[MW-102], 19G1626-03RE1[MW-103], 19G1626-04RE1[MW-104], 19G1626-05RE1[MW-105], 19G1626-07RE1[MW-3], 19G1626-08RE1[MW-5]

V-17

Internal standard area <50% of associated calibration standard internal standard area. Reanalysis yielded similar internal standard non-conformance.

Analyte & Samples(s) Qualified:

d3-NMeFOSAA

19G1626-01[MW-101]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicut Rd., Stratham, NH Sample Description: Work Order: 19G1626

Date Received: 7/30/2019

Field Sample #: MW-101 Sampled: 7/29/2019 10:50

Sample ID: 19G1626-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorohexanoic acid (PFHxA)	2.7	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorooctanoic acid (PFOA)	6.1	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:32	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	124	70-130		8/13/19 22:32
13C-PFDA	83.0	70-130		8/13/19 22:32
d5-NEtFOSAA	106	70-130		8/13/19 22:32

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicut Rd., Stratham, NH Sample Description: Work Order: 19G1626

Date Received: 7/30/2019

Field Sample #: MW-102 Sampled: 7/29/2019 10:40

Sample ID: 19G1626-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	2.9	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorobutanesulfonic acid (PFBS)	7.1	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluoropentanoic acid (PFPeA)	13	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorohexanoic acid (PFHxA)	77	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorohexanesulfonic acid (PFHxS)	940	20	ng/L	10		SOP 434-PFAAS	8/8/19	8/14/19 19:46	BLM
Perfluoroheptanoic acid (PFHpA)	10	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluoroheptanesulfonic acid (PFHpS)	68	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorooctanoic acid (PFOA)	38	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorooctanesulfonic acid (PFOS)	1300	20	ng/L	10		SOP 434-PFAAS	8/8/19	8/14/19 19:46	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:45	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	102	70-130		8/13/19 22:45
13C-PFHxA	*	70-130	S-01, U	8/14/19 19:46
13C-PFDA	75.3	70-130		8/13/19 22:45
13C-PFDA	*	70-130	S-01, U	8/14/19 19:46
d5-NEtFOSAA	70.6	70-130		8/13/19 22:45
d5-NEtFOSAA	*	70-130	S-01, U	8/14/19 19:46

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicut Rd., Stratham, NH Sample Description: Work Order: 19G1626

Date Received: 7/30/2019

Field Sample #: MW-103 Sampled: 7/29/2019 11:00

Sample ID: 19G1626-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	11	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorobutanesulfonic acid (PFBS)	17	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluoropentanoic acid (PFPeA)	53	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorohexanoic acid (PFHxA)	45	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorohexanesulfonic acid (PFHxS)	220	20	ng/L	10		SOP 434-PFAAS	8/8/19	8/14/19 20:51	BLM
Perfluoroheptanoic acid (PFHpA)	34	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluoroheptanesulfonic acid (PFHpS)	19	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorooctanoic acid (PFOA)	41	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorooctanesulfonic acid (PFOS)	150	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorononanoic acid (PFNA)	4.0	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 22:57	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	103	70-130		8/13/19 22:57
13C-PFHxA	*	70-130	S-01, U	8/14/19 20:51
13C-PFDA	80.2	70-130		8/13/19 22:57
13C-PFDA	*	70-130	S-01, U	8/14/19 20:51
d5-NEtFOSAA	70.3	70-130		8/13/19 22:57
d5-NEtFOSAA	*	70-130	S-01, U	8/14/19 20:51

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicut Rd., Stratham, NH Sample Description: Work Order: 19G1626

Date Received: 7/30/2019

Field Sample #: MW-104 Sampled: 7/29/2019 11:05

Sample ID: 19G1626-04

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	5.8	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorobutanesulfonic acid (PFBS)	12	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluoropentanoic acid (PFPeA)	21	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorohexanoic acid (PFHxA)	46	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorohexanesulfonic acid (PFHxS)	260	20	ng/L	10		SOP 434-PFAAS	8/8/19	8/14/19 20:01	BLM
Perfluoroheptanoic acid (PFHpA)	13	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluoroheptanesulfonic acid (PFHpS)	10	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorooctanoic acid (PFOA)	150	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorooctanesulfonic acid (PFOS)	310	20	ng/L	10		SOP 434-PFAAS	8/8/19	8/14/19 20:01	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/13/19 23:10	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	112	70-130		8/13/19 23:10
13C-PFHxA	*	70-130	S-01, U	8/14/19 20:01
13C-PFDA	75.8	70-130		8/13/19 23:10
13C-PFDA	*	70-130	S-01, U	8/14/19 20:01
d5-NEtFOSAA	70.4	70-130		8/13/19 23:10
d5-NEtFOSAA	*	70-130	S-01, U	8/14/19 20:01

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicut Rd., Stratham, NH Sample Description: Work Order: 19G1626

Date Received: 7/30/2019

Field Sample #: MW-105 Sampled: 7/29/2019 11:10

Sample ID: 19G1626-05

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	2.1	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorobutanesulfonic acid (PFBS)	2.4	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluoropentanoic acid (PFPeA)	5.1	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorohexanoic acid (PFHxA)	12	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorohexanesulfonic acid (PFHxS)	69	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluoroheptanoic acid (PFHpA)	2.8	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluoroheptanesulfonic acid (PFHpS)	6.8	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorooctanoic acid (PFOA)	12	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorooctanesulfonic acid (PFOS)	1900	40	ng/L	20		SOP 434-PFAAS	8/8/19	8/14/19 20:14	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:00	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	130	70-130		8/15/19 4:00
13C-PFHxA	*	70-130	S-01, U	8/14/19 20:14
13C-PFDA	109	70-130		8/15/19 4:00
13C-PFDA	*	70-130	S-01, U	8/14/19 20:14
d5-NEtFOSAA	85.8	70-130		8/15/19 4:00
d5-NEtFOSAA	*	70-130	S-01, U	8/14/19 20:14

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicut Rd., Stratham, NH Sample Description: Work Order: 19G1626

Date Received: 7/30/2019

Field Sample #: MW-1 Sampled: 7/29/2019 11:00

Sample ID: 19G1626-06

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	14	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorobutanesulfonic acid (PFBS)	19	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluoropentanoic acid (PFPeA)	54	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorohexanoic acid (PFHxA)	57	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorohexanesulfonic acid (PFHxS)	170	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluoroheptanoic acid (PFHpA)	20	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorooctanoic acid (PFOA)	70	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorooctanesulfonic acid (PFOS)	20	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/15/19 4:13	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	121	70-130		8/15/19 4:13
13C-PFDA	86.7	70-130		8/15/19 4:13
d5-NEtFOSAA	71.2	70-130		8/15/19 4:13

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicut Rd., Stratham, NH Sample Description: Work Order: 19G1626

Date Received: 7/30/2019

Field Sample #: MW-3 Sampled: 7/29/2019 10:50

Sample ID: 19G1626-07

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	23	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorobutanesulfonic acid (PFBS)	25	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluoropentanoic acid (PFPeA)	110	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorohexanoic acid (PFHxA)	100	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorohexanesulfonic acid (PFHxS)	580	20	ng/L	10		SOP 434-PFAAS	8/8/19	8/14/19 20:26	BLM
Perfluoroheptanoic acid (PFHpA)	85	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorooctanoic acid (PFOA)	240	20	ng/L	10		SOP 434-PFAAS	8/8/19	8/14/19 20:26	BLM
Perfluorooctanesulfonic acid (PFOS)	170	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorononanoic acid (PFNA)	4.1	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:01	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	118	70-130		8/14/19 0:01
13C-PFHxA	*	70-130	S-01, U	8/14/19 20:26
13C-PFDA	98.4	70-130		8/14/19 0:01
13C-PFDA	*	70-130	S-01, U	8/14/19 20:26
d5-NEtFOSAA	83.2	70-130		8/14/19 0:01
d5-NEtFOSAA	*	70-130	S-01, U	8/14/19 20:26

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicut Rd., Stratham, NH Sample Description: Work Order: 19G1626

Date Received: 7/30/2019

Field Sample #: MW-5 Sampled: 7/29/2019 10:55

Sample ID: 19G1626-08

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	9.7	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorobutanesulfonic acid (PFBS)	30	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluoropentanoic acid (PFPeA)	40	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorohexanoic acid (PFHxA)	43	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorohexanesulfonic acid (PFHxS)	240	20	ng/L	10		SOP 434-PFAAS	8/8/19	8/14/19 20:39	BLM
Perfluoroheptanoic acid (PFHpA)	19	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluoroheptanesulfonic acid (PFHpS)	8.5	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorooctanoic acid (PFOA)	84	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorooctanesulfonic acid (PFOS)	98	2.0	ng/L	1		SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:13	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	122	70-130		8/14/19 0:13
13C-PFHxA	*	70-130	S-01, U	8/14/19 20:39
13C-PFDA	88.2	70-130		8/14/19 0:13
13C-PFDA	*	70-130	S-01, U	8/14/19 20:39
d5-NEtFOSAA	71.3	70-130		8/14/19 0:13
d5-NEtFOSAA	*	70-130	S-01, U	8/14/19 20:39

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 4 Winnicut Rd., Stratham, NH Sample Description: Work Order: 19G1626

Date Received: 7/30/2019

Field Sample #: Equipment Blank Sampled: 7/29/2019 09:00

Sample ID: 19G1626-09

Sample Matrix: Equipment Blank Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
N-EtFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
N-MeFOSAA	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1	U	SOP 434-PFAAS	8/8/19	8/14/19 0:26	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	105	70-130		8/14/19 0:26
13C-PFDA	98.5	70-130		8/14/19 0:26
d5-NEtFOSAA	91.8	70-130		8/14/19 0:26

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Sample Extraction Data

Prep Method: SOP 434-PFAAS-SOP 434-PFAAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19G1626-01 [MW-101]	B237570	250	1.00	08/08/19
19G1626-02 [MW-102]	B237570	250	1.00	08/08/19
19G1626-02RE1 [MW-102]	B237570	250	1.00	08/08/19
19G1626-03 [MW-103]	B237570	250	1.00	08/08/19
19G1626-03RE1 [MW-103]	B237570	250	1.00	08/08/19
19G1626-04 [MW-104]	B237570	250	1.00	08/08/19
19G1626-04RE1 [MW-104]	B237570	250	1.00	08/08/19
19G1626-05 [MW-105]	B237570	250	1.00	08/08/19
19G1626-05RE1 [MW-105]	B237570	250	1.00	08/08/19
19G1626-06 [MW-1]	B237570	250	1.00	08/08/19
19G1626-07 [MW-3]	B237570	250	1.00	08/08/19
19G1626-07RE1 [MW-3]	B237570	250	1.00	08/08/19
19G1626-08 [MW-5]	B237570	250	1.00	08/08/19
19G1626-08RE1 [MW-5]	B237570	250	1.00	08/08/19
19G1626-09 [Equipment Blank]	B237570	250	1.00	08/08/19

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QUALITY CONTROL

Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B237570 - SOP 434-PFAAS											
Blank (B237570-BLK1)				Prepared: 08/08/19 Analyzed: 08/14/19							
Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L								U
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L								U
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L								U
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L								U
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L								U
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L								U
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L								U
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L								U
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L								U
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L								U
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0	ng/L								U
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L								U
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L								U
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L								U
N-EtFOSAA	ND	2.0	ng/L								U
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0	ng/L								U
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L								U
N-MeFOSAA	ND	2.0	ng/L								U
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L								U
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L								U
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L								U
Surrogate: 13C-PFHxA	*39.5*		ng/L	40.0		98.7		70-130			
Surrogate: 13C-PFDA	*42.7*		ng/L	40.0		107		70-130			
Surrogate: d5-NEtFOSAA	*181*		ng/L	160		113		70-130			
LCS (B237570-BS1)				Prepared: 08/08/19 Analyzed: 08/14/19							
Perfluorobutanoic acid (PFBA)	9.77	2.0	ng/L	10.0		97.7		70-130			
Perfluorobutanesulfonic acid (PFBS)	8.01	2.0	ng/L	8.85		90.5		70-130			
Perfluoropentanoic acid (PFPeA)	12.4	2.0	ng/L	10.0		124		70-130			
Perfluorohexanoic acid (PFHxA)	10.5	2.0	ng/L	10.0		105		70-130			
Perfluorohexanesulfonic acid (PFHxS)	6.39	2.0	ng/L	9.10		70.3		70-130			
Perfluoroheptanoic acid (PFHpA)	8.32	2.0	ng/L	10.0		83.2		70-130			
Perfluoroheptanesulfonic acid (PFHpS)	11.7	2.0	ng/L	9.50		123		70-130			
Perfluorooctanoic acid (PFOA)	11.7	2.0	ng/L	10.0		117		70-130			
Perfluorooctanesulfonic acid (PFOS)	9.43	2.0	ng/L	9.25		102		70-130			
Perfluorooctanesulfonamide (FOSA)	7.91	2.0	ng/L	10.0		79.1		70-130			
6:2 Fluorotelomersulfonate (6:2 FTS A)	13.4	2.0	ng/L	9.50		**141**	*	70-130			L-01
Perfluorononanoic acid (PFNA)	11.4	2.0	ng/L	10.0		114		70-130			
Perfluorodecanoic acid (PFDA)	9.79	2.0	ng/L	10.0		97.9		70-130			
Perfluorodecanesulfonic acid (PFDS)	9.12	2.0	ng/L	9.65		94.5		70-130			
N-EtFOSAA	10.1	2.0	ng/L	10.0		101		70-130			
8:2 Fluorotelomersulfonate (8:2 FTS A)	10.8	2.0	ng/L	9.60		112		70-130			
Perfluoroundecanoic acid (PFUnA)	9.72	2.0	ng/L	10.0		97.2		70-130			
N-MeFOSAA	9.80	2.0	ng/L	10.0		98.0		70-130			
Perfluorododecanoic acid (PFDoA)	9.83	2.0	ng/L	10.0		98.3		70-130			
Perfluorotridecanoic acid (PFTrDA)	8.91	2.0	ng/L	10.0		89.1		70-130			
Perfluorotetradecanoic acid (PFTA)	9.26	2.0	ng/L	10.0		92.6		70-130			
Surrogate: 13C-PFHxA	*41.0*		ng/L	40.0		102		70-130			
Surrogate: 13C-PFDA	*40.9*		ng/L	40.0		102		70-130			
Surrogate: d5-NEtFOSAA	*131*		ng/L	160		82.2		70-130			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-01	Laboratory fortified blank /laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.
S-01	The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.
U	Analyte included in the analysis, but not detected
V-17	Internal standard area <50% of associated calibration standard internal standard area. Reanalysis yielded similar internal standard non-conformance.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP 434-PFAAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
6:2 Fluorotelomersulfonate (6:2 FTS A)	NH-P
Perfluorononanoic acid (PFNA)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
N-EtFOSAA	NH-P
8:2 Fluorotelomersulfonate (8:2 FTS A)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
N-MeFOSAA	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

RSM 14G1606

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CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: Wilcox + Barton, Inc.
Address: #1B Commons Dr., Unit 12B, Londonderry, NH
Phone: 860-389-3984
Project Name: STRT0001
Project Location: 4 Winnicutt Rd., Stratham, NH
Project Number:
Project Manager: Kevin Kitchen
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: M. Eyster, Z. Pierce

Requested Turnaround Time: 7-Day ☐ 10-Day ☐ PFAS 10-Day (std) ☐ Due Date: 5-Day

Rush (Approval Required): 1-Day ☐ 3-Day ☐ 2-Day ☐ 4-Day ☐

Dissolved Metals Samples: ○ Field Filtered ○ Lab to Filter

Orthophosphate Samples: ○ Field Filtered ○ Lab to Filter

Data Delivery: Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To: kkitchin@wilcoxandbarton.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1] Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS
1	MW-101	7-29-19	1050	GRAB	GW	U			X			2
2	MW-102	↓	1040	↓	↓	↓			X			2
3	MW-103		1100						X			2
4	MW-104		1105						X			2
5	MW-105		1110						X			2
6	MW-1		1100						X			2
7	MW-3		1050						X			2
8	MW-5		1055						X			2
1	MW-101 MS/MSD				↓	↓			X			2
9	Equipment blank	↓	0900	↓					X			1

[2] Preservation Code

Sample Bottle Qty:
Total Number Of:
VIALS
GLASS
PLASTIC
BACTERIA
ENCORE

Glassware in the fridge? Y / N

Glassware in freezer? Y / N

Prepackaged Cooler? Y / N

*Contest is not responsible for missing samples from prepacked coolers

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time: 7-30-19 1012
Relinquished by: (signature)	Date/Time: 7/30/19 1630
Received by: (signature)	Date/Time: 7/30/19 1630
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments: (B) lab provided MS/MSD per their request

Drinking Water Limit Requirements: MA ☐ RCP ☐

Special Requirements:
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Other: NH AGQS

NELAC and AIHA-LAP, LLC Accredited

Project Entity: Government ☐ Municipality ☐ MWRA ☐ WRTA ☐ Federal ☐ 21 J ☐ School ☐ City ☐ Brownfield ☐ MBTA ☐

Other: ☐ Chromatogram ☐ AIHA-LAP,LLC

PCB ONLY: ☐ Soxhlet ☐ Non Soxhlet

Comments:

Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. Th Chain of Custody is a legal document that must be complete and accurate and is used to determine wh analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Co Test values your partnership on each project and will try to assist with missing information, but will not held accountable.

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client WB

Received By SL Date 7/30/14 Time 1650

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____ Direct from Sampling ____ Ambient ____ Melted Ice ____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 3.1 By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? ____

Are there Rushes? F Who was notified? ____

Are there Short Holds? F Who was notified? ____

Is there enough Volume? T

Is there Headspace where applicable? N/A MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? N/A Acid ____ Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	1 d	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

APPENDIX G

Notification Letters to Private Water Well Owners

Wilcox & Barton INC.
CIVIL • ENVIRONMENTAL • GEOTECHNICAL

December 26, 2019

Verne Edward Rawson III
5 College Road
Stratham, New Hampshire 03885

RE: Water Supply Well Sampling Results – November 12, 2019
5 College Road, Stratham, New Hampshire 03885

Dear Mr. Rawson:

On behalf of the Town of Stratham, Wilcox & Barton, Inc. collected a drinking water sample from the water supply well servicing your property at 5 College Road on November 12, 2019. The sample was collected in accordance with a request by the New Hampshire Department of Environmental Services (NHDES) to further evaluate groundwater quality in the area surrounding the Stratham Fire Station. It was submitted to Con-Test Analytical Laboratory for analysis of per- and polyfluoroalkyl substances (PFAS) by the United States Environmental Protection Agency Method 537.1.

Attached, please find a copy of the laboratory analytical report for the sample collected from your property. Several PFAS were detected in the sample at concentrations above laboratory reporting limits. Two PFAS, including perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), were detected at concentrations that exceed NHDES Ambient Groundwater Quality Standards (AGQS) for drinking water. Currently, AGQS have been established for perfluorohexane sulfonic acid (PFHxS), PFOA, PFOS, and perfluorononanoic acid (PFNA) at concentrations of 18, 12, 15, and 11 parts per trillion, respectively.

If you have any questions regarding these findings, please do not hesitate to contact me at (603) 369-4190 x508.

Very truly yours,

WILCOX & BARTON, INC.

James P. Ricker, P.G.
Vice President

Attachment: Laboratory Report

cc: Mr. David Moore, Town of Stratham
NHDES Hazardous Waste Remediation Bureau

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 5 College Road Sampled: 11/12/2019 11:30

Sample ID: 19K0755-01

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorobutanesulfonic acid (PFBS)	29	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoropentanoic acid (PFPeA)	9.2	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorohexanoic acid (PFHxA)	18	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorohexanesulfonic acid (PFHxS)	15	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoroheptanoic acid (PFHpA)	3.7	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorooctanoic acid (PFOA)	22	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorooctanesulfonic acid (PFOS)	41	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorononanoic acid (PFNA)	3.0	2.1		ng/L	1		EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorodecanoic acid (PFDA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
N-EtFOSAA	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
N-MeFOSAA	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.1		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:39	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	**266**	*	70-130	PF-01	11/29/19 18:39
13C-PFDA	**180**	*	70-130	PF-01	11/29/19 18:39
d5-NEtFOSAA	**140**	*	70-130	PF-01	11/29/19 18:39

Wilcox & Barton INC.
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December 26, 2019

Kenneth and Dorothy Rowe
5 French Lane
P.O. Box 146
Stratham, New Hampshire 03885

RE: Water Supply Well Sampling Results – November 12, 2019
5 French Lane, Stratham, New Hampshire 03885

Dear Kenneth and Dorothy Rowe:

On behalf of the Town of Stratham, Wilcox & Barton, Inc. collected a drinking water sample from the water supply well servicing your property at 5 French Lane on November 12, 2019. The sample was collected in accordance with a request by the New Hampshire Department of Environmental Services (NHDES) to further evaluate groundwater quality in the area surrounding the Stratham Fire Station. It was submitted to Con-Test Analytical Laboratory for analysis of per- and polyfluoroalkyl substances (PFAS) by the United States Environmental Protection Agency Method 537.1.

Attached, please find a copy of the laboratory analytical report for the samples collected from your property. None of the compounds detected exceed NHDES Ambient Groundwater Quality Standards (AGQS) for drinking water. Currently, AGQS have been established for perfluorohexane sulfonic acid (PFHxS), perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), and perfluorononanoic acid (PFNA) at concentrations of 18, 12, 15, and 11 parts per trillion, respectively.

If you have any questions regarding these findings, please do not hesitate to contact me at (603) 369-4190 x508.

Very truly yours,

WILCOX & BARTON, INC.

James P. Ricker, P.G.
Vice President

Attachment: Laboratory Report

cc: Mr. David Moore, Town of Stratham
NHDES Hazardous Waste Remediation Bureau

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 5 French Lane Sampled: 11/12/2019 15:15

Sample ID: 19K0755-08

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorobutanesulfonic acid (PFBS)	5.4	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluoropentanoic acid (PFPeA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorohexanesulfonic acid (PFHxS)	12	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorooctanoic acid (PFOA)	3.4	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:17	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	**156**	*	70-130	PF-01	11/29/19 19:17
13C-PFDA	**26.6**	*	70-130	PF-01	11/29/19 19:17
d5-NEtFOSAA	111		70-130		11/29/19 19:17

Wilcox & Barton INC.
CIVIL • ENVIRONMENTAL • GEOTECHNICAL

December 26, 2019

Verne Edward Rawson Jr.
9 College Road
Stratham, New Hampshire 03885

RE: Water Supply Well Sampling Results – November 12, 2019
9 College Road, Stratham, New Hampshire 03885

Dear Mr. Rawson:

On behalf of the Town of Stratham, Wilcox & Barton, Inc. collected a drinking water sample from the water supply well servicing your property at 9 College Road on November 12, 2019. The sample was collected in accordance with a request by the New Hampshire Department of Environmental Services (NHDES) to further evaluate groundwater quality in the area surrounding the Stratham Fire Station. It was submitted to Con-Test Analytical Laboratory for analysis of per- and polyfluoroalkyl substances (PFAS) by the United States Environmental Protection Agency Method 537.1.

Attached, please find a copy of the laboratory analytical report for the samples collected from your property. Several PFAS were detected in the sample at concentrations above laboratory reporting limits. One compound, perfluorooctane sulfonic acid (PFOS), was detected at a concentration that exceeds its NHDES Ambient Groundwater Quality Standard (AQGS). Currently, AGQS have been established for perfluorohexane sulfonic acid (PFHxS), perfluorooctanoic acid (PFOA), PFOS, and perfluorononanoic acid (PFNA) at concentrations of 18, 12, 15, and 11 parts per trillion, respectively

If you have any questions regarding these findings, please do not hesitate to contact me at (603) 369-4190 x508.

Very truly yours,

WILCOX & BARTON, INC.

James P. Ricker, P.G.
Vice President

Attachment: Laboratory Report

cc: Mr. David Moore, Town of Stratham
NHDES Hazardous Waste Remediation Bureau

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 9 College Road Sampled: 11/12/2019 11:00

Sample ID: 19K0755-02

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorobutanesulfonic acid (PFBS)	5.5	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluoropentanoic acid (PFPeA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorohexanoic acid (PFHxA)	5.4	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorohexanesulfonic acid (PFHxS)	5.8	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorooctanoic acid (PFOA)	12	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorooctanesulfonic acid (PFOS)	16	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	2.0	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 18:51	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	114	70-130		11/29/19 18:51
13C-PFDA	119	70-130		11/29/19 18:51
d5-NEtFOSAA	122	70-130		11/29/19 18:51

Wilcox & Barton INC.
CIVIL • ENVIRONMENTAL • GEOTECHNICAL

December 26, 2019

Fred Emanuel
Fred Emanuel Revocable Trust
6 Patriots Road
Stratham, New Hampshire 03885

RE: Water Supply Well Sampling Results – November 12, 2019
131 Portsmouth Ave, Stratham, New Hampshire 03885

Dear Fred Emanuel:

On behalf of the Town of Stratham, Wilcox & Barton, Inc. collected a drinking water sample from the water supply well servicing your property at 131 Portsmouth Avenue on November 12, 2019. The sample was collected in accordance with a request by the New Hampshire Department of Environmental Services (NHDES) to further evaluate groundwater quality in the area surrounding the Stratham Fire Station. It was submitted to Con-Test Analytical Laboratory for analysis of per- and polyfluoroalkyl substances (PFAS) by the United States Environmental Protection Agency Method 537.1.

Attached, please find a copy of the laboratory analytical report for the samples collected from your property. Several PFAS were detected in the sample at concentrations above laboratory reporting limits; however, none of the compounds were detected above NHDES Ambient Groundwater Quality Standards (AGQS). Currently, AGQS have been established for perfluorohexane sulfonic acid (PFHxS), perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), and perfluorononanoic acid (PFNA) at concentrations of 18, 12, 15, and 11 parts per trillion, respectively.

If you have any questions regarding these findings, please do not hesitate to contact me at (603) 369-4190 x508.

Very truly yours,

WILCOX & BARTON, INC.

James P. Ricker, P.G.
Vice President

Attachment: Laboratory Report

cc: Mr. David Moore, Town of Stratham
NHDES Hazardous Waste Remediation Bureau

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 131 Portsmouth Ave Sampled: 11/12/2019 13:00

Sample ID: 19K0755-03

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorobutanesulfonic acid (PFBS)	3.1	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluoropentanoic acid (PFPeA)	2.0	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorohexanoic acid (PFHxA)	2.3	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorohexanesulfonic acid (PFHxS)	6.1	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorooctanoic acid (PFOA)	4.0	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorooctanesulfonic acid (PFOS)	5.4	2.0		ng/L	1		EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/27/19 10:15	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	115		70-130		11/27/19 10:15
13C-PFDA	119		70-130		11/27/19 10:15
d5-NEtFOSAA	**140**	*	70-130	PF-01	11/27/19 10:15

Wilcox & Barton INC.
CIVIL • ENVIRONMENTAL • GEOTECHNICAL

December 26, 2019

Mr. Gregg Pruitt
Tonal Hearth Property Management
132 Portsmouth Avenue
Stratham, New Hampshire 03885

RE: Water Supply Well Sampling Results – November 12, 2019
132 Portsmouth Ave, Stratham, New Hampshire 03885

Dear Mr. Pruitt:

On behalf of the Town of Stratham, Wilcox & Barton, Inc. collected a drinking water sample from the water supply well servicing your property at 132 Portsmouth Ave. on November 12, 2019. The sample was collected in accordance with a request by the New Hampshire Department of Environmental Services (NHDES) to further evaluate groundwater quality in the area surrounding the Stratham Fire Station. It was submitted to Con-Test Analytical Laboratory for analysis of per- and polyfluoroalkyl substances (PFAS) by the United States Environmental Protection Agency Method 537.1.

Attached, please find a copy of the laboratory analytical report for the samples collected from your property. Two PFAS were detected in the sample collected from your property, but neither that exceeds NHDES Ambient Groundwater Quality Standards (AGQS). Currently, AGQS have been established for perfluorohexane sulfonic acid (PFHxS), perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), and perfluorononanoic acid (PFNA) at concentrations of 18, 12, 15, and 11 parts per trillion, respectively.

If you have any questions regarding these findings, please do not hesitate to contact me at (603) 369-4190 x508.

Very truly yours,

WILCOX & BARTON, INC.

James P. Ricker, P.G.
Vice President

Attachment: Laboratory Report

cc: Mr. David Moore, Town of Stratham
NHDES Hazardous Waste Remediation Bureau

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 2 Winnicutt Rd., Stratham, NH Sample Description: Work Order: 19K0755

Date Received: 11/13/2019

Field Sample #: 132 Portsmouth Ave Sampled: 11/12/2019 12:00

Sample ID: 19K0755-04

Sample Matrix: Drinking Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorobutanesulfonic acid (PFBS)	3.7	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluoropentanoic acid (PFPeA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorohexanesulfonic acid (PFHxS)	16	2.0		ng/L	1		EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorooctanesulfonamide (FOSA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
6:2 Fluorotelomersulfonate (6:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorononanoic acid (PFNA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
N-EtFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
8:2 Fluorotelomersulfonate (8:2 FTS A)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
N-MeFOSAA	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0		ng/L	1	U	EPA 537	11/18/19	11/29/19 19:04	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	113		70-130		11/29/19 19:04
13C-PFDA	**34.4**	*	70-130	PF-01	11/29/19 19:04
d5-NEtFOSAA	77.3		70-130		11/29/19 19:04