

RTN 4-26179

Former Barnstable County Fire Training Academy Site

*Barnstable, MA
September 2023*

INTERIM PHASE II CSA STATUS REPORT #2



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Prepared by: BETA GROUP, INC.
Prepared for: Barnstable County

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1.0 INTRODUCTION

At the request of MassDEP, BETA Group Inc. (BETA) has prepared this Interim Phase II Comprehensive Site Assessment (CSA) Status Report #2 covering the period between January 2023 and July 2023. It summarizes recently conducted Phase II CSA activities undertaken to address a release of hazardous materials related to fire-fighting foams and attributed to the former Barnstable County Fire and Rescue Training facility (the FTA or facility) located at 155 South Flint Rock Road in Barnstable, Massachusetts. Assessment actions to date have identified elevated concentrations of the six perfluoroalkyl substances (PFAS) currently regulated by the Massachusetts Department of Environmental Protection (MassDEP) in soil, sediment, surface water, and groundwater at the facility and in adjacent areas, in particular to the east and southeast of the facility.

This document has been prepared on behalf of Barnstable County. It is being submitted to the Massachusetts Department of Environmental Protection (MassDEP) – Bureau of Waste Site Cleanup (BWSC) as an attachment to the BWSC 108 – Comprehensive Response Action Transmittal & Phase I Completion Statement Form. A copy of the draft form prior to electronic signature is included in **Appendix A**, as well as the Statement of Provisions and a copy of the Authorization for BETA to sign eDEP documents on behalf of the County.

Phase II CSA activities are currently on-going and will continue throughout 2023. Phase II CSA activities conducted during the current reporting period included: two rounds of groundwater screening southeast of the FTA, groundwater sampling of selected FTA Site monitoring wells, bathymetry and sediment and water sampling of Mary Dunn Pond, and a survey of selected monitoring wells west of Flintrock Pond. Refer to Section 5.0 for details.

As current owners of the FTA, Barnstable County, as represented by the Barnstable County Board of Regional Commissioners, have been named as the Potentially Responsible Party (PRP) for this release. The contact person for the Disposal Site is:

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BETA is performing MCP Response Actions on behalf of the Barnstable County Commissioners. The Licensed Site Professional (LSP) overseeing Response Actions for this release is:

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2.0 GENERAL DISPOSAL SITE INFORMATION

2.1 PROPERTY AND SITE DESCRIPTION

The former Barnstable County Fire and Rescue Training FTA (FTA or facility) is located on South Flint Rock Road in the Town of Barnstable. It appears on the United States Geological Survey (USGS) Topographic Quadrangle – Hyannis, Massachusetts -**Figure 1 – Site Location** map, prepared from a portion of the referenced USGS Topographic Quadrangle map. The Site is currently zoned for industrial use.

For the purposes of this and future MCP submittals, the property on which the FTA is located will be referred to as the FTA or facility. FTA or facility will also refer to the remaining or former structures, the land, and the former functions of the FTA.

In accordance with the MCP definition, where contamination attributable to the PFAS releases associated with firefighting foams and training on the FTA have come to be located will be referred to as the Disposal Site or Site.

Following the completion of the capping and selected demolition project in November 2021, the 6.2-acre FTA is improved by one primary building, the former fire training building (with former classrooms, administrative offices, and two apparatus bays) and several ancillary structures including a wood frame former classroom building (now used for storage), two fabric Quonset-style sheds used for storage, a small concrete building housing one groundwater treatment system, a shipping container housing the second groundwater treatment system, and a small concrete block storage shed. Refer to **Figure 2A – Site Plan Detail**. The FTA is secured by chain link fencing and a locked gate.

The FTA is listed on the Town of Barnstable Assessor's on-line records as Map 313, Lot 007. The FTA was first constructed on land donated to the Town of Barnstable by the Cobb Trust in 1955. The current owner-of-record is the County of Barnstable, who acquired the facility from the Town of Barnstable in 1983 by deed recorded June 3, 1983, Barnstable Registry of Deeds, Book 3759, Page 39. Utilities servicing the FTA include municipal water, an underground septic system, aboveground electricity, and telecommunications.

The FTA had been used for public safety training since the 1950's. The FTA was formerly used for public safety training by fire departments and fire districts from throughout Barnstable County, fire departments outside of Barnstable County, and other public and private institutions. Live fire training using firefighting foams, including aqueous film forming foams (AFFF), was conducted at the FTA for decades by fire districts and departments that used their own foam brought to the FTA in the apparatus of the organization participating in the training. Foam training exercises at the FTA ceased in 2009 according to FTA officials. Water training activities ceased in June 2019. As noted, all former live fire training structures and props have been demolished and/or removed from the Site.

Land surrounding the FTA is primarily undeveloped, wooded land within public water supply protection areas. Flintrock Pond occupies approximately 6 acres directly to the west of the FTA. Several public water supply wells and their related facilities are located to the east, southeast, and west of the FTA.

At this time, the preliminary MCP Disposal Site (the Site) associated with RTN 4-26179 is considered to comprise all the FTA, the westerly adjacent Flintrock Pond, and a large woodland area to the south and southeast of the FTA, including Mary Dunn Pond (based on recent assessment reported herein). Recent Phase II CSA results indicate that the RTN 4-26179 Disposal Site conditions may extend to the southeast to Airport Way and south of Mary Dunn Pond. This conclusion is based on preliminary data, which will be confirmed through on-going Phase II CSA expanded groundwater assessment. The full extent of the Disposal Site has not been defined at this time. The southeastern portion of the Site includes land owned by the Town of Barnstable, which is crossed by two electric power transmission lines running presumably within easements. Private industrial properties and related structures are located approximately 500 to 1,000 feet south of the Site. The Barnstable Municipal Airport is located to the west (runway 15 – 33) and south of the Site and the FTA.

The nearest residential properties are located approximately ¼ mile to the north of the Site. Based on 2010 U.S. Census data, the residential population located within a ½ mile radius of the Site is estimated to be less than 150 people. There are no known Institutions located within 500 feet of the Site. The municipal well pumping facilities referenced above (not part of the FTA) are not staffed full-time.

2.2 LATITUDE AND LONGITUDE / UNIVERSAL TRANSVERSE MERCATOR'S

The coordinates for the Site are shown below. For simplicity, these coordinates are for the southerly end of the FTA.

<u>Latitude/Longitude</u>	Latitude: 41° 40' 41.53"N Longitude: 70° 17' 7.82"E
<u>UTM Coordinates</u>	Easting: 393,002 Northing: 4,614,847 Zone 19

2.3 MCP METHOD 1 CATEGORIES

2.3.1 GROUND WATER CATEGORY

As noted, the Site is located within a Zone II Public Water Supply Protection Area and a Medium-Yield Sole Source Aquifer. Therefore, MCP Method 1 Ground Water Category 1 (GW-1) applies to the Site. Groundwater at the FTA facility itself Site is also categorized as Method 1 GW-2 because groundwater has been measured at depths less than 15 feet below grade and an occupied building is located within the FTA facility. All ground waters within the Commonwealth are considered a potential source of discharge to surface waters and shall be categorized, at a minimum, as Method 1 GW-3. Therefore, the applicable Method 1 Ground Water Categories for the Site are GW-1, GW-2, and GW-3.

2.3.2 SOIL CATEGORY

Soil categorization is based upon the type of human receptor and three potential exposure criteria: frequency of use, intensity of use, and accessibility of soil. The FTA portion of the Site is occupied by a former fire and rescue training facility. Based on the nature of the facility, children are assumed to be "not present." Adults who work at the site as staff members are assumed to be present at "high frequency" based on the MCP definition. However, since training ceased at the FTA, only limited staff are currently assigned to the former FTA – see below. Other County personnel periodically visit the facility, but only reportedly for short periods of time; therefore, their presence is considered to "low frequency." Recent Phase II CSA activities have identified soil near to, but outside of the fenced FTA compound with levels of PFAS 6 compounds above applicable MCP risk standards. This soil is adjacent to South Flint Rock Road or in wooded areas immediately east and south of the FTA fence line. Since these areas are undeveloped but unfenced, children and adults may be present at low frequencies.

Impacted soils have been identified in unpaved areas within the FTA, wooded areas outside the fence, and beneath recently paved areas at depths ranging from near the surface to approximately 15 feet below the ground surface. Therefore, impacted soils at the FTA are considered "accessible" (remaining unpaved areas) and "potentially accessible" (paved areas or deeper soil).

Only groundwater impacts at significant depths below the ground surface have been identified at the remainder of the Site (outside of the FTA or at distances greater than 50 feet from the fence line), which consists of undeveloped, industrially zoned land, a portion of a utility easement, and three unmanned public water supply well stations.

Intensity of use in regard to soil disturbance by adults at the Site may be conservatively considered to be “high” because the area of impact at the FTA could potentially be disturbed during FTA facility maintenance activities. However, the high use designation described in previous MCP submittals applied primarily to former on-Site training activities, which were of relatively short duration but with high intensity. Current exterior FTA facility activities are only maintenance-related (e.g., lawn mowing) and are similar in terms of duration to previous uses. Maintenance of equipment is performed at the FTA periodically but that work is conducted inside the remaining main building. Therefore, current maintenance activities are only of low intensity. Intensity of use by children only applies to incidental “use” of the areas on the shoulder of Flint Rock Road near the FTA or to the wooded areas within approximately 50 feet of the fence line. Based on these locations, intensity of use for children would be considered “low.”

Based on all of the factors described above, for current Site uses, soils at the Site are categorized as Soil Category S-2. The applicable Soil Categories for current Site uses have been identified as S-2/GW-1, S-2/GW-2, and S-2/GW-3.

The applicable Soil Categories for unrestricted future Site uses are S-1/GW-1, S-1/GW-2, and S-1/GW-3.

2.4 ENVIRONMENTAL SETTING AND SENSITIVE RECEPTORS

A review of the Massachusetts GIS Priority Resources (21E) mapping (included in all previous MCP submittals) the Site is located within a Zone II Public Water Supply Protection Area and a Medium-Yield Sole Source Aquifer. The FTA is situated to the west and upgradient of the Mary Dunn public water supply wells 1, 2, and 3 (MD 1, MD-2, and MD-3) under pumping conditions. Mary Dunn Wells 1, 2, and 3, owned by the Town of Barnstable through the Hyannis Water Supply Division (HWSD) of the Barnstable Department of Public Works (DPW), are located within the Disposal Site boundary due to the detections of PFAS in the groundwater at those wells. There are no known private potable water wells located within the preliminary Disposal Site.

Mary Dunn Well 3 (MD-3) is located approximately 1,000 feet east of the FTA; it is the nearest public water supply well to the facility. MD-3 reportedly has been pumped at an average rate of 380 to 450 gallons per minute (gpm). Mary Dunn Wells 1 and 2 (MD-1 and MD-2) are located approximately 1600 feet and 1700 feet, respectively, southeast of the FTA. These wells have been reported to pump at rates of 400 gpm each. Airport Well 1, also owned by HWSD, is located further to the southeast of the FTA, south of Mary Dunn Pond.

Two other public water supply wells, identified as Barnstable Fire District (BFD) wells BFD-2 and BFD-5, are located to the west and most likely upgradient of the Site. The BFD wells are operated by Barnstable Fire District Water Department.

Based on available USGS and MassGIS topographic data, elevations at the Site are approximately 30 to 50 feet above mean sea level (MSL). Surveyed elevations on the FTA itself range from approximately 32 to 40 feet above MSL, NAD88 datum.

The FTA itself is relatively flat, most likely graded for the original construction of the facility, with the exception of the western portion of the facility, which slopes downward to the west towards Flintrock Pond, and the northern and southeast quadrants of the FTA that slope downward towards adjacent wooded areas.

Topography of the overall Site can be categorized as generally level with slight to moderate slopes downward to the west and southeast, toward Flintrock Pond and Mary Dunn Pond, respectively. However, this is the general trend of the area. The wooded areas of the Site to the east and southeast of the FTA are characterized by typical, hilly topography of the mid-Cape with its widely varying terrain. The Site is punctuated with small depressions, some intermittently filled with water, typical of post-glacial terrain.

The nearest surface water bodies to the Site are Flintrock Pond and an unnamed pond; Flintrock Pond is located west adjacent to the FTA and the unnamed pond is located northeast of the FTA (as depicted in **Figure 2**). A portion of Flintrock Pond is located within the preliminary MCP Disposal Site Boundary based on the detection of PFAS in sediment and surface water. There are no streams or wetlands located at the Site.

3.0 DISPOSAL SITE HISTORY AND OVERVIEW

The FTA and the adjacent area to the east have historically been the subject of four MassDEP RTNs: 4-190, 4-11707, 4-20021, and 4-26179. Regulatory closure (under the MCP) has been achieved for RTNs 4-11707 and 4-20021. The original RTN, 4-190, which was assigned to legacy petroleum contamination, is managed separately.

This Phase II CSA Status Report is being submitted for RTN 4-26179 only. The disposal site history for RTN 4-26179 has been discussed extensively in IRA Status Reports and the Phase I Initial Site Investigation previously submitted to MassDEP. For completeness, a brief site history is summarized below.

In November 2013, Barnstable County personnel collected soil and groundwater samples from the FTA property due to the detection of PFOS in Mary Dunn public water supply wells MD-1, MD-2, and MD-3. Groundwater analytical results revealed that FTA groundwater was impacted by PFOS. MassDEP was subsequently notified. As a voluntary measure, Barnstable County later restarted the former perchlorate pump and treat system located at the FTA to help remediate and contain the PFOS apparently migrating from the facility. Further Site assessment activities in 2015 also indicated a broad area of PFOS contamination throughout the subsurface. The highest PFOS concentrations were detected near the southwestern corner of the FTA, a location subsequently referred to as the Hot Spot.

On August 4, 2016 MassDEP issued a Notice of Responsibility (NOR) to Barnstable County. As summarized in the NOR, based on the detected PFAS concentrations in soil and groundwater at the FTA and the inferred groundwater flow direction being to the east and southeast (toward the Mary Dunn wells), MassDEP determined that the releases of PFAS from training with AFFF at the FTA is a source of PFAS detected in the Mary Dunn wells.

On September 27, 2016, on behalf of Barnstable County, the Cape Cod Commission submitted an IRA Plan to MassDEP to address the PFOS/PFOA impacts. The IRA Plan included an evaluation of imminent hazards to downgradient public and private water supplies, a Hot Spot removal plan, and plans for an interim expansion of the existing groundwater pump and treatment system.

Between December 2016 and February 2018, the Cape Cod Commission submitted monthly IRA Status and Remedial Monitoring Reports (RMRs) to MassDEP for the PFAS release.

The RMRs reported on the FTA GWPTS, which was intended to reduce PFAS concentrations in the aquifer before it reached the Mary Dunn municipal wells and treatment systems. The Hot Spot soil was removed in January 2017, reducing the primary source of PFOS contamination leaching into groundwater. However, post-removal grading and settling of the backfill in the Hot Spot area left it prone to infiltration of runoff from the southern portion of the FTA. From December 2018 through February 2019, the former Hot Spot area was regraded and temporarily capped to limit infiltration.

The Mary Dunn wells are equipped with GAC treatment systems to remove PFAS. Those systems are actively preventing a potential Imminent Hazard to the Hyannis community by removing the PFAS compounds from the water supply. A Settlement Agreement between the Town of Barnstable and Barnstable County requires the County to fund a portion of the costs for operating the Mary Dunn wells treatment systems as well as a portion of the capital costs to install the GAC systems.

On behalf of Barnstable County, BETA submitted monthly IRA Status Reports and RMRs from March 2018 through January 2022. The IRA Status and RMR Reports summarized groundwater monitoring across the Disposal Site and GWPTS performance. Status reports are now filed on a six-month basis. For the reporting period of July 2022 through December 2022 IRA Status Report and RMR No. 64 was combined with the initial Interim Phase II CSA Status Report, which summarized the Phase II CSA activities completed during the period of July 2022 through December 2022. IRA Status Report and RMR No. 65 for the reporting period of January 2023 through June 2023 has been recently submitted to MassDEP.

In 2020 to 2021, final design was completed for capping of the majority of the former Fire Training Academy and the demolition of former live-fire training buildings and all training props at the Site. IRA Plan Modification No. 3 was also finalized in June 2021 to formalize the inclusion of selected building demolition into the project. Demolition and cap construction began in August 2021 and was substantially completed in October 2021. The former live fire training buildings and other fire training props and features were demolished and disposed of off-Site. Approximately 650 tons of PFAS contaminated demolition debris and materials associated with these structures were transported to and disposed at the US Ecology / Wayne Disposal, Inc. secure landfill facility in Belleville, MI in September 2021. Approximately 59,000 square feet (SF) of unpaved portions of the FTA were capped with 3.5-inches of hot mix asphalt pavement following installation of a stormwater management system and regrading of the facility. Additional details, photographic documentation of the completed cap, and waste disposal documentation were provided in IRA Status Report No. 60 for the November 2021 reporting period.

4.0 SUMMARY OF PHASE II CSA SCOPE OF WORK

BETA submitted a Phase II Comprehensive Site Assessment (CSA) Scope of Work (SOW) to MassDEP in March 2022 on behalf of Barnstable County. The Phase II CSA SOW detailed multiple comprehensive Site assessment tasks that are currently focusing on addressing several data gaps across the Site. The identified data gaps include:

- i. Potential PFAS groundwater impacts at large distances to the south and southeast of the FTA source area and to the west of Flintrock Pond;
- ii. soil impacts at and in close proximity to the FTA itself;
- iii. contaminant conditions in Flintrock Pond, Mary Dunn Pond and a small unnamed water body/wetland northeast of the FTA.

The planned assessment activities outlined in the Phase II CSA SOW involved expanded groundwater assessment to further characterize the nature and extent of the identified PFAS plume, numerical modeling of groundwater flow, evaluation of site-specific PFAS fate and transport characteristics, pond assessments and further shallow and vadose zone soil assessment.

Phase II CSA activities are currently on-going and are tentatively expected to be completed in 2024. Significant progress has been made to the program. Phase II CSA activities conducted during the period between July 2022 and December 2022 were previously summarized in the combined IRA Status & RMR No. 64 & Interim Phase II CSA Status Report submitted to MassDEP. Phase II CSA activities conducted during the current reporting period of January 2023 to July 2023 are summarized in Section 5.0. A Comprehensive Interim Phase II CSA Report detailing all CSA through the end of 2023 is expected to be submitted to MassDEP in early 2024. A Phase II CSA Report detailing all comprehensive site assessment activities is expected to be submitted to MassDEP in early 2025.

5.0 PHASE II CSA ACTIVITIES CONDUCTED DURING CURRENT REPORTING PERIOD

Phase II CSA activities are currently on-going. Phase II CSA activities conducted during the current reporting period included:

- Two rounds of additional groundwater screening conducted over a wide area southeast of the FTA,
- monitoring well installations,
- bathymetric survey, sediment and surface water sampling of Mary Dunn Pond,
- sediment sampling of a small unnamed water body northeast of the FTA,
- groundwater sampling, and
- a multi-Site groundwater gauging round at the former FTA and Cape Cod Gateway Airport (RTN 4-26347).

Refer to the following subsections for details.

5.1 GROUNDWATER SCREENING

In January 2023 and April 2023, BETA conducted groundwater screening at two additional sets of locations to further characterize the extent of PFAS impacts to groundwater at large distances away from the former FTA. A total of sixteen groundwater screening locations, referred to as GWS-12 to GWS-27 were completed from January 2023 to April 2023 on multiple parcels of land located along the south end of Mary Dunn Road, the Airport Way right-of-way, as well as south and east of Mary Dunn Pond.

- January 9 and 10, 2023 – Groundwater screening was conducted at the GWS-12 through GWS-20 locations on parcels east and west of Mary Dunn Road and along the north shoulder of Airport Way, within the street layout.
- April 11 and 12, 2023 - Groundwater screening was conducted at the GWS-21 through GWS-27 locations. The GWS-21 location is at the west end of Airport Way; the GWS-22 location is on the MassWildlife parcel at the northwest corner of Mary Dunn Road and Airport Way. The remainder of the screening locations were south, southeast and east of Mary Dunn Pond.

Refer to **Figure 7** for the locations of these groundwater screening points.

Groundwater Screening Methods

Groundwater screening methods of sample collection have been noted by the US Environmental Protection Agency (EPA) as cost effective and efficient means to develop wide-area groundwater data and guide plume assessment. It involves driving a specialized slotted sampling tool into the groundwater table to extract a groundwater sample. Samples are then collected at multiple depths with a peristaltic pump or manually using dedicated high-density polyethylene (HDPE) tubing equipped with a foot valve. Following the collection of the groundwater samples, the tool is removed without a permanent monitoring well installation.

Groundwater screening points were advanced by Bronson Drilling using a direct-push drill rig mounted on a small rubber-track vehicle under BETA oversight. Groundwater samples were collected from multiple depths below the groundwater table using a peristaltic pump, a Waterra Hydrolift pump, and/or manually using dedicated high-density polyethylene (HDPE) tubing equipped with a foot valve. Sample ID's ending with an "S", "I" and "D" indicate a shallow, intermediate, and deep groundwater sample, with respect to the depth that groundwater was first detected at a particular drilling location. Field decisions were made about depths of sample collection for each screening location. The S, or "shallow", groundwater screening sample was collected at or within several feet of the depth where groundwater was first detected in a boring; the D, or "deep" sample was collected approximately 15 to 20 feet below the S sample. At a few locations where PFAS impacts were suspected in deeper groundwater, a shallow sample was not collected; the first sample was collected from approximately 20 feet below the top of the groundwater and was labeled as the I, "intermediate", sample. The D sample at these locations was then collected approximately 20 feet below the I sample. Individual, approximate sample depths below ground surface are provided on the attached **Table 1 – Summary of Phase II CSA Groundwater Screening Analytical Results** (attached). It should be noted that the approximate ground surface elevations for the screening locations shown in Table 1 were obtained by a handheld GPS instrument and should be considered preliminary and subject to change.

Turbidity was observed in most of the screening samples, assumed to be the result of the slot size in the tooling required to collect the screening samples. The screening method does not provide a practical method to "develop" or purge the collection device of fine sediment. In order to informally assess potential bias in detected PFAS concentrations due to possible PFAS adsorption to sediment particles, BETA split two selected samples and filtered one of them in the field (0.45 micron cassette filters) prior to placing both samples into lab-supplied containers. Both the filtered and unfiltered samples were submitted for PFAS analysis. In the detailed discussions of screening results below, the samples that were filtered are identified and the analytical results discussed.

Each groundwater screening sample was submitted to Pace Analytical Services, LLC (Pace) for laboratory analysis of PFAS using Standard Operating Procedure (SOP) 454, a Pace Analytical PFAS analytical procedure using an isotope dilution quantification method. Prior to the start of work and at each groundwater screening location, the sampling tool was decontaminated using an Alconox solution and rinsed with PFAS-free water provided by the laboratory. Equipment rinsate blanks were collected from the sampling tool at the end of each workday to confirm that decontamination procedures were effective and assess for potential cross contamination. Equipment rinsate blank ("EB" samples) analytical results are tabulated with the Groundwater Screening Results on **Table 1**.

Summary of Analytical Results

Groundwater screening analytical results are summarized on **Table 1**. PFAS analytical results are reported as the sum of the six PFAS regulated by MassDEP (PFAS6) and compared to MassDEP Method 1 GW-1 Risk Standards. The six MassDEP regulated PFAS compounds include perfluorooctanesulfonic acid (PFOS), Perfluorooctanoic acid (PFOA), Perfluorohexanesulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA) and Perfluorodecanoic acid (PFDA). Copies of the complete laboratory reports are included in **Appendix B**.

April 2023 Groundwater Screening

GWS-12 and GWS-13: 629 Mary Dunn Road / Parcel ID: 331004X02 – West of Mary Dunn Road

Groundwater screening was conducted at two locations identified as GWS-12 and GWS-13 approximately 70 and 80 feet, respectively, west of Mary Dunn Road, see **Figure 8**. At the GWS-12 location groundwater was encountered approximately 18 feet below grade, as shown on Table 1. Samples were collected from 2 depths, approximately 3 feet and 20 feet below the water table. Similar groundwater conditions and two similar samples were collected at the GWS-13 location.

GWS-12D analytical results revealed a total PFAS6 concentration of 25 nanograms per liter (ng/L) comprising PFOS (14 ng/L) and PFHxS (11 ng/L). The detected PFAS6 concentrations exceed the MassDEP GW-1 Risk Standard. The GWS-12S, GWS-13S, and GWS-13D samples did not have reportable concentrations of PFAS6 (with reporting limits of 10 ng/l), including any of the 34 PFAS compounds reported by the Pace SOP 454 method, such as 8:2, 6:2, and 4:2 fluorotelomer sulfonic acids.

GWS-14: 0 Mary Dunn Road / Parcel ID: 331003X02 – East of Mary Dunn Road & West of Mary Dunn Pond

Groundwater screening was conducted at one location, identified as GWS-14, approximately 140 feet west of Mary Dunn Road on the referenced town parcel. GWS-14D analytical results revealed a total PFAS6 concentration of 937 ng/L, which significantly exceeds the MassDEP GW-1 Risk Standard. The individual regulated PFAS compounds detected included PFOS (680 ng/L), PFOA (36 ng/L), PFHxS (200 ng/L) and PFHpA (21 ng/L). The analysis of the shallow groundwater sample collected from this location did not reveal PFAS6 above laboratory reporting limits (RL = 10 ng/l). In addition, none of the 34 PFAS compounds reported by the Pace SOP 454 method, such as 8:2, 6:2, and 4:2 Fluorotelomer sulfonic acids (FTSA), were detected in the GWS-14S sample above laboratory reporting limits.

GWS-15 and GWS-20: 520 Mary Dunn Road / Parcel ID: 330009 – East of Mary Dunn Road & Northeast of Airport Well 1

Two groundwater screening locations, identified as GWS-15 and GWS-20, were sampled on the northern portion of the referenced parcel approximately 150 feet and 160 feet, respectively, east of Mary Dunn Road – see **Figure 8**. GWS-15D analytical results identified a total PFAS6 concentration of 394 ng/L comprising PFOS (330 ng/L), PFOA (19 ng/L) and PFHxS (45 ng/L). Total PFAS6 concentrations from GWS-20D, located approximately 175 feet south of GWS-15, were 5.7 ng/L (PFOA only). The analyses of the shallow groundwater samples collected (GWS-15S and GWS-20S) did not reveal PFAS6 above laboratory reporting limits (RL = 10 ng/l).

Prior to submittal to the laboratory, BETA collected a split of the original GWS-20D sample, which was then filtered through a 0.45-micron filter to remove significant silts and fine sand. The filtered aliquot was submitted as a separate sample for analysis, identified as GWS-20D Filtrate.

Analytical results for the GWS-20D Filtrate sample did not reveal total or individual PFAS6 compounds above laboratory detection limits. This experiment may indicate that PFOA does adsorb to fine soil particles. The observed effect (difference in PFOA concentration detected) in this particular sample was small, but that reflect the low concentration present. The GWS-20D sample was selected randomly in the field for splitting and filtering; there was no way to know the PFAS 6 concentrations that would later be identified by the analysis. None of the 34 PFAS compounds reported by the Pace SOP 454 method, such as 8:2, 6:2, and 4:2 Fluorotelomer sulfonic acids, were detected in the GWS-15S or GWS-20S samples. Three non-PFAS6 compounds, including 6:2 Fluorotelomer sulfonic acid (6:2 FTS A at 7.3 ng/l), were reported by the laboratory in sample GWS-20D.

GWS-16, GWS-17, GWS-18, GWS-19 and GWS-21: Airport Way Right of Way Locations

Groundwater screening was conducted at five locations, identified as GWS-16, GWS-17, GWS-18, GWS-19 and GWS-21, along the northern shoulder of Airport Way, a municipal road. The locations of groundwater screening points were carefully selected so that the work was located within the limits of the town owned right-of-way to the extent that could be determined in the field. See Figure 5.

Analytical results revealed total PFAS6 concentrations above MassDEP GW-1 Risk Standards in nine of ten samples submitted for laboratory analysis. Shallow groundwater samples contained total PFAS6 concentrations ranging from 13 ng/L at GWS-17S to 655.9 ng/L at GWS-19S. Total PFAS6 concentrations in deep groundwater samples ranged from 54.5 ng/L at GWS-16D to 134 ng/L at GW-19D. PFOS, PFOA, PFHxS and PFHpA were consistently detected in samples at GWS-16, GWS-17D, GWS-18 and GWS-21. However, the PFHpA concentration in the GWS-19S sample was significantly elevated compared to the other locations. In addition, the PFOS concentration in the GWS-19S sample was notably lower than in samples collected west of Mary Dunn Road. In addition to the four compounds mentioned above, PFNA was also detected in the GWS-19 samples. Only PFOS and PFHxS were detected in sample GWS-17S.

Similar to sample GWS-20D, BETA collected an aliquot of the original GWS-16D sample, which was then filtered through a 0.45-micron filter. The filtered aliquot was submitted as a separate sample for analysis identified as GWS-16D Filtrate. Comparison of the analytical results between GWS-16D and GWS-16D Filtrate revealed relatively similar concentrations.

6:2 Fluorotelomer sulfonic acid (FTSA) was detected in all of the Airport Way groundwater screening samples with the exception of GWS-17S. The 6:2 FTSA concentrations exhibited a wide range, from 32 ng/L at GWS-18D to 2,100 ng/L at GWS-19S. 8:2 Fluorotelomer sulfonic acid (8:2FTSA) was also detected at 6.1 ng/L in GWS-19S. The 2,100 ng/l of 6:2 FTSA in the GWS-19S sample is notably elevated compared to all other results obtained through the Round 2 groundwater screening program. Further evaluation of the analytical results will be conducted.

Overall, PFAS6 concentrations were found to be higher at the central and western screening locations along Airport Way and gradually decreased moving eastward. Shallow groundwater samples were also found to contain greater PFAS6 concentrations than the deeper samples with the exception of sample GWS-17S. Both the GWS-19 and GWS-21 samples had shallow sample concentrations noticeably higher than the deep which may indicate a closer source of PFAS impacts.

GWS-22: 523 Mary Dunn Road / Parcel ID: 330008001 – West of Mary Dunn Road & North of Airport Way

One groundwater screening point identified as GWS-22 was completed on the northwest corner of the Mass Wildlife parcel assigned the address of 529 Mary Dunn Road. This parcel is part of the Mass Wildlife Hyannis Ponds Wildlife Management Area (HPWMA).

GWS-22D analytical results revealed a total PFAS6 concentration of 428.2 nanograms per liter (ng/L) comprising PFOS (360 ng/L), PFHxS (61 ng/L) and PFOA (7.2 ng/L). The total PFAS6 concentration as well as the individual PFOS and PFHxS compounds exceed current MCP Method 1 GW-1 Standards.

Individual PFAS compounds were not detected above laboratory reporting limits (RL = 4.1 ng/L) within the shallow groundwater sample identified as GWS-22S. No other individual PFAS compounds such as 8:2, 6:2, and 4:2 fluorotelomer sulfonic acids were detected at the GWS-22 location above laboratory reporting limits.

GWS-23, GWS-24 & GWS-25: 480 Barnstable Road / Parcel ID: 3209003 – South & Southeast of Mary Dunn Pond

Three groundwater screening points identified as GWS-23 through GWS-25 were completed on several town parcels to the south and southeast of Mary Dunn Pond and north of Cape Cod Gateway Airport runway 6- 24. See **Figure 8**.

As shown on Table 1, the GWS-23D analytical results identified a total PFAS6 concentration of 51.5 ng/L comprising PFOS (5.4 ng/L), PFHxS (9.1 ng/L), PFOA (7.2 ng/L), and PFHpA (22 ng/L). The total PFAS6 concentration as well as the individual PFHpA concentration exceed current MCP Method 1 GW-1 Standards.

Individual PFAS compounds were not detected above laboratory reporting limits within the shallow groundwater sample identified as GWS-23S (RL = 4.1 ng/L).

Total PFAS6 concentrations at GWS-24 were detected at 31.4 ng/L in GWS-24S, 118.6 ng/L in GWS-24I and 30.6 ng/L GWS-24D. PFAS6 concentrations in all three groundwater samples collected at this location exceed the MassDEP GW-1 Risk Standards. The individual PFAS6 compounds detected in GWS-24 samples included PFOS (22 ng/L in GWS-24S to 73 ng/L in GWS-24I), PFOA (6.5 ng/L in GWS-24I only) PFNA (4.7 ng/L in GWS-24D to 24 in GWS-24I), PFHxS (6.9 ng/L in GWS-24D to 7.9 in GWS-24I) and PFHpA (4.2 ng/L in GWS-24S to 7.2 ng/L in GWS-24I).

GWS-25I and GWS-25D analytical results identified total PFAS6 concentrations of 201 ng/L and 153.6 ng/L, respectively. The total PFAS6 concentration in the GWS-25I sample comprised PFOS (140 ng/L), PFOA (5.1 ng/L), PFNA (24 ng/L), PFHxS (22 ng/L) and PFHpA (9.9 ng/L). Review of the GWS-25D results revealed similar relative, individual PFAS6 concentrations to those detected in the GWS-25I sample. Individual PFAS6 concentrations in the GWS-25D sample included PFOS (100 ng/L), PFOA (5.1 ng/L), PFNA (23 ng/L), PFHxS (18 ng/L) and PFHpA (7.5 ng/L). None of the fluorotelomers were reported by the laboratory above the respective reporting limits at these groundwater screening locations.

GWS-26 and GWS-27: 0 Mary Dunn Road / Parcel ID: 329003–East of Mary Dunn Pond

Groundwater screening was conducted at two locations identified as GWS-26 and GWS-27 located southeast and east of Mary Dunn Pond on the referenced parcel, which is part of the HPWMA. See Figures 7 and 8.

GWS-26D analytical results identified a total PFAS6 concentration of 101.9 ng/L comprising PFOS (25 ng/L), PFOA (6.9 ng/L), PFNA (18 ng/L), PFHxS (32 ng/L) and PFHpA (20 ng/L). The PFOS, PFHxS and total PFAS6 concentrations at GWS-26D exceed current MCP Method 1 GW-1 Standards. Individual PFAS6 compounds were not detected above laboratory reporting limits (RL = 4.1 ng/L) in the GWS-26I sample. Due to the distance from the FTA and the features of the area, a shallow (water table) groundwater sample was not collected at GWS-26.

GWS-27S and GWS-27D analytical results identified total PFAS6 concentrations of 13 ng/L and 7.8 ng/L, respectively. The total PFAS6 concentrations at this location are only comprised of PFOS and is below current MCP Method 1 GW-1 Standards.

Of the remaining 28 PFAS compounds not currently regulated by MassDEP and reported by Pace, only Perfluorobutanoic acid (PFBA), Perfluorobutanesulfonic acid (PFBS), PFPeA and PFHxA were detected above laboratory reporting limits in sample GWS-26D.

5.2 MARY DUNN POND BATHYMETRY SURVEY

On January 10, 2023 Steele Associates Marine Consultants, LLC (Steele) completed a bathymetric survey of Mary Dunn Pond in Barnstable, MA. The survey was conducted using appropriate scanning technology and resulted in a map of the pond bottom with elevations and horizontal locations presented based on the Massachusetts State Plan grid system and the NAV88 USGS datum. The figure depicting the survey results, Sheet 1, Single Beam Bathymetric Survey, is included as **Appendix C**.

The bathymetry survey determined that the Mary Dunn Pond is relatively shallow with a relatively uniform bottom. Elevation differences throughout the pond are minimal and generally vary between 0-1 feet. The maximum depth of Mary Dunn Pond is projected to be approximately 7 to 8 feet; it is assumed that it varies significantly seasonally. The groundwater withdrawals at Mary Dunn Wells #1 and #2 may also influence the depth of Mary Dunn Pond. On June 21, 2023, when sediment and surface water sampling were conducted (see Section 5.10), the approximate maximum depth of the pond was 4.5 to 5 feet.

5.3 FEBRUARY 2023 SITE-WIDE GROUNDWATER GAUGING AND ELEVATION SURVEY

BETA gauged depth to groundwater in viable monitoring wells at the FTA and in downgradient areas in addition to selected monitoring wells on February 10th, 2023. **Table 2A** presents a tabulated summary of February 2023 groundwater depths, calculated groundwater elevations, and historical seasonal groundwater elevation data (from 2021-2023) for selected monitoring points across the Disposal Site.

Groundwater flow has historically been inferred to be to the south-southeasterly from the former FTA. A review of the February 2023 data indicate a continuation of the historic patterns. However, there may be different flow conditions in some areas on and east of the FTA. See Section 5.6 for discussion of the April 2023 groundwater gauging event, inferred flow directions, and the selected gauging used to develop wide-area groundwater contours.

5.4 MW-300 SERIES GROUNDWATER SAMPLING & ANALYSIS

On February 13, 2023 BETA collected groundwater samples from monitoring wells identified as MW-301, MW-302, MW-303, MW-304, MW-305, MW-306, MW-310, and MW-311; these 1-inch diameter, PVC shallow groundwater monitoring wells were installed earlier in the Phase II CSA. The abovementioned monitoring wells are located on the central and northern portion of the FTA as well as immediately northeast and southeast of the FTA property. Note that monitoring wells MW-307 S/D, MW-308 S/D and MW-309 were installed west of Flintrock Pond in October 2022, sampled in November 2022, and discussed in the June to December Interim Phase II CSA Status Report.

- MW-301 was installed to assess groundwater in the vicinity of a subsurface structure reportedly used historically for discharge of treated groundwater.
- MW-302 and MW-303 were installed to assess groundwater in the vicinity of the leaching field serving the main building at the FTA.
- MW-306 and MW-310 were installed to assess groundwater along the northern edge of the FTA.
- MW-304 and MW-311 were installed to assess groundwater near and to the northeast of the FTA (MW-304) and to the southeast of the FTA (MW-311) downgradient of existing monitoring points where PFAS6 concentrations have been rising.
- MW-305 was installed in the central part of the FTA, effectively to replace PFW-6, which was damaged during the capping project.

Refer to **Figure No. 4 – Monitoring Well Plan** for locations.

Analytical results are summarized on **Table 3 – Summary of Groundwater Analytical Results – MW-300, and MW-400 Series and WS-101**. Copies of the complete laboratory reports are included in **Appendix D**. PFAS6 concentrations well above Method 1 GW-1 Standards were identified at MW-302, MW-303, MW-304, MW-305, MW-306 and MW-311. NO PFAS6 compounds or other PFAS compounds reported by the Pace SOP were detected in the MW-301 sample above laboratory reporting limits (RLs.) However, a sample dilution was executed on the sample due to anticipated high concentrations relative to the laboratory calibration standards. Therefore, the results were reported with a RLs (10 ng/l) that may mask PFAS6 total concentrations that exceed the MCP GW-1 risk standard of 20 ng/l. Furthermore, considering the location of MW-301, the anecdotal information on historic activities in the area, and the surrounding groundwater PFAS6 concentrations, the results of all PFAS compounds below reporting limits (BRL) are considered anomalous.

MW-302 analytical results identified a PFAS6 concentration of 1752 ng/L comprising PFOS (1,400 ng/L), PFOA (12 ng/L) and PFHxS (340 ng/L). MW-303 analytical results identified a PFAS6 concentration of 258 ng/L comprising PFOS (200 ng/L), PFNA (13 ng/L) and PFHxS (45 ng/l). These PFAS6 concentrations are relatively elevated considering their location away from the known, historical training areas within the FTA facility. These results may indicate potentially significant impacts from the septic system serving the FTA main building. This issue may require supplemental, focused assessment.

MW-304 results identified a PFAS6 concentration of 164 ng/L comprising PFOS (70 ng/L), PFOA (23 ng/L), PFHxS (47 ng/L) and PFHpA (24 ng/L), indicating potentially significant PFAS impacts to groundwater northwest and presumably cross-gradient of the primary historic FTA training areas.

MW-306 results identified a PFAS6 concentration of 95 ng/L comprising PFOS (62 ng/L) and PFHxS (32 ng/L) indicating potentially significant PFAS impacts to groundwater northwest and presumably upgradient of the primary historic FTA training areas.

These results may indicate PFAS6 groundwater impacts from sources upgradient of the FTA. This issue may require supplemental, upgradient assessment to the northwest of the FTA.

The highest PFAS6 concentrations were found at MW-305 and MW-311. MW-305, located on the central portion of the FTA, had a PFAS6 concentration of 2,955 ng/L comprising PFOS (1400 ng/L), PFOA (250 ng/L), PFNA (95 ng/L), PFHxS (960 ng/L) and PFHpA (250 ng/L). As noted, MW-305 was installed to effectively to replace monitoring well PFW-6. The recent PFAS6 results at MW-305 are within the range of historic PFAS6 results at PFW-6, although the February 2023 MW-305 PFAS6 concentrations were significantly higher than the last monitoring at PFW-6 (October 2020). MW-311, located approximately 100 feet southeast of the FTA, had the highest PFAS6 concentration of 3,624 ng/L. The MW-311 PFAS6 concentration was comprised of PFOS (2,400 ng/L), PFOA (160 ng/L), PFNA (54 ng/L), PFHxS (840 ng/L) and PFDA (170 ng/L). These results are similar to the historical trend of concentrations at PFW-1, the nearest upgradient monitoring well on the south end of the FTA, but significantly lower (approximately 80 lower) than the January and April 2023 PFAS6 concentrations at PFW-1.

Summary

The initial MW-300 series analytical results indicate PFAS6 concentrations well above Method 1 GW-1 Standards on the northern and central portion of the FTA in addition to areas immediately northeast and southeast of the FTA. PFAS6 concentrations were found to be distinctly higher on the central and southeast areas of the FTA, which is consistent with historical analytical results and firefighting training activities. However, it should be noted that groundwater at MW-306, located on the far northwest portion of the FTA where minimal historical training activities are reported to have occurred, also was found to have to PFAS6 concentrations above Method 1 GW-1 Standards.

5.5 UNNAMED POND SEDIMENT SAMPLING – NORTHEAST OF FTA

On March 29, 2023 BETA collected sediment samples from an unnamed pond located immediately northeast of the former FTA on Town of Barnstable Land (0 Independence Way/Parcel ID: 332010002). A total of 4 (four) sediment samples identified as UP-101 to UP -104 were collected. Refer to **Figure 6 - Sediment and Phase II CSA Soil Sample Location Plan** for sample locations. The unnamed pond was selected for sampling due to the observation of signs of possible drainage patterns from the northeast corner of the FTA and the adjacent part of South Flint Rock Road towards the depressed area around the unnamed pond and associated bordering vegetated wetlands. It should be noted that the water body is very shallow (water depth was approximately 2 feet on the day of sampling) and has been observed to regularly go dry during late summer months. Based on cursory observations, the water level in the unnamed pond on the day of sampling appeared to be approximately 1 to 2 feet below signs of seasonal high water.

On March 29, 2023, sediment samples were collected from un-submerged sediment within approximately 1 – 2 feet of the water line (UP-101 & UP-103) and 25 feet (UP-102 & UP-104) into the pond from the existing water line along two, partial transects oriented west-east and north-south. Each sample was collected using a stainless-steel shovel and/or trowel from a depth of approximately 0-6 inches. Prior to the collection of each sample, the trowel and/or shovel was decontaminated using an Alconox solution and rinsed with PFAS-free water provided by the laboratory.

All four sediment samples were submitted for laboratory analysis for PFAS via SOP 466 (a Pace Analytical SOP using an isotope dilution quantification method). **Table 4** (attached) summarizes the analytical results of six MassDEP regulated PFAS compounds (PFOS, PFOA, PFNA, PFHxS, PFHpA, and PFDA) in the sediment.

MassDEP has not established risk standards for PFAS in sediment, so no regulatory standards are included on Table 4 for comparison. The laboratory report is included in **Appendix E**.

Sediment analytical results revealed detectable concentrations of one or more PFAS6 in all four samples. UP-101 was found to contain PFOS at 27 micrograms per kilogram (ug/kg) and non-PFAS6 compound Perfluoroundecanoic Acid (PFUnA) at 5.5 ug/kg. UP-102 analytical results revealed PFOS at 19 ug/kg, PFOA at 1.5 ug/kg, PFHxS at 1.20 ug/kg, PFNA at 1.8 ug/kg and PFUnA at 1.1 ug/kg. Similar to UP-101, UP-103 analytical also contained PFOS at 21 ug/kg and PFUnA at 2.9 ug/kg.

PFOS, PFHxS and PFNA were detected at UP-104 at concentrations of 10 ug/kg, 0.87 ug/kg and 0.86 ug/kg respectively. No other PFAS compounds or fluorotelomers were detected above laboratory reporting limits.

The analytical results for the limited sampling at the unnamed pond are relatively consistent across the samples. Sediment analytical results for Flintrock Pond were reported in the previous Interim Phase II CSA Updates. Although the comparison of the unnamed pond sediment results to those in Flintrock Pond (FRP) is challenging due to very different physical settings and relationships to the former FTA main operating areas, it should be noted that the FRP results varied widely across that much larger water body. More critically, the PFAS6 concentrations detected in unnamed pond sediment were roughly 5 to 10 % of those in the FRP sediment samples in which significant PFAS6 concentrations were detected.

As noted, MassDEP has not established risk standards for PFAS in sediment. These results will be evaluated through site-specific risk characterization methods. However, considering that much of the bottom of the unnamed pond is typically not submerged during dry seasons and the UP-101 and UP-103 samples were exposed on the day of sampling, comparison of the results to MCP soil risk standards may also be warranted. In that case, the detected concentrations of one or more of the PFAS6 compounds in all of the UP samples exceed the applicable S-1/GW-1 risk standards.

5.6 MULTI-SITE GROUNDWATER GAUGING EVENT

On April 18, 2023 BETA gauged depth to groundwater at selected monitoring wells on and downgradient of the FTA, the westerly adjacent Barnstable Fire District property, the Cape Cod Gateway Airport and surrounding properties. Following coordination with officials the Cape Cod Gateway Airport (Gateway Airport), a representative of Horsley Witten Group (HWG – consultant to the Gateway Airport) was present to assist and oversee gauging of monitoring wells on and associated with the Gateway Airport and related PFAS release under RTN 4-26347. A small number of related wells were also gauged with the assistance of HWG on April 27, 2023.

Groundwater gauging results and calculated elevations for monitoring wells associated with the FTA are presented on **Table 2A**. Groundwater gauging and elevation data for monitoring wells located to the west of Flintrock Pond on Barnstable Fire District property are presented on **Table 2B**. It should be noted that precision elevation survey is required to increase the accuracy of the elevations above mean sea level for a number of existing and new Phase II CSA monitoring wells (e.g., the MW-300 series wells as well as some pre-Phase II CSA wells east and southeast of the FTA). Precision elevation survey will be conducted in the near future and the groundwater elevation data will be refined in the future.

Groundwater gauging results for monitoring wells associated with the Airport release have not been tabulated at this time. Monitoring well ID's associated with clusters of shallow, intermediate and/or deep monitoring wells could not be verified in the field.

In order to avoid potential cross contamination vertically between individual monitoring wells within the clusters, BETA did not gauge the total depth of each monitoring well. Measuring point elevations for a few monitoring wells that were reconstructed shortly before the gauging event were also not available. BETA will continue to work with the Airport's consultant to gather the necessary field notes and/or location data to verify monitoring well IDs and calculate wide-area groundwater elevations based on relatively synchronous gauging. Utilizing the April 18, 2023 groundwater gauging and calculated groundwater elevations from selected, representative monitoring wells across the Site (but not extending to the Airport Site wells or the MW-400 series wells, which were not in existence at that time), BETA prepared a map of groundwater contours for an area extending from approximately 400 feet west of Flintrock pond to monitoring well PC-30 located approximately 150 feet southeast of the recovery well PRW-4 and approximately 1,000 feet southeast of the central portion of the FTA. Refer to **Figure 5A Groundwater Contour Plan – April 18, 2023** for the depiction of the calculated groundwater elevation contours from the April 2023 gauging event. The groundwater contours were inferred and drawn using Surfer™ groundwater software. **Figure 5B Groundwater Contour Plan Detail – April 18, 2023** depicts the same data as Figure 5A, but the scale has been enlarged to show greater detail around the FTA.

These April 2023 data indicate a continuation of the historic pattern eastward groundwater flow from the FTA. To the south and southeast of the FTA, the mapping of the April 18, 2023 data show less of the historic southeast inferred flow direction. More complex flow patterns north, northeast, and east of the north end of the FTA are depicted on Figures 5A and 5B. These may be influenced by the topography and water bodies to the north of the FTA and/or the accuracy of the elevation survey of the measuring points in this area, which will be refined in the near future, as noted above.

It should be noted that the gauging does not include water levels in the Mary Dunn municipal wells or any town-owned monitoring wells in close proximity to those wells; those data are not available to BETA. The gauging results indicate a modest influence from the operating recovery well, PRW-4, which was operating at reduced flow rates at the time of the April 2023 gauging due to iron fouling.

Groundwater elevations and contours on and immediately east of the north central portion of the FTA appear to show the influence of the treated water recharge basins located in that area.

It should be noted that closed contours around MW-305 and MW-3S indicate depressions, i.e., the groundwater within the closed contours is slightly lower than the contour. The capping of the majority of the FTA would be expected to influence groundwater in this area in the way depicted by those mild depressions due to a reduction in recharge.

The groundwater elevations (Tables 2A and 2B) and contours show groundwater flow west of Flintrock Pond to be to the east, towards Flintrock Pond and the FTA, e.g., as shown on Table 3A, on the day of the gauging. Shallow groundwater west of the pond was calculated to be at elevations ranging from 29.09 at MW-307S to 28.43 at MW-309, close to the west shore of Flintrock Pond. On the day of the gauging, the pond surface was measured at elevation 28.42, confirming flow from west to east towards the pond. Similarly, groundwater elevations on and east of the FTA were recorded at elevations lower than the water level in Flintrock Pond, again confirming west to east flow.

Groundwater elevations will be computed over a wider area when all updated and wide-area supporting data become available and more extensive groundwater contour plans will be developed.

5.7 PRECISION MONITORING WELL SURVEY – W. OF FLINTROCK POND

Green Seal Environmental, LLC (GSE) performed a precision survey of recently installed monitoring wells (MW-307 S/D, MW-308 S/D and MW-309) and selected existing monitoring wells on Barnstable Fire District land west of Flintrock Pond identified as 223 Breeds Hill Road in Hyannis, MA. The survey was conducted using a GPS-based Javad LS+ Receiver/Javad Triump-3 Base Station set on a known elevation and a Javad LS+ receiver. It uses both Real Time Kinetic (RTK) and Real Time Post-Processing Kinetic (RTPK) to correct errors and ensure an accurate position. The surveyed monitoring well measuring point elevations are presented on **Tables 2A and 2B** (attached).

5.8 MONITORING WELL HW-S SAMPLING AND ANALYSIS

BETA and the Airport's consultant for RTN 4-26347, Horsely Witten Group (Horsely Witten), collected split-groundwater samples from monitoring well HW-S on June 9th, 2023. It is located immediately southwest of the intersection of Old Yarmouth Road and Ferndoc Street in Hyannis, MA. HW-S is a monitoring well couplet consisting of a shallow-screened well known as HW-S(s) and a medium-screened well known as HW-S(m). According to monitoring well logs provided by Horsely-Witten, the well screen depth interval for HW-S(s) is 12.1-22.1 feet and 27.04-32.04 feet for HW-S(m).

Groundwater samples collected from HW-S(s) and HW-S(m) were submitted to Pace for laboratory analysis of PFAS using Standard Operating Procedure (SOP) 454, a Pace Analytical PFAS analytical method using an isotope dilution quantification method. The analytical results are presented on **Table 8** (attached) and summarized below. A copy of the laboratory analytical report is included within **Appendix D**.

Analytical results identified total PFAS6 of 528 ng/L at HW-S(s) and 431 ng/L at HW-S(m). Of particular note, in addition to the PFAS6 compound results listed in Table 8, 6:2 fluorotelomer sulfonic acid was also detected at 1400 ng/L at HW-S(s) and 250 ng/L at HW-S(m). Comparison of the June 2023 results to previous results revealed relatively similar PFAS6 concentrations at HW-S(s). However, the June 2023 PFAS6 concentration detected at HW-S(m) was significantly higher than those detected during the past three sampling rounds conducted by HWG in October 2020, March 2021, and September 2021.

5.9 ADDITIONAL SHALLOW SOIL SAMPLING – JUNE 2023

To assess for per- and poly-fluoroalkyl substances (PFAS) impacts from possible aerial transport of AFFF or related aerosols during historic fire training exercise, the Phase II CSA included manual sampling of shallow soils along six transects extending to the south or east from the existing fence line of the Former Fire Training Academy (FTA). In addition, shallow soils were also sampled at a limited number of locations within the FTA itself.

Original Round of Sampling – October 2022

As reported in the first Interim Phase II CSA Update Report, on October 3, 2022 BETA personal collected shallow soil samples along six transects extending east or south from the FTA fence line at zero, 10, 25 and 50 feet from the fence and from several depths at each location: from approximately 0 - 4 inches below grade (in the A horizon/topsoil below the forest mat, where present) and approximately 12 to 20 inches below grade (bg). At most locations, the forest mat (accumulated leaf and organic matter) was stripped away before collecting the underlying soil samples; at selected locations, the overlying forest mat itself was also sampled. At each "10 foot sample" (10 feet from the fence line) soil samples were also collected at 5 feet bg and 10 feet bg using a direct push drill rig.

The October 2022 samples were designated as SS-101 through SS-124, plus the 3 depth of the sample, where applicable. The sample locations are depicted on **Figure 6 – Sediment and Phase II CSA Soil Sampling Location Plan**, attached.

All samples collected on October 3, 2022 were not submitted immediately for lab testing. Several soil samples, primarily those collected at 25 or 50 feet from the fence or from deeper depths, were held until analytical results were available. However, due to lengthy laboratory turnaround times, the holding times for the held samples had expired by the time results were received.

Analytical results from the initial round of testing are summarized on attached **Table 5A – Summary of Phase II CSA Shallow Soil Analytical Results**. In Table 5A BETA tabulated the analytical results of six regulated PFAS compounds (PFOS, PFOA, PFNA, PFHxS, PFHpA, and PFDA) and compared the results to the applicable MCP S-1/GW-1 risk standards. The initial analytical results revealed reportable concentrations of PFAS6 in all SS-100 series soil samples with the exception of SS-104 (16"-20"), SS-106 (10'), SS-108 (16"-20"), SS-118 (10'), and SS-122 (10'). Total PFAS6 concentrations ranged from 0.56 micrograms per kilogram (µg/kg) to 207.9 µg/kg. In the three samples collected 50 feet from the fence line that were submitted for laboratory analysis (SS-104 and SS-108 south of the south fence and SS-112 southeast of the east fence), one or more PFAS6 concentrations exceeded applicable MCP S-1/GW-1 risk standards at one or more depths.

Summary of Additional Assessment Activities – June 2023

In order to further delineate the horizontal extent of PFAs impacts BETA personnel performed additional sampling in June 2023 on transects at approximately 100 and 200 feet from fence line of the FTA and within uncapped areas of the FTA.

Locations of Sampling

Shallow soil samples were collected by BETA personnel on June 15, 2023 using hand tools along approximately 100 and 200 foot extensions of the October 2022 transects projecting from the fence line of the FTA. Along each transect soil samples were collected at 100, 200, and/or 50 feet from the fence line of the FTA and from several depths at each location: from approximately 0 - 6 inches below grade (in the A horizon/topsoil below the forest mat, where present) and approximately 16 to 20 inches below grade (bg). Soil samples collected within 50 feet of the fence line, essentially repeat samples of October 2022 locations that were not submitted to the laboratory, maintained the designation of the original sampling round, e.g., SS-116 and SS-120. Samples collected greater than 50 feet away from the fence line are designated as SS-200 series samples.

In addition, five locations within the FTA but in uncapped locations were selected for shallow soil sampling to further characterize soils within the FTA itself, SS-201 through SS-204, and SS-214. Three of these locations are between pavement cap and Flintrock Pond; the remaining are near the main building in the northwest portion of the FTA facility.

See attached **Figure 6** for sample locations.

To simplify the discussion of sample locations and the analytical results, each of the six-soil sampling transects from the fence line were assigned a letter, A through F in the October 2022 round of sampling. As noted above, these transects were extended for the June 2023 sampling round. **Table A - Summary of Soil Sampling Locations Along Perimeter of the FTA**, below, summarizes the soil samples collected during June 2023 from transects projecting to the east and south from the fence line of the FTA.

Table A – Summary of June 2023 Soil Sampling Locations Along Perimeter of the FTA

Sample ID	Distance from Fence Line	Sample Depths	
		0-6"	12-20"
Transect A - South			
SS-205	100'	X	
SS-206	200'	X	
Transect B - South			
SS-207	100'	X	
SS-208	200'	X	
Transect C - Southeast			
SS-209	100'	X	X
SS-210	200'	X	
Transect D – Southeast			
SS-116	50'	X	
SS-211	100'	X	
Transect E- Northeast			
SS-120	50'	X	X
SS-212	100'	X	
Transect F – Northeast			
SS-213	100'	X	

Note: X marks that samples were collected at corresponding depth.

Table B – Summary of June 2023 Soil Sampling Locations On the FTA

Sample ID	General Location	Sample Depths	
		0-6"	12-20"
Wooded or Undisturbed Areas Between Pavement Cap and Flintrock Pond			
SS-203	South of main building	X	
SS-204	West of former main training areas	X	
SS-214	West of former main training areas	X	
	Lawn Areas North or West FTA Main Building		
SS-201	West of building, south of original pavement	X	X
SS-202	North of main building	X	X

Note: X marks that samples were collected at corresponding depth.

Sampling Methods

Soil samples were collected by hand using trowels and shovels. A trowel was used to collect a soil sample from 0-3 inches below the forest mat layer. Following the collection of the 0-3 inch sample, a shovel was used to remove additional soil to reach the next sample depth interval. A trowel was then used to collect soil samples from 16-20 inches below grade (the forest mat). Prior to the collection of each sample, the trowel was decontaminated using an Alconox solution and rinsed with PFAS-free water provided by the laboratory.

Analytical Results

A total of 20 samples were collected from one or more locations from the east and south fence lines of the FTA to distances approximately 50 to 200 feet away (to the east or south) and on the FTA and submitted for laboratory analysis for PFAS via Pace Analytical SOP 466-PFAS (an isotope dilution quantification method). 13 samples (11 locations, two depths at two locations) were collected along Transects A through E and 7 samples (5 locations, two depths at two locations) were collected from uncapped areas of the FTA. The Pace analytical method reports results for 34 compounds including the MassDEP PFAS6 compounds and 3 fluorotelomers. The laboratory report and certificate of analysis are included in **Appendix F**.

The June 2023 Phase II CSA soil sampling analytical results are included on **Table 5A**, attached. The analytical results revealed reportable concentrations of PFAS6 in 15 of the 20 samples. Total PFAS6 concentrations ranged from 0.6 micrograms per kilogram ($\mu\text{g}/\text{kg}$) to 15.89 $\mu\text{g}/\text{kg}$ in soil samples. One or more PFAS6 concentrations exceeded applicable MCP S-1/GW-1 risk standards in seven (7) of the samples collected. However, it should be noted that evaluation of the laboratory data indicates that the laboratory reporting method resulted in reporting limits (RLs) that are slightly above the applicable Method 1 risk standards for PFNA, PFHxS, and PFDA – see Table 5A. These slightly elevated RLs indicate that additional samples may contain one or more PFAS6 compounds above the S-1/GW-1 risk standards.

In June 2023 soil samples along the transects to the east or south of the fence line, the higher concentrations were observed at points between the FTA pavement cap and Flintrock Pond and at the 100 foot sampling points along Transect C and E.

The highest overall PFAS6 concentrations detected in both the October 2022 and June 2023 rounds of sampling were observed in soil on the southeast perimeter of the fence line along Transect C. See Figure 6. Transect C extends east, southeast from the southern part of the FTA, where the live-fire training buildings were located until demolition in 2021. At Transect C, in the June 2023 sample SS-209 (100 feet from the fence), the highest levels of total PFAS6 were observed at 0-6" bg (15.89 $\mu\text{g}/\text{kg}$). The next highest concentrations were also observed at Transect C at SS-209 16-20" bg with PFAS6 detected at 9.13 $\mu\text{g}/\text{kg}$. At the next sampling point along Transect C at 200 feet from the fence line, PFAS6 were reported below laboratory reporting limits. Excepting the limitations of the RLs for PFNA, PFHxS and PFDA, the data indicate that significantly impacted soil (relative to the current MCP S-1/GW-1 risk standards) extends to some point between 100 and 200 feet southeast of the FTA.

At transect E, which was extended easterly from the north central part of the FTA, the next highest concentrations in the June 2023 samples were observed; the total PFAS6 observed at SS-120 (50 feet from fence) were observed at 16-20" bg (5.22 $\mu\text{g}/\text{kg}$). Similarly, to Transect C, the next sampling point further from the fence line had a lower total PFAS6 concentration of 2.4 $\mu\text{g}/\text{kg}$ at SS-212 (100 feet from fence). This pattern was observed at the remaining transects, with concentrations of detected PFAS6 becoming lower the farther from the fence line samples were collected.

Of significant note, in the three samples collected 200 feet from the fence line (SS-206 and SS-208 south of the south fence, SS-210 southeast of the east fence), did not have PFAS6 concentrations exceeding applicable MCP S-1/GW-1 risk standards at 0-6" depths, excepting the limitations of the RLs for PFNA, PFHxS and PFDA. However, at Transects D, E and F in the farthest samples submitted to date - 100 feet from the fence - had one or more PFAS6 concentration exceeding one or more applicable MCP S-1/GW-1 risk standards at one or more depths. This indicates that the horizontal extent of potentially significant soil impacts from PFAS6 has not been identified at Transects D, E, and F. Additional shallow soil sampling is most likely warranted at Transect D, E, F or similar locations around the FTA itself.

In addition, some round 1 and 2 samples may require re-sampling if it is determined that the laboratory can achieve lower reporting limits for the PFAS6 compounds.

In the seven samples (from 5 locations) collected in uncapped areas of the FTA & Flintrock Pond, all had reportable concentrations of PFAS6. Of the seven samples, only the two SS-204 samples, 0-6" bg (13.24 µg/kg) and SS-204 12-16" bg (13 µg/kg) had one or more of the PFAS6 compounds above regulatory standards. The same limitations regarding the RLs for the PFAS6 compounds; lower RLs may have revealed additional samples with exceedances of S-1/GW-1 risk standards. The laboratory reported a range of 0.49 µg/kg to 4.1 µg/kg for one or more non-PFAS6 compounds 5 of the soil samples analyzed (SS-214 14-20", SS-204 0-6", SS-204 12-16", SS-209 0-6" and SS-209 16-20"). Of the three fluorotelomers reported in the analytical method, none were detected in a majority of soil samples. 6:2 Fluorotelomer sulfonic acid (6:2FTS A) was reported from ND to 0.68 µg/kg (SS-214 14-20"). 4:2 Fluorotelomer sulfonic acid (4:2FTS A) and 8:2 Fluorotelomer sulfonic acid (8:2FTS A) were not detected in any of the samples submitted for laboratory analysis.

5.10 MARY DUNN POND ASSESSMENT

On June 21, 2023, BETA collected sediment and surface water samples from the Mary Dunn Pond located east of Mary Dunn Rd on Town of Barnstable land. A total of sixteen (16) sediment samples identified as MDP-101 to MDP -116 and three (3) surface water samples identified as MDP-SW1 to MDP-SW3 were collected. Refer to **Figure 6 – Mary Dunn Pond Sample Location Plan** for the sample locations.

Sampling Methods

BETA personnel collected three (3) surface water samples prior to the start of the sediment sampling. MDP-SW1 and MDP-SW2 were shallow samples taken by placing sample bottles approximately 6" below the surface of the pond without attempting to exclude water on the actual surface of the pond. MDP-SW3 was taken using a discrete water sampler from a depth of about 4 feet at approximately the deepest point of Mary Dunn Pond on the day of the sampling. Surface water sample locations are not depicted on Figure 7. However, they were collected from the central portion of the pond to the north (MDP-SW1), south (MDP-SW2) and central portion of the transect (MDP-SW3).

Prior to sediment sampling, BETA personnel strung a line from the east shoreline to the west shoreline to create a temporary sampling transect guide. After the transect was strung, sediment samples were collected approximately every 50 feet (MDP-101 to MDP 116) starting at the existing shoreline along the transect oriented west-east. Each sample was collected using a stainless-steel shovel and/or petite ponar dredge from a depth of approximately 0-6 inches below top of sediment. Prior to the collection of each sample, the shovel and/or petite ponar dredge was decontaminated using an Alconox solution and rinsed with PFAS-free water provided by the laboratory. An equipment blank was collected from the petite ponar following decontamination and submitted for laboratory analysis to confirm decontamination methods were effective. As shown on **Table 6**, the equipment blank sample did not reveal PFAS compounds above laboratory detection limits.

Analytical Results

The 16 sediment samples were submitted to Pace Analytical for PFAS analysis via Pace's standard operating procedure (SOP) 466 (a Pace Analytical SOP for solids using an isotope dilution quantification method) for the sediment samples. The 3 surface water samples (and the aqueous EB – equipment blank) were submitted to Pace for PFAS analysis via Pace's SOP 454 (an aqueous sample method using isotope dilution quantification).

The laboratory analytical methods report the results for 34 compounds including the MassDEP PFAS6 compounds and 3 fluorotelomers. Analytical results are summarized on **Table 6** for sediment and on **Table 7** for surface water. The laboratory report is included in **Appendix E**.

Sediment analytical results revealed detectable concentrations of PFAS in 15 of the 16 samples, all except MDP-116. PFOS was found in the 15 samples ranging from 1.5 micrograms per kilogram (ug/kg) to 20 ug/kg (MDP-105, 106, and 113). No other PFAS compounds were detected above laboratory reporting limits in sediment samples submitted.

As noted, MassDEP has not established risk standards for PFAS in sediment. These results will be evaluated through site-specific risk characterization methods. However, considering that some of the bottom of Mary Dunn Pond may not be submerged during dry seasons, comparison of some the results, e.g., MDP-101, 102, 115, and 116 to MCP soil risk standards may also be warranted. That comparison indicates that the detected concentrations of PFOS in two of those samples (16 µg/kg at MDP-101 and 6.9 µg/kg at MDP-115) exceed the applicable S-1/GW-1 risk standards.

The analytical results for the Mary Dunn Pond sediments samples are relatively consistent with the exception of MDP-102, MDP-111, MDP-112, MDP-114, and MDP-116 which exhibited much lower concentrations or non-detects for PFAS6 (PFOS). As noted in Section 5.5, sediment analytical results for Flintrock Pond were reported in the previous Interim Phase II CSA Updates. Although the comparison of the Mary Dunn Pond sediment results to those in Flintrock Pond (FRP) is not relevant due to very different physical relationships to the former FTA, it should be noted that the FRP results also varied widely across that water body. More critically, the PFAS6 concentrations detected in Mary Dunn Pond sediment are roughly 5 to 10 % of those in the FRP sediment samples in which significant PFAS6 were detected.

Surface water analytical results revealed detectable concentrations of PFOS, PFOA, PFHpA, PFHxS, and PFNA in all 3 samples. MDP-SW1 analytical results revealed concentrations of PFOS at 16 nanograms per liter (ng/L), PFOA at 2.5 ng/L, PFHpA at 4 ng/L, PFHxS at 10 ng/L and PFNA at 2.6 ng/L. Similarly, MDP-SW2 results identified PFOS at 13 ng/L, PFOA at 2.3 ng/L, PFHpA at 3.4 ng/L, PFHxS at 8.4 ng/L and PFNA at 2.1 ng/L. MDP-SW3 analytical results revealed PFOS at 25 ng/L, PFOA at 3 ng/L, PFHpA at 4 ng/L, PFHxS at 9 ng/L and PFNA at 3 ng/L. PFDA was not detected above laboratory reporting limits in any of the three (3) samples.

MassDEP has not established risk standards for PFAS in surface water. These results will be evaluated through site-specific risk characterization methods. However, assuming that Mary Dunn Pond water may be related to groundwater migrating into and out of the pond, comparison of the surface water results to MCP GW-1 risk standards may also be warranted. That comparison indicates that the detected concentration of PFOS in the MDP-SW3 sample (25 ng/l) and the total concentrations of PFAS6 in all of the samples exceed the GW-1 risk standard.

5.11 MW-400 SERIES AND PC-39D MONITORING WELL INSTALLATION

Three monitoring well couplets and one deep monitoring well were installed at various locations to the south and southeast of the FTA during the week of July 10, 2023 to July 14, 2023. The newly installed monitoring wells are identified as MW-401S, MW-401D, MW-402S, MW-402D, MW-403S, MW-403D and PC-39D. Monitoring wells were completed by Desmond Well Drilling of Orleans, MA using a hollow-stem auger (HAS) tooling and a rotary drill rig (CME75) under oversight by BETA and/or Peter Newton of Bristol Engineering.

Monitoring well locations were chosen based on recent groundwater screening results, groundwater analyses from existing monitoring wells, and accessibility of drilling locations on Town of Barnstable parcels where approval to drill had been obtained. Refer to **Figure 4 – Monitoring Well Plan** for monitoring well locations.

Each monitoring well couplet consists of a shallow well and deep well with varying well screen depths. Soil boring/monitoring well PC-39D was installed near existing shallow monitoring well PC-39. Shallow monitoring wells were installed using 10 feet of well screen across the top of the groundwater at the time of drilling. Deep monitoring wells were installed with 5 feet of well screen above a gray clay layer – see below. Due to the relatively shallow saturated zone, intermediate-screened wells were not installed. All wells consist of 2-inch PVC solid riser and well screen utilizing threaded couplings or joints and standard 0.010 slot PVC well screen. A sand pack was installed in the screened zone with a bentonite seal installed above the screened zone. Monitoring wells installed in wooded locations were finished with 4-inch steel protective risers driven into the ground. The risers are equipped with padlocks. MW-403 S/D installed on the shoulder of Airport Way were finished with bolted, flush-mounted road boxes secured by poured in place concrete collars.

In order to advance the HAS tooling below the water table in the sandy soils present at the site, it was necessary for the driller to use municipal water within the augers to prevent running sands once the boring was advanced to near the anticipated water table. Desmond Drilling initially used water transported in their tanks from the Town of Orleans water system. BETA sampled this water for PFAS. The results did not reveal PFAS6 compounds above laboratory reporting limits. The laboratory report is included in **Appendix F**. In addition, Desmond was able to obtain the most recent water quality report from the Orleans Water Dept., which indicated that their water supply meets current Massachusetts drinking water quality standards. During later well installations, Desmond used water from the municipal hydrant on the FTA facility. Approximately 100 to 150 gallons of municipal water was used only for each deep borings. Each monitoring well was developed by Desmond following installation to remove at least as much water as was introduced into the deep boring during HAS drilling and to reduce fines from the well and filter pack and improve its hydraulic connection to the aquifer.

At each drilling location, a deep boring was advanced first in order to log soil strata and attempt to identify the depth of a suspected lower permeability/finer grained soil layer.

For the deep borings only, split spoon soil samples were collected at 5-foot intervals for soil characterization purposes once encountering the saturated zone. In order to advance the deep borings efficiently, soil sampling was not conducted until the borehole was advanced to the anticipated depth to groundwater based on conditions detected during groundwater screening or gauging data from existing nearby wells. Continuous soil samples were then collected when approaching the expected depth of lower permeability strata. Encountered soils consisted of brown fine to coarse sands with varying percentages of silt and gravel underlain by gray clay. The depth of the saturated zone above the clay layer ranged from 20 feet at PC-39 up to 32 feet at MW-401D.

A gray clay or silty clay strata was identified in each deep boring advanced during this drilling event. It may isolate the shallow aquifer above it or impede vertical migration of the groundwater. The depth of the gray clay layer varied between approximately 48 feet below the ground surface (bgs) at PC-39D and 55.5 feet bgs at MW-402D. Please refer to Soil Boring/Monitoring Well Logs provided in **Appendix G** for further details.

Based on approximations of the ground surface elevations at the drilling locations, the elevation of the gray clay strata appears to vary from approximately 0.5 feet above mean sea level (MSL) at MW-402D to 6 feet above MSL at PC-39D and -10 feet MSL at MW-401D, closest to Mary Dunn Road. More accurate measurements of elevations of the ground surface and monitoring well gauging points will be conducted in the near future to better establish the approximate elevations of the clay/silty clay strata and groundwater at the well locations.

Several soil samples were selected from various depths and drilling locations for submittal to Pace for laboratory analysis of PFAS using Pace SOP 454 as detailed on **Table 5B**. Soil analytical results did not identify individual PFAS compounds above laboratory reporting limits.

BETA is currently coordinating with property owners to the east and southeast of the FTA to install additional monitoring wells further downgradient of the FTA.

5.12 MW-400 SERIES AND PC-39/PC-39 D GROUNDWATER SAMPLING & ANALYSIS

BETA collected groundwater samples from the newly installed MW-400 series monitoring wells, the new PC-39D and existing PC-39 monitoring wells on July 26, 2023. This sampling was conducted in conjunction with the July 2023 IRA quarterly groundwater monitoring, reported in Section 6.0. Groundwater samples were collected in accordance with EPA low-flow groundwater sampling procedures. Groundwater quality parameters were monitored and allowed to stabilize prior to sample collection. Each groundwater sample was submitted for laboratory analysis of total PFAS by the Pace method SOP 454, PFAS for aqueous sample analysis. Analytical results are summarized on the attached **Table 3** (Table 9 for PC-39 results) and discussed below. The laboratory results for the MW-400 series wells and PC-39 and PC-39D are included in the laboratory analytical report for the July 2023 quarterly groundwater monitoring, which is included in **Appendix H**.

PC-39D, located approximately 425 feet south, southeast of the FTA, revealed a total PFAS6 concentration of 40.4 ng/L which exceeds applicable Method 1 GW-1 Risk Standards. The largest contributor to total PFAS6 concentrations was PFOS detected at 29 ng/L. The PFOS concentration also exceeds its respective Method 1 GW-1 Risk Standard. Groundwater analytical results were similar at the adjacent PC-39 shallow well with a total PFAS6 concentration of 64.5 ng/L dominated by the PFOS concentration of 54.0 ng/L.

MW-401S and MW-401D are located approximately 1700 feet southeast of the FTA and approximately 30 feet west of Mary Dunn Road near groundwater screening locations GWS-12 and GWS-13. Analytical results identified a total PFAS6 concentration of 45.9 ng/L at MW-401D. The total PFAS6 concentration and PFHxS (29ng/L) exceed Method 1 GW-1 Risk Standards. PFAS6 was not detected above laboratory reporting limits at MW-401S. The MW-401 S/D sample analytical results are similar to the preliminary data developed by groundwater screening at GWS-12 and GWS-13 as summarized on Table 1.

MW-402S and MW-402D were installed approximately 350 feet, south, southwest of FTA near groundwater screening location GWS-7. MW-402S analytical results identified a total PFAS6 concentration of 3.9 ng/L consisting of only PFOS. PFAS6 was not detected above laboratory reporting limits at MW-402D. The MW-402 S/D sample analytical results showed lower concentrations than the preliminary data developed by groundwater screening at GWS-7; see Table 1.

MW-403S and MW-403D were installed within the north shoulder of Airport Way, approximately 1,500 feet west of the intersection with Mary Dunn Road and 1,800 feet south of the FTA. These monitoring wells were installed in close proximity to groundwater screening location GWS-19.

Analytical results identified a PFAS6 concentration of 141.4 ng/L at MW-403S with significant contributions from PFOA (49 ng/L) and PFHpA (57 ng/L). The total PFAS6 as well as PFOA and PFHpA exceed Method 1 GW-1 Risk Standards. PFOA was only detected at 9.4 ng/L at MW-403S. Analytical results from MW-403D identified a PFAS6 concentration of 45.5 ng/L comprising PFOS (20 ng/L), PFOA (8.6 ng/L), PFHxS (13 ng/L) and PFHpA (3.9 ng/L). Both the PFAS6 and PFOA concentrations exceed Method 1 GW-1 Standards. The MW-403 S/D sample analytical results showed significantly lower concentrations than the preliminary data developed by groundwater screening at GWS-19.

A full forensic review of the recent Phase II CSA groundwater analytical results is beyond the scope of this Interim Phase II CSA Update. However, it should be noted that a preliminary evaluation of the PFAS6 concentrations detected in the MW-403S sample shows a profile that differs from many other groundwater samples across the FTA PFAS Site. Of particular note, the MW-403S sample exhibited a significantly lower percent of PFOS contributing to the sum of the PFAS 6 in the sample, and greater percentages of PFOA and PFHpA. In addition, initial evaluation of the total number and concentrations of PFAS compounds reported by the Pace SOP for the MW-403S in comparison to results from other locations shows a marked increase in the contribution of non-PFAS 6 compounds to the total PFAS detected by the laboratory method with relatively high concentrations of 6:2 Fluorotelomersulfonic Acid and PFPeA. These results are available by review of the full laboratory report in Appendix D.

6.0 IRA ACTIVITIES-QUARTERLY GROUNDWATER MONITORING & GAUGING

6.1 QUARTERLY GROUNDWATER MONITORING - GENERAL

Groundwater monitoring related to the PFAS Release on Site have been ongoing since November 2013. BETA, formerly Nover-Armstrong Associates, has conducted groundwater monitoring activities since June 2018 as an Immediate Response Action (IRA).

Since 2019, IRA Site-wide groundwater monitoring has been conducted on a quarterly and annual basis. Groundwater monitoring is based a MassDEP approved of the sampling plan that includes sampling of twelve (12) wells during three quarterly sampling events and sampling an additional eight (8) wells (total of twenty (20) during the annual sampling round. Additional monitoring points are added to either the quarterly or annual sampling round, as warranted to meet specific objectives or provide additional coverage.

The quarterly monitoring events conducted during the reporting period (January, April and July 2023) and the analytical results are discussed in a summary manner in the following sections to provide more complete groundwater data developed during the Phase II CSA update reporting period. The January and April 2023 monitoring events were reported in detail in the IRA and RMR Status Report No. 65 submitted to MassDEP in August 2023.

6.2 JANUARY 2023, APRIL, AND JULY 2023 QUARTERLY GROUNDWATER MONITORING

BETA conducted quarterly groundwater monitoring events in January 2023 April 2023 and July 2023 based on the MassDEP-approved sampling plan. The January 2023 sampling round was conducted over two days, January 31, 2023 and February 1, 2023.

For simplicity, the groundwater monitoring results for wells sampled on February 1, 2023 are discussed as part of the January 2023 monitoring event. The April event was conducted on April 3 and 4, 2023 and the July sampling event was conducted on July 25 and 26, 2023.

Thirteen (13) monitoring wells were sampled during the January 2023 monitoring event. They included PFW-1, PFW-2, PFW-5, OW-8A, MW-12S, MW-22, PC-39, PC-1, PC-6A, PC-16D, PC-30, PC-28 and PC-34S. Twelve (12) monitoring wells were sampled during the April 2023 and July 2023 monitoring events. The list of wells was identical to the January 2023 round except PC-34S was not sampled in April and July 2023. The selected quarterly (and annual) monitoring wells are distributed across the FTA and downgradient areas in an attempt to monitor the current extent of the PFAS plume. **Figure 4** depicts the sampling locations. The analytical results and trends of the data are discussed in sections 6.3 and 6.4. The results discussion is loosely organized according to the general locations of the subject monitoring wells within the Disposal Site and in relationship to the FTA itself.

Monitoring wells located within the immediate vicinity of the FTA property were gauged prior to sampling. See Section 6.3.

Groundwater samples were collected in accordance with EPA low-flow groundwater sampling procedures. Groundwater quality parameters were collected and allowed to stabilize prior to sample collection. Each groundwater sample was submitted for laboratory analysis of total PFAS by Pace using an isotope dilution method via their internal SOP 454, PFAS for aqueous sample analysis.

In addition, two equipment blank (EB) samples were collected from the water level meters during each monitoring event to assess current decontamination practices and potential cross contamination between monitoring wells. Each EB sample was submitted to Pace for PFAS analysis via SOP 454. The analyses did not identify detectable concentration of PFAS6. Matrix spike / matrix spike duplicate (MD/MSD) were also collected at the request of the laboratory from PC-39 or PFW-2. Refer to **Appendix H** for further details.

6.3 JANUARY 2023 & APRIL 2023 QUARTERLY GROUNDWATER MONITORING RESULTS

The PFAS analytical data for the January 2023 and April 2023 sampling rounds are summarized in **Table 9 – Summary of Long-Term Groundwater Monitoring PFAS Analytical Results**. Copies of the laboratory reports/certificates of analysis for the January 2023 and April 2023 sampling events are included in **Appendix G**. MCP groundwater risk standards for 6 PFAS compounds, (PFOS, PFOA, PFHpA, PFNA, PFHxS, and PFDA) apply to the Site with a GW-1 risk standard of 20 ng/l for the total and/or any single compound. Therefore, **Table 9** presents the analytical results for the PFAS6 compounds and the sum of their concentrations and shows the comparison of those results to the current MCP GW-1 risk standards. The laboratory reports in Appendix D present all analytical results for all reported PFAS compounds, including quality control samples, and lists the laboratory detection and reporting limits.

, are Graphical presentations of total (sum of) PFAS6 concentrations for selected monitoring wells in representative locations across the Disposal Site were included with the IRA and RMR Status Report No. 65. These graphs, bearing the original figure numbers from the IRA Status Report (Figures 6 through 9), only depict analytical results through the April 2023 sampling round. They are included in **Appendix H** to avoid confusion with the Phase II CSA Update figures.

Figures 6 through 9 – Appendix H are discussed below. It should be noted that these graphs depict discrete periodic sampling events at varying intervals from initial sampling in April 2015 through 2018; since January 2019 they depict discrete quarterly intervals (typically) between results. In addition, due to the range of PFAS concentrations, the graphs have different scales on the vertical axes for PFAS concentrations.

FTA Property Monitoring Wells

Monitoring wells PFW-2 and PFW-1 are located within and immediately downgradient of the Hot Spot area on the southern portion of the FTA property. Groundwater from both monitoring wells continue to exhibit the highest PFAS6 concentrations detected throughout the Disposal Site.

PFW-2 is located adjacent to and downgradient of the Hot Spot area. Quarterly analytical results for PFW-2 identified a total PFAS6 concentration of 2,724 ng/L during the January 2023 sampling round and 3,033 ng/L in the April 2023 sampling round. Following the initial decrease in concentrations after the Hot Spot soil removal and subsequent Phase I Improvements, quarterly groundwater results have shown that PFAS6 concentrations have generally been increasing since October 2020.

Total PFAS6 concentrations at PFW-1, located approximately 120 feet east and downgradient of the Hot Spot area, significantly increased during the January 2023 (17,488 ng/L) and April 2023 (16,499 ng/L) rounds. This continues the current trend of steadily increasing PFAS6 concentrations in this area starting in November 2021 as shown on **Figure 6 - Appendix H**. The large increase in PFAS6 concentrations is primarily driven by the increase in PFOS concentrations (15,000 ng/L in January 2023 and April 2023). The remainder of the individual PFAS6 compounds were detected at concentrations similar to historical results.

Causes of the steadily increasing PFAS6 concentrations at PFW-1 are unknown. With the exception of the Phase I Improvements cap over the Hot Spot, the entire southern portion of the FTA was capped in September through November 2021, including the area surrounding PFW-1. One hypothesis under consideration is that the in-situ activated carbon application performed following the removal of the Hot Spot soils may have achieved its adsorption capacity and may be de-sorbing; this hypothesis has not been validated. Evaluation of the groundwater trends in this area of the Site and potential causes is on-going.

OW-8A and PFW-5, located on the northeastern portion of the FTA property, continue to have total elevated PFAS6 concentrations above Method 1 GW-1 Risk Standards. OW-8A analytical results identified PFAS6 at concentrations of 3,118 ng/L in January 2023, a significant increase compared to the November 2022 quarterly sampling round. Of particular note, PFHxS increased to 2,000 ng/L compared to 70 ng/L in November 2022. In April 2023 PFAS6 concentrations decreased to 1,720 ng/L primarily due to the lower PFHxS concentration (660 ng/L). As shown on **Figure 7 – Appendix H**, PFAS6 concentrations in OW-8 had remained relatively consistent through February 2022, followed by sudden increases and wide variations in PFAS 6 concentrations. Causes of the varying and/or increasing PFAS6 concentrations at OW-8 are unknown. The entire FTA was capped in September through November 2021, including the area surrounding and upgradient of OW-8. One hypothesis under consideration is that the increased PFAS6 concentrations post-capping may be a result of varying volumes of treated groundwater being discharged upgradient of OW-8 causing periodic mounding of groundwater resulting in increased contact with typically unsaturated soil entrained with PFAS from former FTA training operations.

PFW-5 analytical results identified PFAS6 at 1,862 ng/L in January 2023 and 1,600 ng/L in April 2023. Both the January 2023 and April 2023 PFAS6 concentrations decreased compared to the November 2022 sampling round and are generally consistent with historical results.

Downgradient Area East of FTA Towards Mary Dunn Well No. 3

Figure 8 – Appendix H depicts the concentration trends observed in groundwater at monitoring wells MW-12S and MW-22, which are located east of the FTA along a northerly line towards Mary Dunn Well No. 3. MW-12S analytical results identified PFAS6 concentrations of 1,957 ng/L in January 2023 and 1,265 ng/L in April 2023. As shown on Figure 8, this continues the recent trends of decreasing PFAS6 at this location since 2022, during which PFAS 6 concentrations had risen. Groundwater at MW-22S, approximately 225 feet northeast of MW-12S and 450 east of the FTA, exhibits PFAS6 concentrations that are significantly lower than percent of those at MW-12S. PFAS6 concentrations at MW-22 during the January 2023 and April 2023 sampling rounds were 67 ng/L and 118 ng/L, respectively. With the exception of the July 2022 concentration spike, PFAS6 concentrations at MW-22 over the past year have been stabilizing at levels lower than historical results.

Downgradient Areas East and Southeast of FTA Towards Recovery Well PRW-4

The downgradient monitoring wells PC-1, PC-11, and PC-6A, located between the FTA and the recovery well (PRW-4) or in the vicinity of PRW-4, were selected for quarterly sampling based on previous results and to evaluate current conditions within the main PFAS plume.

PC-1 analytical results revealed PFAS6 concentrations of 264 ng/L in January 2023 and 1,487 ng/L in April 2023. The January 2023 PFAS6 concentrations are significantly lower and inconsistent with historical results. PFAS6 concentrations in April 2023 returned to typical levels. With the exception of the November 2022 analytical results, PFAS6 concentrations at PC-1 have typically been lower than those observed prior to and immediately following the construction of asphalt cap at the FTA in October 2021.

Figure 9A – Appendix H depicts the concentrations trends observed in groundwater at PC-6A located approximately 750 feet southeast of the FTA and most likely cross-gradient of recovery well PRW-4. The recent analytical results identified PFAS6 concentrations of 849 ng/L in January 2023 and 572 ng/L in April 2023. Similar to the July and November 2022 sampling events, the recent results continue the recent downward trend of PFAS6 concentrations at PC-6A. However, the overall PFAS 6 results at PC-6A have varied over a significant range since May 2020. It should be noted that the months of January and April 2023 were relatively dry (in terms of precipitation) with lower groundwater depths. Historically, the higher PFAS6 concentrations were observed during the typically wetter / higher groundwater months of the year.

Figure 9B – Appendix H depicts the concentrations trends observed in groundwater at PC-11 located approximately 700 feet southeast of the FTA and upgradient and approximately 125 feet up-gradient of recovery well PRW-4. PC-11 was included in some earlier quarterly rounds of groundwater monitoring, but was not sampled during the current reporting period. It was deleted from the program in order to focus on different monitoring points further downgradient on the Site. Although PC-11 was not included in the January or April 2023 rounds of sampling, the analytical results for previous groundwater sampling are depicted in Figure 9B, tabulated on Table 3, and discussed herein due to the location of this monitoring point.

Previous sampling events identified PFAS6 concentrations of 2,105 ng/L in April 2022 and 3,354 ng/L in November 2022. These results continue the trend of significantly lower PFAS6 concentrations since October 2020, with PFAS 6 concentrations at PC-11 varying over a significant range since January 2021.

Downgradient Areas South and Southeast of the FTA

PC 34S, located approximately 200 feet south of the FTA and directly east of Flintrock Pond, revealed a PFAS6 concentration of 2,161 ng/L during the January 2023 sampling round. The January 2023 PFAS6 concentration is the highest concentration detected over six sampling rounds since 2016. PFAS6 concentrations at PC-34S continue the trend of steadily increasing concentrations starting in April 2022. The cause(s) of the increasing concentrations are unknown. Prior to April 2022, PFAS6 concentrations were similar to the July 2022 and November 2022 sampling rounds. Shallow soil analytical results from Transect A (in the general direction of PC-34S) only identify PFAS compounds above Method 1 S-1/GW-1 Risk Standards up to 50 feet from the FTA property line (SS-104 0-3"). Additionally, the 2022 surface water analytical results from Flintrock Pond identify significantly lower PFAS6 concentrations than detected at PC-34S. The PFAS6 concentrations historically and currently detected at PC-34S may indicate that one flow vector of the PFAS plume migrating from the FTA is due south and only minor contributions to PFAS 6 concentrations in groundwater in this area are from Flintrock Pond. However, complex interactions may be occurring between the PFAS-contaminated sediment in the pond and underlying groundwater.

PC-39 was sampled during both the January 2023 and April 2023 quarterly sampling rounds. It is located approximately 430 feet south, southeast of the FTA property line and to the north of 180 Airport Way. Analytical results identified PFAS6 at 193 ng/L in January 2023 and 105.2 ng/L in April 2023 comprising mostly PFOS with minor contributions of PFHxS. The relatively low concentrations of PFAS6 compared to other monitoring wells east of the FTA such as PC-1 and PC-6A were previously interpreted as PC-39 being located near the southwestern edge of PFAS plume originating from the FTA. However, recent Phase II CSA results may indicate that the current and historic PFAS 6 concentrations at PC-39 may be more indicative of conditions only in the shallow groundwater, with higher PFAS concentrations deeper in the aquifer. These results will be reported in the Interim Phase II CSA Status Report.

Downgradient of Recovery Well PRW-4

PC-16D is located 175 feet southeast of recovery well PRW-4 and 875 feet southeast of the FTA. Quarterly analytical results identified PFAS6 concentrations of 418 ng/L in January 2023 and 2,100 ng/L in April 2023. The January 2023 PFAS6 concentration is significantly lower than historical sampling rounds beginning in July 2022. From July 2021 to January 2022, PFAS6 concentrations were relatively stable between 326 ng/L (January 2022) and 594 ng/L (July 2021). However, the overall trend of PFAS6 concentrations has significantly increased starting in July 2022 and has remained consistent with the April 2023 results, other than exception noted above.

Groundwater concentrations at PC-28 are depicted on **Figure 9C – Appendix H**; PC-28 is located greater than 500 feet east, southeast and downgradient of recovery well PRW-4. Starting in October 2020, PFAS6 concentrations significantly increased and have remained elevated but varying. PFAS6 concentrations during this time have ranged between 749 ng/L to 1,547 ng/L other than the markedly lower concentration detected in the July 2021 sampling round. The recent 2023 analytical results continue this trend with PFAS6 detected at 1,547 ng/L in January 2023 and 805 ng/L in April 2023.

Figure 9D – Appendix H depicts PFAS6 concentration trends in monitoring well PC-30, located approximately 170 feet east - southeast and downgradient of recovery well PRW-4. As shown on Figure 9D, since February 2020, historical PFAS6 concentrations at PC-30 have exhibited an overall decreasing trend; however, PFAS6 concentrations increased to 1,435 ng/L in January 2023. The January 2023 results are a significant spike compared to the November 2022 results (497 ng/L). Later in April 2023, PFAS6 concentrations decreased to 831 ng/L.

BETA will evaluate recovery well improvements and the installation of additional recovery wells as part of the planned IRA groundwater recovery and treatment expansion and Phase III Remedial Action Plan activities.

6.4 JULY 2023 QUARTERLY GROUNDWATER MONITORING RESULTS

The PFAS analytical data for the July 2023 sampling round is summarized on **Table 9**. Table 9 presents the analytical results for the PFAS6 compounds and the sum of their concentrations with comparison of those results to the current MCP GW-1 risk standards. The laboratory report in Appendix H presents all analytical results for all reported PFAS compounds, including quality control samples, and lists the laboratory detection and reporting limits.

FTA Property Monitoring Wells

July 2023 quarterly analytical results for PFW-2 and PFW-1 revealed PFAS6 concentrations of 4,532 ng/L and 19,002 ng/L, respectively. Both the July 2023 concentrations at PFW-2 and at PFW-1 have increased since the April 2023 monitoring event and continue the trend of increasing PFAS6 concentrations in this area. The increases in PFAS6 concentrations at PFW-2 are primarily due to PFOS increasing from 1,100 ng/L in April 2023 to 3,300 ng/L in July 2023. At PFW-1, PFOS remained stable but very high at 15,000 ng/L while PFHxS increased from 910 ng/L in April 2023 to 2,500 ng/L in July 2023. Evaluation of the groundwater trends in this area of the Site and potential causes is on-going. As noted in Section 6.3, BETA's preliminary hypothesis is that the in-situ activated carbon application performed following the removal of the Hot Spot soils may have achieved its adsorption capacity and may be de-sorbing; this hypothesis has not been validated.

The July 2023 groundwater monitoring results continue to show PFAS6 concentrations that are above Method 1 GW-1 Risk Standards at PFW-5 and OW-8A. Similar to the trends observed at PFW-1 and PFW-2, July 2023 PFAS6 concentrations at PFW-5 increased to 3,225 ng/L from 1,600 ng/L in April 2023. The July 2023 PFAS6 results end the decreasing trend in PFAS6 concentrations since November 2022. Conversely, OW-8A analytical results from July 2023 revealed a significant decrease in PFAS6 at PFW-5 compared to recent monitoring events in January 2023 and April 2023. The July 2023 PFAS6 results identified as PFAS6 concentration of 198 ng/L compared to 1,720 in April 2023. As shown on **Figure 7 – Appendix H**, discussed in section 6.3, the recent trends at OW-8A are similar to historical results that show concentration spikes followed by large decreases in the following events. Causes of the varying and/or increasing PFAS6 concentrations at OW-8 are unknown. BETA's preliminary hypothesis on the fluctuating PFAS6 concentrations was presented in Section 6.3.

Downgradient Area East of FTA Towards Mary Dunn Well No. 3

As noted previously, **Figure 8 – Appendix H** depicts the concentration trends observed in groundwater at monitoring wells MW-12S and MW-22 *prior to July 2023*. MW-12S and MW-22 are located east of the FTA along a northerly line towards Mary Dunn Well No. 3. July 25, 2023 PFAS6 analytical results at MW-12S and MW-22 were 2,243 ng/L and 216 ng/L, respectively. The July 2023 MW-12S analytical results end the decreasing trend of PFAS6 concentrations seen in 2023 and are similar to 2022 results. Groundwater at MW-22S, approximately 225 feet northeast of MW-12S and 450 east of the FTA, continues to exhibit PFAS6 concentrations that are significantly lower than those at MW-12S. Similar to the trends observed in January 2023 and April 2023, PFAS6 concentrations have been shown to be steadily increasing since the February 2023. However, the recent PFAS6 concentrations identified in 2023 are significantly lower than those detected from 2019 to 2022.

Downgradient Areas East and Southeast of FTA Towards Recovery Well PRW-4

The downgradient monitoring wells PC-1, PC-11, and PC-6A, located between the FTA and the recovery well (PRW-4) or in the vicinity of PRW-4, were selected for quarterly sampling based on previous results and to evaluate current conditions within the main PFAS plume.

PC-1 analytical results for July 25, 2023 identified a PFAS6 concentration of 829 ng/L which is comparable to recent historical PFAS6 concentrations at this location. Starting in January 2021, PFAS6 concentrations have stabilized between 829 ng/L and 1,487 ng/L with the exception of the November 2022 and January 2023 results described in Section 6.3. This represents a continued trend of lower PFAS6 concentrations when compared to historical results prior to asphalt cap construction in October 2021.

PC-6A is located approximately 750 feet southeast of the FTA and most likely cross-gradient of recovery well PRW-4. Analytical results for July 25, 2023 identified a PFAS6 concentration of 575 ng/L which is comparable to the April 2023 results. PFAS6 concentrations have been trending downward during recent groundwater monitoring events.

Downgradient Areas South, Southeast of the FTA

PC-39 is located approximately 430 feet south, southeast of the FTA property line and to the north of 180 Airport Way. July 2023 analytical results (also discussed in section 5.12) identified a PFAS6 concentration of 64.5 ng/L which continues the trend of significantly lower PFAS6 concentrations since February 2020. PC-39D, a deep monitoring well located adjacent to PC-39, identified a comparable PFAS6 concentration of 45.5 ng/L in July 2023 as detailed in Section 5.12. The initial deep groundwater analytical results in this confirm previous conclusions that PC-39 may be located near the significant southwestern edge of PFAS plume originating from the FTA.

Downgradient of Recovery Well PRW-4

PC-16D is located 175 feet southeast of recovery well PRW-4 and 875 feet southeast of the FTA. The July 2023 analytical results identified a PFAS6 concentration of 571 ng/L, a notable decrease from the April 2023 results. The cause of recent increases in PFAS6 concentrations observed in the past three out of five sampling events starting in July 2022 is unknown. However, the February 2023 and July 2023 results have returned to typical levels found during historical sampling events from July 2021 to April 2022.

PC-28 is located greater than 500 feet east, southeast and downgradient of recovery well PRW-4. PFAS6 was detected at 303.8 ng/L during the July 2023 sampling round. Over the past two sampling rounds PFAS6 concentrations have continued to decrease compared to the November 2022 and February 2023 results.

Monitoring well PC-30 is located approximately 170 feet east - southeast and downgradient of recovery well PRW-4. Following the sudden increase in PFAS6 concentrations in January 2023, the April 2023 and July 2023 results have decreased to concentrations comparable to historical results from 2021-2022. The July 2023 results continue the trend of decreasing PFAS6 concentrations followed by a concentration spike, as shown on Figure 9D – Appendix H for results up to and including April 2023.

6.5 2023 QUARTERLY GROUNDWATER MONITORING RESULTS - CONCLUSIONS

Based on a review of the analytical results compiled in Table 9 for the January 2023, April 2023 and July 2023 sampling events, the following general conclusions regarding the PFAS6 groundwater plume can be made:

- PFAS6 concentrations continue to above Method 1 GW-1 Risk Standards at all quarterly monitoring wells.
- The highest concentrations within the PFAS contaminant plume are in the southeast corner of the FTA (at PFW-1) and in close proximity to the FTA. The causes of the increasing PFAS6 concentrations trend in this area are unknown but may be related to the Hot Spot area conditions.
- High PFAS6 concentrations have also been detected to the south of and in close proximity to the FTA and Flintrock Pond, as indicated by the PC-34S results.
- At this time, it appears that the southwestern boundary of the PFAS6 plume originating from the FTA is likely located near PC-39. Recent MW-402 couplet and PC-39 couplet analytical results show significantly lower concentrations to the south, southeast of the FTA compared to other areas east of the FTA. However, it should be noted that PFAS 6 concentrations at PC-39 and PC-39D exceed MCP GW-1 risk standards. Furthermore, Phase II CSA groundwater monitoring (and groundwater screening) at new locations at much greater distances to the southeast of the FTA, such as MW-403 S/D and groundwater screening locations along Airport Way and south of Mary Dunn Pond indicate that groundwater impacts likely attributable to the FTA may be present in those areas.
- Elevated PFAS6 concentrations continue to be detected east and southeast (downgradient) of the recovery well PRW-4. Late 2022 and early 2023 groundwater analytical results have shown an overall increasing trend of PFAS6 concentrations. However, PFAS6 concentrations decreased in July 2023 to comparable levels found from late 2021 to early 2022.

- PFAS6 concentrations to the east of the FTA and along the northern extent of the plume (MW-12S) over the past year have ranged from 1,265 ng/L up to 2,875 ng/L. While still elevated, historical PFAS6 concentrations prior to construction of the asphalt cap in October 2021 ranged between approximately 3,000 ng/L to 5000 ng/L. MW-22, located 225 feet northeast and downgradient of MW-12S, has shown even further reductions in PFAS6 concentrations post-capping. However, PFAS6 concentrations at both MW-12S and MW-22 remain well above Method 1 GW-1 Risk Standards. This indicates that the northern extent of significant PFAS 6 concentrations in groundwater has not been defined and further assessment is warranted.

Monitoring wells installed as part of Phase II CSA activities will be added to the quarterly groundwater monitoring events as necessary to monitor the extent of the PFAS6 plume. Additionally, BETA will evaluate recovery well improvements and the installation of additional recovery wells as part of the planned IRA groundwater recovery and treatment expansion and Phase III Remedial Action Plan activities.

7.0 LIMITATIONS

This report was prepared for the exclusive use of Barnstable County for Phase II CSA activities. The observations made and results presented in this report are believed to be representative of current site conditions at the time of BETA's assessment to date. No other warranty is expressed, written, or implied. BETA is not responsible for independent conclusions, opinions, or recommendations made by others based on the information contained herein.

Tables

Table 1-Summary of Groundwater Screening Analytical Results
Former Barnstable Country Fire and Rescue Training Academy &
Site
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ¹	GWS-1-S	GWS-1-D	GWS-2-S	GWS-2-D	GWS-3-S	GWS-3-D	GWS-4-S	GW-4-D	GWS-5	GW-6-S	GW-6-D
APPROX. GROUND ELEVATION		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DEPTH TO GROUNDWATER (FEET)		27		27		34		34		30	34	
SCREEN DEPTH (FEET)		28-31	38-41	28-31	43-46	36-39	51-54	34-37'	49-52'	32-35'	36-38'	51-53'
SAMPLING DATE		8/11/2022	8/11/2022	8/11/2022	8/11/2022	8/12/2022	8/12/2022	10/4/2022	10/4/2022	10/4/2022	10/5/2022	10/5/2022
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (SOP 454 PFAS)												
PFOS	20	BRL(<0.43)	3.1	BRL(<0.43)	4.5	BRL(<0.43)	1.7	1300	7.5	760	BRL(<4.1)	5.6
PFOA	20	1.3	0.7	0.55	0.66	0.84	1	64	BRL(<4.1)	27	BRL(<4.1)	BRL(<4.2)
PFNA	20	BRL(<0.80)	BRL(<0.80)	BRL(<0.80)	BRL(<0.80)	BRL(<0.80)	BRL(<0.80)	110	BRL(<4.1)	69	BRL(<4.1)	BRL(<4.2)
PFHxS	20	1	1.1	0.86	4.5	0.75	1.2	120	BRL(<4.1)	110	BRL(<4.1)	BRL(<4.2)
PFHpA	20	BRL(<0.51)	BRL(<0.51)	BRL(<0.51)	BRL(<0.51)	BRL(<0.51)	BRL(<0.51)	72	BRL(<4.1)	35	BRL(<4.1)	BRL(<4.2)
PFDA	20	BRL(<0.64)	BRL(<0.64)	BRL(<0.64)	BRL(<0.64)	BRL(<0.64)	BRL(<0.64)	12	BRL(<4.1)	26	BRL(<4.1)	BRL(<4.2)
TOTAL Σ6 PFAS	20	2.3	4.9	1.41	9.66	1.59	3.9	1678	7.5	1027	BRL	5.6

Notes:

1. Current Massachusetts Contingency Plan GW-1 Risk Standards listed in the far left column.

2. BRL - Below Laboratory Detection Limits

3. Concentrations presented in ng/L - nanograms per liter - parts per trillion

4. Concentrations in bold exceed applicable MCP Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonic Acid

6. PFOA - Perfluorooctanoic Acid

6. PFNA - Perfluorononanoic Acid

7. PFHxS - Perfluorohexanesulfonic Acid

8. PFHpA - Perfluoroheptanoic Acid

9. PFDA - Perfluorodecanoic Acid

10. EB = Equipment Rinsate Blank

11. EB obtained from groundwater sampling tool/screen after decontamination at end of day

Table 1-Summary of Groundwater Screening Analytical Results
Former Barnstable Country Fire and Rescue Training Academy &
Site
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ¹	GWS-7-S	GWS-7-D	GWS-8-S	GWS-8-D	GWS-9-S	GWS-9-D	GWS-10-S	GWS-10-D	GWS-11-S	GWS-11-D
APPROX. GROUND ELEVATION		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DEPTH TO GROUNDWATER (FEET)		35		40		33		36		28	
SCREEN DEPTH (FEET)		38-40'	53-55'	45-48'	60-63'	36-38'	51-53'	40-42'	55-57'	31-33'	46-48'
SAMPLING DATE		10/5/2022	10/5/2022	10/4/2022	10/4/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (SOP 454 PFAS)											
PFOS	20	8.7	15	22	37	BRL(<1.8)	4.2	BRL(<4.2)	7.8	300	460
PFOA	20	20	9.2	BRL(<4.1)	BRL(<4.1)	BRL(<1.8)	BRL(<4.1)	BRL(<4.2)	6.7	16	15
PFNA	20	BRL(<4.2)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<1.8)	BRL(<4.1)	BRL(<4.2)	BRL(<4.1)	19	21
PFHxS	20	BRL(<4.2)	BRL(<4.1)	4.3	7.7	BRL(<1.8)	BRL(<4.1)	BRL(<4.2)	BRL(<4.1)	72	31
PFHpA	20	BRL(<4.2)	BRL(<4.1)	BRL(<4.1)	4.9	BRL(<1.8)	BRL(<4.1)	BRL(<4.2)	BRL(<4.1)	24	14
PFDA	20	7	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<1.8)	BRL(<4.1)	BRL(<4.2)	BRL(<4.1)	6.6	BRL(<4.1)
TOTAL Σ6 PFAS	20	35.7	24.2	26.3	49.6	BRL	4.2	BRL	14.5	437.6	541

- Notes:
- 1. Current Massachusetts Contingency Plan GW-1 Risk Standards listed in the far left column.
 - 2. BRL - Below Laboratory Detection Limits
 - 3. Concentrations presented in ng/L - nanograms per liter - parts per trillion
 - 4. Concentrations in bold exceed applicable MCP Method 1 GW-1 Standard
 - 5. PFOS - Perfluorooctanesulfonic Acid
 - 6. PFOA - Perfluorooctanoic Acid
 - 6. PFNA - Perfluorononanoic Acid
 - 7. PFHxS - Perfluorohexanesulfonic Acid
 - 8. PFHpA - Perfluoroheptanoic Acid
 - 9. PFDA - Perfluorodecanoic Acid
 - 10. EB = Equipment Rinsate Blank
 - 11. EB obtained from groundwater sampling tool/screen after decontamination at end of day

Table 1-Summary of Groundwater Screening Analytical Results
Former Barnstable Country Fire and Rescue Training Academy &
Site
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ¹	GWS-12-S	GWS-12-D	GWS-13-S	GWS-13-D	GWS-14-S	GWS-14-D	GWS-15-S	GWS-15-D	GWS-16-S	GWS-16-D	GWS-17-S	GWS-17-D
APPROX. GROUND ELEVATION		38.51		35.46		53.44		51.15		49.45		39.86	
DEPTH TO GROUNDWATER (FEET)		18		17		31		29		29		17	
SCREEN DEPTH (FEET)		21-23	38-40	20-22	35-37	33-35	48-50	33-35	48-50	33-35	48-50	20-22	35-37
SAMPLING DATE		1/9/2023	1/9/2023	1/9/2023	1/9/2023	1/9/2023	1/9/2023	1/9/2023	1/9/2023	1/10/2023	1/10/2023	1/10/2023	1/10/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (SOP 454 PFAS)													
PFOS	20	BRL(<10)	14	BRL(<10)	BRL(<10)	BRL(<10)	680	BRL(<10)	330	5.5	12	9	28
PFOA	20	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	36	BRL(<10)	19	11	13	BRL(<4.0)	14
PFNA	20	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<9.9)	BRL(<4.0)	BRL(<4.0)	BRL(<4.0)	BRL(<4.0)
PFHxS	20	BRL(<10)	11	BRL(<10)	BRL(<10)	BRL(<10)	200	BRL(<10)	45	9.5	9.5	4	19
PFHpA	20	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	21	BRL(<10)	BRL(<9.9)	15	20	BRL(<4.0)	16
PFDA	20	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<10)	BRL(<9.9)	BRL(<4.0)	BRL(<4.0)	BRL(<4.0)	BRL(<4.0)
TOTAL Σ6 PFAS	20	BRL	25	BRL	BRL	BRL	937	BRL	394	41	54.5	13	77

- Notes:
- 1. Current Massachusetts Contingency Plan GW-1 Risk Standards listed in the far left column.
 - 2. BRL - Below Laboratory Detection Limits
 - 3. Concentrations presented in ng/L - nanograms per liter - parts per trillion
 - 4. Concentrations in bold exceed applicable MCP Method 1 GW-1 Standard
 - 5. PFOS - Perfluorooctanesulfonic Acid
 - 6. PFOA - Perfluorooctanoic Acid
 - 6. PFNA - Perfluorononanoic Acid
 - 7. PFHxS - Perfluorohexanesulfonic Acid
 - 8. PFHpA - Perfluoroheptanoic Acid
 - 9. PFDA - Perfluorodecanoic Acid
 - 10. EB = Equipment Rinsate Blank
 - 11. EB obtained from groundwater sampling tool/screen after decontamination at end of day

Table 1-Summary of Groundwater Screening Analytical Results
Former Barnstable Country Fire and Rescue Training Academy &
Site
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ¹	GWS-18-S	GWS-18-D	GWS-19-S	GWS-19-D	GWS-20-S	GWS-20-D	GWS-21-S	GWS-21-D	GWS-22-S	GWS-22-D	GWS-23-S	GWS-23-D
APPROX. GROUND ELEVATION		45.70		45.72		55.79		50.62		63.46		44.31	
DEPTH TO GROUNDWATER (FEET)		23		23		30		24.05		29.33		21	
SCREEN DEPTH (FEET)		24-26	38-40	24-26	39-41	33-35	48-50	24-29	39-44	32-37	49-54	24-29	43-48
SAMPLING DATE		1/10/2023	1/10/2023	1/10/2023	1/10/2023	1/10/2023	1/10/2023	4/11/2023	4/11/2023	4/11/2023	4/11/2023	4/11/2023	4/11/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (SOP 454 PFAS)													
PFOS	20	80	53	4.9	41	BRL(<4.1)	5.7	34	14	BRL(<4.1)	360	BRL(<4.1)	5.4
PFOA	20	42	13	230	29	BRL(<4.1)	BRL(<4.1)	50	11	BRL(<4.1)	7.2	BRL(<4.1)	15
PFNA	20	BRL(<4.1)	BRL(<4.0)	18	4	BRL(<4.1)	BRL(<4.1)	5.5	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)
PFHxS	20	73	26	13	21	BRL(<4.1)	BRL(<4.1)	5.7	17	BRL(<4.1)	61	BRL(<4.1)	9.1
PFHpA	20	42	13	390	39	BRL(<4.1)	BRL(<4.1)	40	5.8	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	22
PFDA	20	BRL(<4.1)	BRL(<4.0)	BRL(<4.1)	BRL(<4.0)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)
TOTAL Σ6 PFAS	20	237	105	655.9	134	BRL	5.7	135.2	47.8	BRL	428.2	BRL	51.5

- Notes:
- 1. Current Massachusetts Contingency Plan GW-1 Risk Standards listed in the far left column.
 - 2. BRL - Below Laboratory Detection Limits
 - 3. Concentrations presented in ng/L - nanograms per liter - parts per trillion
 - 4. Concentrations in bold exceed applicable MCP Method 1 GW-1 Standard
 - 5. PFOS - Perfluorooctanesulfonic Acid
 - 6. PFOA - Perfluorooctanoic Acid
 - 6. PFNA - Perfluorononanoic Acid
 - 7. PFHxS - Perfluorohexanesulfonic Acid
 - 8. PFHpA - Perfluoroheptanoic Acid
 - 9. PFDA - Perfluorodecanoic Acid
 - 10. EB = Equipment Rinsate Blank
 - 11. EB obtained from groundwater sampling tool/screen after decontamination at end of day

Table 1-Summary of Groundwater Screening Analytical Results
Former Barnstable Country Fire and Rescue Training Academy &
Site
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ¹	GWS-24-S	GWS-24-I	GWS-24-D	GWS-25-I	GWS-25-D	GWS-26-I	GWS-26-D	GWS-27-S	GWS-27-D	GWS-16-D Filtrate	GWS-20-D Filtrate
APPROX. GROUND ELEVATION		54.00			47.15		38.73		33.97		N/A	N/A
DEPTH TO GROUNDWATER (FEET)		24.32			23.08		23.52		11.24		29	30
SCREEN DEPTH (FEET)		24-29	40-45	60-65	38-43	58-63	40-45	60-65	10-15	30-35	50	50
SAMPLING DATE		4/12/2023	4/12/2023	4/12/2023	4/12/2023	4/12/2023	4/12/2023	4/12/2023	4/12/2023	4/12/2023	1/10/2023	1/10/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (SOP 454 PFAS)												
PFOS	20	22	73	19	140	100	BRL(<4.1)	25	13	7.8	BRL(<4.0)	BRL(<4.1)
PFOA	20	BRL(<4.1)	6.5	BRL(<4.1)	5.1	5.1	BRL(<4.1)	6.9	BRL(<4.1)	BRL(<4.1)	16	BRL(<4.1)
PFNA	20	5.2	24	4.7	24	23	BRL(<4.1)	18	BRL(<4.1)	BRL(<4.1)	BRL(<4.0)	BRL(<4.1)
PFHxS	20	BRL(<4.1)	7.9	6.9	22	18	BRL(<4.1)	32	BRL(<4.1)	BRL(<4.1)	8.6	BRL(<4.1)
PFHpA	20	4.2	7.2	BRL(<4.1)	9.9	7.5	BRL(<4.1)	20	BRL(<4.1)	BRL(<4.1)	24	BRL(<4.1)
PFDA	20	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.1)	BRL(<4.0)	BRL(<4.1)
TOTAL Σ6 PFAS	20	31.4	118.6	30.6	201	153.6	BRL	101.9	13	7.8	48.6	BRL

- Notes:
- 1. Current Massachusetts Contingency Plan GW-1 Risk Standards listed in the far left column.
 - 2. BRL - Below Laboratory Detection Limits
 - 3. Concentrations presented in ng/L - nanograms per liter - parts per trillion
 - 4. Concentrations in bold exceed applicable MCP Method 1 GW-1 Standard
 - 5. PFOS - Perfluorooctanesulfonic Acid
 - 6. PFOA - Perfluorooctanoic Acid
 - 6. PFNA - Perfluorononanoic Acid
 - 7. PFHxS - Perfluorohexanesulfonic Acid
 - 8. PFHpA - Perfluoroheptanoic Acid
 - 9. PFDA - Perfluorodecanoic Acid
 - 10. EB = Equipment Rinsate Blank
 - 11. EB obtained from groundwater sampling tool/screen after decontamination at end of day

Table 1-Summary of Groundwater Screening Analytical Results
Former Barnstable Country Fire and Rescue Training Academy &
Site
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ¹	EB-1	EB-3	EB-2	EB-1	EB-2	EB-4.11.23	EB-4.12.23
APPROX. GROUND ELEVATION		N/A	N/A	N/A	N/A	N/A	N/A	N/A
DEPTH TO GROUNDWATER (FEET)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
SCREEN DEPTH (FEET)		N/A	N/A	N/A	N/A	N/A	N/A	N/A
SAMPLING DATE		8/11/2022	10/4/2022	10/5/2022	1/9/2023	1/10/2023	4/11/2023	4/12/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (SOP 454 PFAS)								
PFOS	20	BRL(<0.43)	BRL(<1.8)	BRL(<1.9)	BRL(<1.9)	BRL(<1.7)	BRL(<1.8)	BRL(<1.8)
PFOA	20	BRL(<0.49)	BRL(<1.8)	BRL(<1.9)	BRL(<1.9)	BRL(<1.7)	BRL(<1.8)	BRL(<1.8)
PFNA	20	BRL(<0.80)	BRL(<1.8)	BRL(<1.9)	BRL(<1.9)	BRL(<1.7)	BRL(<1.8)	BRL(<1.8)
PFHxS	20	BRL(<0.53)	BRL(<1.8)	BRL(<1.9)	BRL(<1.9)	BRL(<1.7)	BRL(<1.8)	BRL(<1.8)
PFHpA	20	BRL(<0.51)	BRL(<1.8)	BRL(<1.9)	BRL(<1.9)	BRL(<1.7)	BRL(<1.8)	BRL(<1.8)
PFDA	20	BRL(<0.64)	BRL(<1.8)	BRL(<1.9)	BRL(<1.9)	BRL(<1.7)	BRL(<1.8)	BRL(<1.8)
TOTAL Σ6 PFAS	20	BRL	BRL	BRL	BRL	BRL	BRL	BRL

- Notes:
- 1. Current Massaschusetts Contingency Plan GW-1 Risk Standards listed in the far left column.
 - 2. BRL - Below Laboratory Detection Limits
 - 3. Concentrations presented in ng/L - nanograms per liter - parts per trillion
 - 4. Concentrations in bold exceed applicable MCP Method 1 GW-1 Standard
 - 5. PFOS - Perfluorooctanesulfonic Acid
 - 6. PFOA - Perfluorooctanoic Acid
 - 6. PFNA - Perfluorononanoic Acid
 - 7. PFHxS - Perfluorohexanesulfonic Acid
 - 8. PFHpA - Perfluoroheptanoic Acid
 - 9. PFDA - Perfluorodecanoic Acid
 - 10. EB = Equipment Rinsate Blank
 - 11. EB obtained from groundwater sampling tool/screen after decontamination at end of day

Table 2A - Groundwater Elevation and Gauging Data - 2021-2023
Former Barnstable County Fire Rescue Training Academy
RTN 4-26179

Well ID	Location (From Academy)	Elev. (TOC) (Feet)	Depth to Groundwater from TOC (Feet)												Groundwater Elevation (Feet)												
			Date												Date												
			1/28/2021	5/19/2021	7/29/2021	11/1/2021	1/25/2022	4/21/2022	7/27/2022	10/25/2022	11/8/2022	2/10/2023	4/18/2023	8/2/2023	1/28/2021	5/19/2021	7/29/2021	11/1/2021	1/25/2022	4/21/2022	7/27/2022	10/25/2022	11/8/2022	2/10/2023	4/18/2023	8/2/2023	
FS-1sA	Academy	41.769	--	--	--	--	--	13.69	16.12	17.66	17.34	14.15	14.25	16.68	--	--	--	--	--	28.08	--	--	24.43	27.62	27.52	25.09	
HSW-1/HS-1(a)	Academy	40.012	13.31	13.04	14.73	13.94	13.13	11.56	13.95	15.5	15.33	12.07	--	14.47	26.70	26.97	25.28	26.07	26.88	28.45	26.06	24.51	24.68	27.94	25.54		
HSW-6/HS-2(a)	Academy	39.305	12.61	12.35	14.04	13.32	12.41	10.83	13.24	14.76	14.61	11.34	11.36	13.79	26.70	26.96	25.27	25.99	26.90	28.48	26.07	24.55	24.70	27.97	27.95	25.52	
OW-2D	Academy	37.36	10.78	10.60	12.34	11.34	10.90	9.21	11.74	13.07	12.85	10.65	9.68	12.1	26.58	26.76	25.02	26.02	26.46	28.15	25.62	24.29	26.46	26.71	27.68	25.26	
OW-2S	Academy	37.532	11.49	11.3	12.94	12	11.34	9.78	12.18	13.64	13.51	10.22	10.27	12.7	26.04	26.23	24.59	25.53	26.19	27.75	25.35	23.89	25.80	27.31	27.26	24.83	
OW-8A	Academy	42.471	16.19	15.94	17.6	16.62	15.92	14.43	--	18.35	18.11	14.98	15.3	17.48	26.28	26.53	24.87	25.85	26.55	28.04	--	24.12	21.20	27.49	27.17	24.99	
OW8-D		42.98	--	--	--	--	--	--	--	18.66	--	15.25	15.32	17.77	--	--	--	--	--	--	--	--	--	27.73	27.66	25.21	
PFW-1	Academy	41.83	15.54	15.19	16.87	15.95	15.25	13.69	15.09	17.66	17.51	14.2	14.32	16.62	26.29	26.64	24.96	25.88	26.58	28.14	26.74	24.17	21.80	27.63	27.51	25.21	
PFW-2	Academy	40.019	13.48	13.05	14.85	13.95	13.28	11.68	14.08	15.53	15.49	12.2	12.25	14.61	26.54	26.97	25.17	26.07	26.74	28.34	25.94	24.49	23.82	27.82	27.77	25.41	
PFW-3	Academy	37.832	11.14	10.92	12.60	11.64	11.00	-	11.87	13.37	13.15	9.94	9.99	12.41	26.69	26.91	25.23	26.19	26.83	--	25.96	24.46	26.16	27.89	27.84	25.42	
PFW-4	Academy	39.344	12.69	12.45	14.12	13.15	12.46	-	13.39	14.87	14.65	11.47	11.51	13.95	26.65	26.89	25.22	26.19	26.88	--	25.95	24.47	24.66	27.87	27.83	25.39	
PFW-5	Academy	42.017	15.38	15.11	16.82	15.8	15.11	13.63	--	17.51	17.32	--	14.23	17	26.64	26.91	25.20	26.22	26.91	28.39	--	24.51	21.99	--	27.79	25.02	
MW-1	Adjacent Academy	42.584	16.22	15.9	17.59	16.65	15.95	14.39	16.79	18.38	18.17	14.93	15.04	17.36	26.36	26.68	24.99	25.93	26.63	28.19	25.79	24.20	21.14	27.65	27.54	25.22	
MW-2	Adjacent Academy	42.72	16.56	16.25	17.92	17.05	16.3	14.72	17.13	18.72	18.49	--	--	17.7	26.16	26.47	24.80	25.67	26.42	28.00	25.59	24.00	20.82	--	--	25.02	
MW-3D	Adjacent Academy	43.654	16.91	16.55	--	--	--	--	--	Not done	18.82	15.63	15.71	18.12	26.74	27.10	--	--	--	--	--	--	20.49	28.02	27.94	25.53	
MW-3I	Adjacent Academy	43.823	16.84	--	--	--	--	--	--	18.97	18.75	15.53	15.62	18.01	26.98	--	--	--	--	--	--	--	20.56	28.29	28.20	25.81	
MW-3S	Adjacent Academy -SE	43.535	16.65	16.35	18.04	17.25	16.4	14.83	--	Not done	18.81	15.41	15.48	17.85	26.89	27.19	25.50	26.29	27.14	28.71	--	Not done	20.50	28.13	28.06	25.69	
MW-6	Adjacent Academy -SE	41.432	15.3	15.0	17.62	15.80	15	13.38	16.04	17.44	18.62	13.5	14.09	16.39	26.13	26.43	23.81	25.63	26.43	28.05	25.39	23.99	20.69	27.93	27.34	25.04	
MW-7	Adjacent Academy -SE	43.126	17.33	17.0	18.56	17.75	17	15.4	16.85	Dry > 18 ft	19.21	--	--	--	25.80	26.13	24.57	25.38	26.13	27.73	26.28	Dry > 18 ft	20.10	---	---	---	
MW-8C	Adjacent Academy -SE	43.992	17.96	17.6	18.2	18.4	17.65	16.06	18.51	Dry > 18 ft	18.62	16.66	16.7	18.66	26.03	26.39	25.79	25.59	26.34	27.93	25.48	Dry > 18 ft	20.69	27.33	27.29	25.33	
MW-9D (not viable)	Adjacent Academy -SE	45.079	--	--	--	--	-	-	19.38	--	--	18.49	17.61	19.98	--	--	--	--	--	--	25.70	--	---	26.59	27.47	25.10	
MW-9S	Adjacent Academy -SE	44.629	18.84	--	--	--	--	18.5	16.89	Rat nest	--	19.81	17.02	--	19.43	25.79	--	--	--	26.13	27.74	--	--	19.50	27.61	---	25.20
MW-10	Adjacent Academy	44.212	dry	17.53	17.53	18.43	17.8	16.01	Dry > 18 ft	--	18.00	16.03	16.76	19.08	dry	26.68	26.68	25.78	26.41	28.20	Dry > 18 ft	--	21.31	28.18	27.45	25.13	
MW-12s	DG -E	43.421	17.94	17.6	dry	17.7	17.35	15.71	--	--	--	16.41	16.62	18.93	25.48	25.82	dry	25.72	26.07	27.71	--	--	---	27.01	26.80	24.49	
MW-22	DG-NE	43.46	18.23	17.22	dry	18.35	17.5	15.8	--	--	--	16.69	16.9	19.25	25.23	26.24	dry	25.11	25.96	27.66	--	--	---	26.77	26.56	24.21	
MW-28S	DG- NE	41.413	14.75	14.6	16.14	15.15	14.41	-	--	16.9	--	--	13.59	15.95	26.66	26.81	25.27	26.26	27.00	--	--	24.51	---	---	27.82	25.46	
MW-28D (abandoned)	DG- NE	NA	--	--	--	--	--	--	--	--	--	--	13.31	15.67	--	--	--	--	--	--	--	--	--	--	--	---	
MW-35I	DG- NE	52.265	--	--	--	28.9	--	--	--	--	32.14	27.39	--	32.14	--	--	--	--	23.37	--	--	--	7.17	24.88	--	20.13	
MW-35s	DG- NE	52.557	--	--	--	--	--	9.27	--	--	--	27.61	--	--	--	--	--	--	--	--	--	--	--	24.95	--	---	
MW-35D	DG- NE	52.481	--	--	--	--	--	9.65	--	--	--	27.02	27.94	30.85	--	--	--	--	--	--	--	--	--	25.46	24.54	21.63	
PC-1	DG-SE	54.57	--	29.45	31.23	30.25	29.8	27.8	--	--	31.89	28.42	28.69	30.96	--	25.12	23.34	24.32	24.77	26.77	--	--	7.42	26.15	25.88	23.61	
PC-6A	DG-SE	59.322	35.13	34.21	35.97	34.93	34.3	33.29	--	--	36.54	31.16	33.5	35.74	24.19	25.11	23.35	24.39	25.02	26.03	--	--	2.77	28.16	25.82	23.58	
PC-11	DG-SE	55.515	31.17	30.3	32.22	31.05	30.4	28.39	--	--	32.69	29.3	29.66	31.9	27.82	29.17	23.30	24.47	25.12	27.13	--	--	6.62	26.22	25.86	23.62	
PC -16D	DG-SE	56.276	33.46	32.39	34.31	33.01	32.01	29.96	--	--	34.64	31.27	31.71	34.17	22.82	23.89	21.97	23.27	24.27	26.32	--	--	4.67	25.01	24.57	22.11	
PC-18	DG-SE	55.342	--	--	--	32.03	-	-	-	--	33.65	--	--	--	--	--	--	--	23.31	--	--	--	5.66	---	---	---	
PC-28	DG-SE	40.895	18.98	17.99	19.49	18.4	17.65	15.45	--	--	19.71	16.85	17.11	19.69	21.92	22.91	21.41	22.50	23.25	25.45	--	--	19.60	24.05	23.79	21.21	
PC-29	DG-SE	42.169	--	--	--	--	-	-	-	--	20.7	--	--	--	--	--	--	--	--	--	--	--	18.61	--	--	--	
PC-30	DG-SE	57.484	34.14	32.12	34.9	33.71																					

**Table 2B - Summary of Groundwater Elevations and Gauging Results - Barnstable Fire District / West of Flintrock Pond
223 Breeds Hill Road, Barnstable, MA**

Well ID	Elev. (TOC) (Feet)	Depth to Groundwater (feet)		Groundwater Elevation (feet)	
		4/18/2023	8/2/2023	4/18/2023	8/2/2023
Station No. 2 Area - West of Flintrock Pond					
84-4 ³	42.7	15.93	--- ¹¹	26.77	--- ¹¹
M5-90 ³	53.4	24.23	--- ¹¹	29.17	--- ¹¹
64J ³	36.74	6.69	--- ¹¹	30.05	--- ¹¹
M3-89 ²	47.62	18.83	21.87	28.79	25.75
M2-89 ³	46.312	17.94	--- ¹¹	28.372	--- ¹¹
M4-89 ³	44.52	17.09	--- ¹¹	27.43	--- ¹¹
Unnamed ^{3,8}	47.649	17.86	--- ¹¹	29.789	--- ¹¹
M1-89 ²	42.98	13.38	17.33	29.60	25.65
TW-7-08	38.39	--- ⁹	11.39	--- ⁹	--- ¹¹
84-3 ⁷	43.97	10.53	10.54	33.44	33.43
64 M1 ³	--- ⁹	7.17	--- ⁹	--- ⁹	--- ⁹
64 M2 ³	--- ⁹	5.80	--- ⁹	--- ⁹	--- ⁹
64 M3 ³	--- ⁹	7.19	--- ⁹	--- ⁹	--- ⁹
Station No. 5 Area - West of Flintrock Pond					
TW80-9 aka TW-6-08 ²	36.09	7.76	10.44	28.33	25.65
TW5-08 ²	58.19	29.15	32.34	29.04	25.85
TW86-5 / BFD Path 1 ²	43.32	14.23	17.1	29.09	26.22
TW3-08 ²	43.83	--- ¹⁰	--- ¹¹	---	--- ¹¹
TW 4-08 ²	49.35	20.47	23.97	28.88	25.38
Phase II CSA / MW-300 Series Monitoring Wells - West of Flintrock Pond					
MW-307S ²	41.48	12.39	15.32	29.09	26.16
MW-307D 2	41.3	12.32	15.23	28.98	26.07
MW-308S ²	40.19	11.58	14.30	28.61	25.89
MW-308D ²	40.46	11.86	14.57	28.60	25.89
MW-309 ²	37.66	9.23	--- ¹⁰	28.43	--- ¹⁰
Adjacent to Flintrock Pond					
WS-101 ²	36.03	7.42	10.02	28.61	26.01
Airport / Horsely Witten Monitoring Wells - Corner of Independence Way & Breeds Hill Road					
HW-C ⁶	69.25	37.2	--- ¹¹	32.05	--- ¹¹

Notes:

- Measurements taken from PVC unless otherwise noted
- TOC elevation based GSE Field Survey conducted on April 24 , 2023 (NAVD88)
- Well Elevations taken from Figure 1-Existing Conditions Plan, dated 10.20.2021 and prepared by GZA. Note that measuring point is unknown at this time.
- Measured from top of PVC
- Flint Rock Pond Elevation calculated using level Survey in Field.
- TOC Elevation based on Horsely Witten Group Phase II CSA Well Elevation Data
- Depth to Water data was misidentified as TW7-08 in the field.
- Well located SE of Station 2 adj. to paved path. No label in field. DTW measured from top of metal casing.
- "---" No elevation or gauging data available at this time.
- Well cap could not be removed.
- Monitoring wells that were not completed as part of the April 24, 2023 Survey were not gauged during the August 2023 round.

Table 3 - Summary of Groundwater Analytical Results-MW-300, MW-400 and WS-101 Series Monitoring Wells
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	USEPA ^{1,2} HEALTH ADVISORY	Method 1 GW-1 Standards ⁴	MW-301	MW-302	MW-303	MW-304	MW-305	MW-306	MW-307S	MW-307D	MW-308S	MW-308D	MW-309	MW-310	MW-311	WS-101	PC-39D	MW-401S	MW-401D	MW-402S	MW-402D	MW-403S	MW-403D
SCREEN DEPTH (FEET)			5-15	5-15	5-15	5-15	5-15	5-15	10-20	35-40	10-20	35-40	30-35	5-15	6-16	Unknown	46-51	14-24	45-50	29.5-39.5	51-56	18.5-28.5	43-48
SAMPLING DATE			2/13/2023	2/13/2023	2/13/2023	2/13/2023	2/13/2023	2/13/2023	11/9/2022	11/9/2022	11/9/2022	11/9/2022	11/9/2022	2/13/2023	2/13/2023	11/11/2022	7/26/2023	7/26/2023	7/26/2023	7/26/2023	7/26/2023	7/26/2023	7/26/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (Method 537.1m or PACE SOP 454)																							
PFOS	70	20	BRL (<10.0)	1400	200	70	1400	62	2.1	BRL (<1.9)	2.2	5.4	11	62	2400	BRL (<1.9)	29	BRL (<1.8)	9.1	BRL (<4.1)	BRL (<1.9)	9.4	20
PFOA	70	20	BRL (<10.0)	12	BRL (<10.0)	23	250	BRL (<10.0)	BRL (<2.0)	BRL (<1.9)	BRL (<1.9)	BRL (<2.0)	BRL (<1.9)	BRL (<10.0)	160	BRL (<1.9)	BRL (<1.9)	BRL (<1.8)	7.1	BRL (<4.1)	BRL (<1.9)	49	8.6
PFNA	NE	20	BRL (<10.0)	BRL (<10.0)	13	BRL (<10.0)	95	BRL (<10.0)	BRL (<2.0)	BRL (<1.9)	BRL (<1.9)	BRL (<2.0)	BRL (<1.9)	BRL (<10.0)	54	BRL (<1.9)	2.8	BRL (<1.8)	3.3	BRL (<4.1)	BRL (<1.9)	12	BRL (<1.9)
PFHxS	NE	20	BRL (<10.0)	340	45	47	960	33	BRL (<2.0)	BRL (<1.9)	BRL (<1.9)	BRL (<2.0)	4.6	48	840	BRL (<1.9)	6.5	BRL (<1.8)	22	BRL (<4.1)	3.9	14	13
PFHpA	NE	20	BRL (<10.0)	BRL (<10.0)	BRL (<10.0)	24	250	BRL (<10.0)	BRL (<2.0)	BRL (<1.9)	BRL (<1.9)	BRL (<2.0)	BRL (<1.9)	BRL (<10.0)	170	BRL (<1.9)	2.1	BRL (<1.8)	4.4	BRL (<4.1)	BRL (<1.9)	57	3.9
PFDA	NE	20	BRL (<10.0)	BRL (<10.0)	BRL (<10.0)	BRL (<10.0)	BRL (<10.0)	BRL (<10.0)	BRL (<2.0)	BRL (<1.9)	BRL (<1.9)	BRL (<2.0)	BRL (<1.9)	BRL (<10.0)	BRL (<10.0)	BRL (<1.9)	BRL (<1.9)	BRL (<1.8)	BRL (<1.8)	BRL (<4.1)	BRL (<1.9)	BRL (<1.8)	BRL (<1.9)
TOTAL Σ 6 PFAS	70	20	BRL (<10.0)	1752	258	164	2955	95	2.1	BRL (<1.9)	2.2	5.4	15.6	110	3624	BRL (<1.9)	40.4	BRL (<1.8)	45.9	BRL (<4.1)	3.9	141.4	45.5

Notes:
1. Current Massachusetts Contingency Plan GW-1 Risk Stands, finalized on 12.27.2019 and Massachusetts maximum contaminant level.
2. BRL - Below Laboratory Detection Limits
3. Concentrations presented in ng/L - nanograms per Liter - parts per trillion
4. Concentrations in bold exceed applicable MCP Method 1 GW-1 Standard
5. PFOS - Perfluorooctanesulfonate
6. PFOA - Perfluorooctanoic Acid
6. PFNA - Perfluorononanoic Acid
7. PFHxS - Perfluorohexanesulfonic Acid
8. PFHpA - Perfluoroheptanoic Acid
9. PFDA - Perfluorodecanoic Acid
10. EB = Equipment Rinsate Blank
11. EB obtained from Groundwater sampling tool/screen after decontamination.

Table 4 - Summary of Unnamed Pond Sediment Analytical Results
 Barnstable County Fire Rescue Training Academy
 155 S. Flint Rock Road, Barnstable, MA
 RTN 4-26179

SAMPLE ID	UP-101	UP-102	UP-103	UP-104
SAMPLE DATE	3/29/2023	3/29/2023	3/29/2023	3/29/2023
UNITS	µg/kg	µg/kg	µg/kg	µg/kg
Per- and polyfluoroalkyl substances (PFAS)				
Perfluorooctanesulfonic acid (PFOS)	27	19	21	10
Perfluoro-n-Octanoic Acid (PFOA)	BRL(<2.9)	1.5	BRL(<2.6)	BRL(<0.79)
Perfluoroheptanoic Acid (PFHpA)	BRL(<2.9)	BRL(<1.1)	BRL (<2.6)	BRL(<0.79)
Perfluorohexane Sulfonate (PFHxS)	BRL(<2.9)	1.20	BRL(<2.6)	0.87
Perfluorononanoic Acid (PFNA)	BRL(<2.9)	1.8	BRL(<2.6)	0.86
Perfluorodecanoic acid (PFDA)	BRL(<2.9)	BRL(<1.1)	BRL(<2.6)	BRL(<0.79)
Total Sum (PFAS6)	27	23.5	21	11.73
% Solids	15.1	38.8	16.6	54.1

Notes:

1. (<500) - Below Laboratory Detection Limit shown in parentheses.
2. µg/kg - micrograms per kilograms (parts per billion-ppb).
3. There are no official or draft MassDEP standards for contaminants in sediments.

Table 5A - Summary of Phase II CSA Shallow Soil Analytical Results
Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

Transect	MCP Method 1 S-1/GW-1 Soil Standards	MCP Method 1 S-1/GW-3 Soil Standards	MCP Method 1 S-2/GW-1 Soil Standards	Transect A												
SAMPLE ID				SS-101		SS-102					SS-103		SS-104		SS-205	SS-206
Distance from Fenceline				Adjacent		10 feet					25 Feet		50 feet		100 feet	200 feet
SAMPLE DEPTH (FT/INCHES)				0-3"	16-20"	FM	0-3"	16-20"	5'	10'	0-3"	16-20"	0-3"	16-20"	0-6"	0-6"
SAMPLING DATE				10/4/2022		10/4/2022					10/4/2022		10/4/2022		6/15/2023	6/15/2023
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
PFAS (ASTM Method D7968-17a m or PACE SOP 466)																
PFOS	2	300	2	9.4	9	13	24	4.2	4.1	3.2	15	6.1	9.1	BRL(<0.44)	1.2	BRL (<0.47)
PFOA	0.72	300	0.72	3	2.3	1.5	1.8	0.5	BRL(<0.45)	BRL(<0.44)	0.87	0.47	1.2	BRL(<0.44)	BRL (<0.48)	BRL (<0.47)
PFHpA	0.5	300	0.5	1.6	0.89	0.96	2.3	0.72	BRL(<0.45)	BRL(<0.44)	1.1	0.45	0.79	BRL(<0.44)	BRL (<0.48)	BRL (<0.47)
PFNA	0.32	300	0.32	1.9	1.8	0.82	1.3	0.53	BRL(<0.45)	BRL(<0.44)	0.99	BRL(<0.45)	BRL(<0.49)	BRL(<0.44)	BRL (<0.48)	BRL (<0.47)
PFHxS	0.3	300	0.3	2.4	1.6	3.5	2	0.6	BRL(<0.45)	BRL(<0.44)	1.3	0.68	2.2	BRL(<0.44)	BRL (<0.48)	BRL (<0.47)
PFDA	0.3	300	0.3	5.4	4.2	0.89	BRL(<0.49)	BRL(<0.47)	BRL(<0.45)	BRL(<0.44)	BRL(<0.51)	BRL(<0.45)	BRL(<0.49)	BRL(<0.44)	BRL (<0.48)	BRL (<0.47)
Wet Chemistry																
Percent Solids (%)	NE	NE	NE	86.6	86.9	86.8	86	91	99	93.5	86.4	93.9	85.5	99.3	90.9	88.6
Total Iron (mg/kg)	NE	NE	NE	4040	---	---	4070	---	---	---	9360	---	5,550	---	---	---
TOC (mg/kg dry)	NE	NE	NE	39100	---	---	5370	---	---	---	2120	---	6,980	---	---	---

Notes:

1. PFOS: Perfluorooctanesulfonic acid (PFOS)

2. PFOA: Perfluoro-n-Octanoic Acid

3. PFHpA: Perfluoroheptanoic Acid

4. PFHxS: Perfluorohexane Sulfonate

5. PFNA: Perfluorononanoic Acid

6. PFDA: Perfluorodecanoic acid

7. Concentrations in µg/kg - micrograms per kilogram

8. (BRL <0.14) - Below Laboratory Detection Limit shown in parentheses.

9. MassDEP finalized and established standards for 6 indiviudal PFAS compounds in soil on December 27, 2019.
(PFOS, PFOA, PFHpA, PFNA, PFHxs, and PFDA) compounds.

10. Bolded values indicate concentrations above the aplicable MCP Method 1 Risk Standards.

11. NE - Not Established

Table 5A - Summary of Phase II CSA Shallow Soil Analytical Results
Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

Transect	MCP Method 1 S-1/GW-1 Soil Standards	MCP Method 1 S-1/GW-3 Soil Standards	MCP Method 1 S-2/GW-1 Soil Standards	Transect B														
SAMPLE ID				SS-105			SS-106				SS-107		Duplicate 4 (SS-107)	SS-108		SS-207	SS-208	
Distance from Fenceline				Adjacent			10 feet				25 feet		25 feet	50 feet		100 feet	200 feet	
SAMPLE DEPTH (FT/INCHES)				FM	0-3"	16-20"	0-3"	16-20"	5'	10'	0-3"	16-20"	16-20"	0-3"	16-20"	0-6"	0-6"	
SAMPLING DATE				10/4/2022			10/4/2022				10/4/2022		10/4/2022	10/4/2022		6/15/2023	6/15/2023	
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	
PFAS (ASTM Method D7968-17a m or PACE SOP 466)																		
PFOS	2	300	2	5.4	2.4	0.95	3.8	5.3	3.8	BRL(<0.43)	7.1	2.6	7.8	6.7	BRL(<0.47)	0.96	BRL (<0.50)	
PFOA	0.72	300	0.72	2.6	0.93	BRL(<0.46)	2.1	1.2	1.3	BRL(<0.43)	1.1	BRL(<0.45)	3.4	0.94	BRL(<0.47)	BRL (<0.51)	BRL (<0.50)	
PFHpA	0.5	300	0.5	1.3	BRL(<0.48)	BRL(<0.46)	1.3	BRL(<0.47)	BRL(<0.43)	BRL(<0.43)	0.85	BRL(<0.45)	BRL(<1.6)	BRL(<0.47)	BRL(<0.47)	BRL (<0.51)	BRL (<0.50)	
PFNA	0.32	300	0.32	BRL(<1.1)	BRL(<0.48)	BRL(<0.46)	2.9	3.3	1.5	BRL(<0.43)	0.56	BRL(<0.45)	BRL(<1.6)	BRL(<0.47)	BRL(<0.47)	BRL (<0.51)	BRL (<0.50)	
PFHxS	0.3	300	0.3	1.9	BRL(<0.48)	BRL(<0.46)	BRL(<0.47)	BRL(<0.47)	BRL(<0.43)	BRL(<0.43)	BRL(<0.46)	BRL(<0.45)	2.5	BRL(<0.47)	BRL(<0.47)	BRL (<0.51)	BRL (<0.50)	
PFDA	0.3	300	0.3	1.7	0.68	BRL(<0.46)	0.7	BRL(<0.47)	BRL(<0.43)	BRL(<0.43)	BRL(<0.46)	BRL(<0.45)	3.8	BRL(<0.47)	BRL(<0.47)	BRL (<0.51)	BRL (<0.50)	
Wet Chemistry																		
Percent Solids (%)	NE	NE	NE	71.5	91.2	93.9	88.5	93.7	97	99.1	91.1	96.3	61.3	90.4	95.3	85.8	85.1	
Total Iron (mg/kg)	NE	NE	NE	---	4,560	---	3,450	---	---	---	3,670	---	---	4340	---	---	---	
TOC (mg/kg dry)	NE	NE	NE	---	5,020	---	7,080	---	---	---	7,470	---	---	4830	---	---	---	

- Notes:
- 1. PFOS: Perfluorooctanesulfonic acid (PFOS)
 - 2. PFOA: Perfluoro-n-Octanoic Acid
 - 3. PFHpA: Perfluoroheptanoic Acid
 - 4. PFHxS: Perfluorohexane Sulfonate
 - 5. PFNA: Perfluorononanoic Acid
 - 6. PFDA: Perfluorodecanoic acid
 - 7. Concentrations in µg/kg - micrograms per kilogram
 - 8. (BRL <0.14) - Below Laboratory Detection Limit shown in parentheses.
 - 9. MassDEP finalized and established standards for 6 indiviudal PFAS compounds in soil on December 27, 2019.
(PFOS, PFOA, PFHpA, PFNA, PFHxs, and PFDA) compounds.
 - 10. Bolded values indicate concentrations above the aplicable MCP Method 1 Risk Standards.
 - 11. NE - Not Established

Table 5A - Summary of Phase II CSA Shallow Soil Analytical Results
Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

Transect	MCP Method 1 S-1/GW-1 Soil Standards	MCP Method 1 S-1/GW-3 Soil Standards	MCP Method 1 S-2/GW-1 Soil Standards	Transect C														
SAMPLE ID				SS-109		SS-110					SS-111		Duplicate 3 (SS-111)	SS-112		SS-209		SS-210
Distance from Fenceline				Adjacent		10 feet					25 feet		25 feet	50 feet		100 feet	100 feet	200 feet
SAMPLE DEPTH (FT/INCHES)				0-3"	16-20"	FM	0-3"	16-20"	5'	10'	0-3"	16-20"	16-20"	0-3"	16-20"	0-6"	16-20"	0-6"
SAMPLING DATE				10/3/2022		10/3/2022					10/3/2022		10/3/2022	10/3/2022		6/15/2023		6/15/2023
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
PFAS (ASTM Method D7968-17a m or PACE SOP 466)																		
PFOS	2	300	2	4.5	180	19	90	63	11	0.7	14	35	38	2	6.9	13	7.9	BRL (<0.49)
PFOA	0.72	300	0.72	1.3	7.2	3.5	2.3	1.6	0.85	1	1.6	1.8	1.8	BRL(<0.49)	0.74	1	0.57	BRL (<0.49)
PFHpA	0.5	300	0.5	BRL(<0.47)	1.8	BRL(<1.8)	1.3	0.63	BRL(<0.42)	BRL(<0.43)	1	0.54	0.59	BRL(<0.49)	BRL(<0.48)	0.89	BRL (<0.49)	BRL (<0.49)
PFNA	0.32	300	0.32	0.57	8.3	BRL(<1.8)	7.8	3.6	BRL(<0.42)	BRL(<0.43)	0.96	BRL(<0.46)	BRL(<0.47)	BRL(<0.49)	BRL(<0.48)	1	0.66	BRL (<0.49)
PFHxS	0.3	300	0.3	1.6	8	5.6	1.2	0.65	0.51	0.78	1.7	0.72	0.68	BRL(<0.49)	0.53	BRL (<0.52)	BRL (<0.49)	BRL (<0.49)
PFDA	0.3	300	0.3	0.48	2.6	3	1	BRL(<0.46)	BRL(<0.42)	BRL(<0.43)	1.1	BRL(<0.46)	BRL(<0.47)	BRL(<0.49)	BRL(<0.48)	BRL (<0.52)	BRL (<0.49)	BRL (<0.49)
Wet Chemistry																		
Percent Solids (%)	NE	NE	NE	93	88.3	54.2	89.5	93	99.5	99.5	89.8	92.2	91.3	86.6	88.9	85.7	86.5	86.5
Total Iron (mg/kg)	NE	NE	NE	6270	---	---	3960	---	---	---	1900	---	---	--	---	--	---	---
TOC (mg/kg dry)	NE	NE	NE	17900	---	---	13600	---	---	---	13200	---	---	---	---	---	---	---

- Notes:
- 1. PFOS: Perfluorooctanesulfonic acid (PFOS)
 - 2. PFOA: Perfluoro-n-Octanoic Acid
 - 3. PFHpA: Perfluoroheptanoic Acid
 - 4. PFHxS: Perfluorohexane Sulfonate
 - 5. PFNA: Perfluorononanoic Acid
 - 6. PFDA: Perfluorodecanoic acid
 - 7. Concentrations in µg/kg - micrograms per kilogram
 - 8. (BRL <0.14) - Below Laboratory Detection Limit shown in parentheses.
 - 9. MassDEP finalized and established standards for 6 indiviudal PFAS compounds in soil on December 27, 2019.
(PFOS, PFOA, PFHpA, PFNA, PFHxs, and PFDA) compounds.
 - 10. Bolded values indicate concentrations above the aplicable MCP Method 1 Risk Standards.
 - 11. NE - Not Established

Table 5A - Summary of Phase II CSA Shallow Soil Analytical Results
Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

Transect				Transect D											
SAMPLE ID	MCP Method 1 S-1/GW-1 Soil Standards	MCP Method 1 S-1/GW-3 Soil Standards	MCP Method 1 S-2/GW-1 Soil Standards	SS-113		SS-114					SS-115		Duplicate 2 (SS-115)	SS-116	SS-211
Distance from Fenceline				Adjacent		10 feet					25 feet		25 feet	50 feet	100 feet
SAMPLE DEPTH (FT/INCHES)				0-3"	16-20"	FM	0-3"	16-20"	5'	10'	0-3"	16-20"	16-20"	0-6"	0-6"
SAMPLING DATE				10/3/2022		10/3/2022					10/3/2022		10/3/2022	6/15/2023	6/15/2023
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
PFAS (ASTM Method D7968-17a m or PACE SOP 466)															
PFOS	2	300	2	1.7	180	59	79	25	BRL(<0.45)	BRL(<0.45)	1.8	13	1.2	BRL (<0.54)	1.8
PFOA	0.72	300	0.72	BRL(<0.48)	5.1	3.2	0.81	0.96	BRL(<0.45)	BRL(<0.45)	BRL(<0.49)	0.57	BRL(<0.47)	BRL (<0.54)	BRL (<0.48)
PFHpA	0.5	300	0.5	BRL(<0.48)	1.1	BRL(<1.6)	BRL(<0.49)	BRL(<0.44)	BRL(<0.45)	BRL(<0.45)	BRL(<0.49)	BRL(<0.45)	BRL(<0.47)	BRL (<0.54)	BRL (<0.48)
PFNA	0.32	300	0.32	BRL(<0.48)	5.1	BRL(<1.6)	1.5	BRL(<0.44)	BRL(<0.45)	BRL(<0.45)	BRL(<0.49)	BRL(<0.45)	BRL(<0.47)	BRL (<0.54)	BRL (<0.48)
PFHxS	0.3	300	0.3	BRL(<0.48)	8.6	45	2.1	1.6	0.96	0.56	0.51	BRL(<0.45)	0.49	BRL (<0.54)	0.58
PFDA	0.3	300	0.3	BRL(<0.48)	BRL(<0.46)	1.6	BRL(<0.49)	BRL(<0.44)	BRL(<0.45)	BRL(<0.45)	BRL(<0.49)	BRL(<0.45)	BRL(<0.47)	BRL (<0.54)	BRL (<0.48)
Wet Chemistry															
Percent Solids (%)	NE	NE	NE	86.6	93.1	73.6	90.1	97.8	99.5	99.4	89.4	91.7	88.5	80	87.2
Total Iron (mg/kg)	NE	NE	NE	4300	---	---	4950	---	---	---	3110	---	---	---	---
TOC (mg/kg dry)	NE	NE	NE	6350	---	---	5810	---	---	---	16200	---	---	---	---

- Notes:
- 1. PFOS: Perfluorooctanesulfonic acid (PFOS)
 - 2. PFOA: Perfluoro-n-Octanoic Acid
 - 3. PFHpA: Perfluoroheptanoic Acid
 - 4. PFHxS: Perfluorohexane Sulfonate
 - 5. PFNA: Perfluorononanoic Acid
 - 6. PFDA: Perfluorodecanoic acid
 - 7. Concentrations in µg/kg - micrograms per kilogram
 - 8. (BRL <0.14) - Below Laboratory Detection Limit shown in parentheses.
 - 9. MassDEP finalized and established standards for 6 indiviudal PFAS compounds in soil on December 27, 2019.
(PFOS, PFOA, PFHpA, PFNA, PFHxs, and PFDA) compounds.
 - 10. Bolded values indicate concentrations above the aplicable MCP Method 1 Risk Standards.
 - 11. NE - Not Established

Table 5A - Summary of Phase II CSA Shallow Soil Analytical Results
Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

Transect	MCP Method 1 S-1/GW-1 Soil Standards	MCP Method 1 S-1/GW-3 Soil Standards	MCP Method 1 S-2/GW-1 Soil Standards	Transect E									
SAMPLE ID				SS-117		SS-118					SS-120		SS-212
Distance from Fenceline				Adjacent		10 feet					50 feet		100 feet
SAMPLE DEPTH (FT/INCHES)				0-3"	16-20"	FM	0-3"	16-20"	5'	10'	0-6"	16-20"	0-6"
SAMPLING DATE				10/3/2022		10/3/2022					6/15/2023		6/15/2023
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
PFAS (ASTM Method D7968-17a m or PACE SOP 466)													
PFOS	2	300	2	23	42	5.2	33	14	6.1	BRL(<0.43)	1.8	3.5	2.4
PFOA	0.72	300	0.72	0.84	1.5	BRL(<0.87)	1.4	BRL(<0.43)	BRL(<0.43)	BRL(<0.43)	BRL (<0.53)	0.51	BRL (<0.48)
PFHpA	0.5	300	0.5	0.5	0.58	BRL(<0.87)	0.55	BRL(<0.43)	BRL(<0.43)	BRL(<0.43)	BRL (<0.53)	BRL (<0.50)	BRL (<0.48)
PFNA	0.32	300	0.32	BRL(<0.46)	0.85	BRL(<0.87)	3	0.94	0.45	BRL(<0.43)	BRL (<0.53)	0.65	BRL (<0.48)
PFHxS	0.3	300	0.3	11	8.7	2.8	1.4	BRL(<0.43)	BRL(<0.43)	BRL(<0.43)	BRL (<0.53)	0.56	BRL (<0.48)
PFDA	0.3	300	0.3	BRL(<0.46)	1.6	BRL(<0.87)	BRL(<0.48)	BRL(<0.43)	BRL(<0.43)	BRL(<0.43)	BRL (<0.53)	BRL (<0.50)	BRL (<0.48)
Wet Chemistry													
Percent Solids (%)	NE	NE	NE	97	97.9	51.4	87.1	97.5	99.4	98.7	83.1	85	89.5
Total Iron (mg/kg)	NE	NE	NE	14000	---	---	5440	---	---	---	---	---	---
TOC (mg/kg dry)	NE	NE	NE	12400	---	---	5310	---	---	---	---	---	---

- Notes:
- 1. PFOS: Perfluorooctanesulfonic acid (PFOS)
 - 2. PFOA: Perfluoro-n-Octanoic Acid
 - 3. PFHpA: Perfluoroheptanoic Acid
 - 4. PFHxS: Perfluorohexane Sulfonate
 - 5. PFNA: Perfluorononanoic Acid
 - 6. PFDA: Perfluorodecanoic acid
 - 7. Concentrations in µg/kg - micrograms per kilogram
 - 8. (BRL <0.14) - Below Laboratory Detection Limit shown in parentheses.
 - 9. MassDEP finalized and established standards for 6 indiviudal PFAS compounds in soil on December 27, 2019.
(PFOS, PFOA, PFHpA, PFNA, PFHxs, and PFDA) compounds.
 - 10. Bolded values indicate concentrations above the aplicable MCP Method 1 Risk Standards.
 - 11. NE - Not Established

Table 5A - Summary of Phase II CSA Shallow Soil Analytical Results
Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

Transect	MCP Method 1 S-1/GW-1 Soil Standards	MCP Method 1 S-1/GW-3 Soil Standards	MCP Method 1 S-2/GW-1 Soil Standards	Transect F								Between FTA & Flintrock Pond							
SAMPLE ID				SS-121		SS-122					SS-213	SS-201	SS-202	SS-203	SS-204		SS-214		
Distance from Fenceline				Adjacent		10 feet					100 feet	N/A							
SAMPLE DEPTH (FT/INCHES)				0-3"	16-20"	FM	0-3"	16-20"	5'	10'	0-6"	0-6"	0-6"	0-6"	12-16"	0-6"	14-20"		
SAMPLING DATE				10/3/2022		10/3/2022					6/15/2023	6/15/2023							
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	
PFAS (ASTM Method D7968-17a m or PACE SOP 466)																			
PFOS	2	300	2	4.7	8.7	6	28	0.86	BRL(<0.43)	BRL(<0.43)	2	0.6	0.71	2.3	12	13	0.75	1.6	
PFOA	0.72	300	0.72	0.61	BRL(<0.45)	BRL(<0.90)	2.3	0.86	BRL(<0.43)	BRL(<0.43)	0.64	BRL (<0.50)	BRL (<0.46)	BRL (<0.51)	0.51	BRL (<0.46)	BRL (<0.52)	BRL (<0.53)	
PFHpA	0.5	300	0.5	BRL(<0.50)	BRL(<0.45)	BRL(<0.90)	BRL(<0.46)	BRL(<0.42)	BRL(<0.43)	BRL(<0.43)	BRL (<0.51)	BRL (<0.50)	BRL (<0.46)	BRL (<0.51)	BRL (<0.49)	BRL (<0.46)	BRL (<0.52)	BRL (<0.53)	
PFNA	0.32	300	0.32	BRL(<0.50)	0.46	BRL(<0.90)	1.1	BRL(<0.42)	BRL(<0.43)	BRL(<0.43)	BRL (<0.51)	BRL (<0.50)	BRL (<0.46)	BRL (<0.51)	BRL (<0.49)	BRL (<0.46)	BRL (<0.52)	BRL (<0.53)	
PFHxS	0.3	300	0.3	1.1	BRL(<0.45)	1.9	1.5	0.68	0.53	BRL(<0.43)	BRL (<0.51)	BRL (<0.50)	BRL (<0.46)	BRL (<0.51)	0.73	BRL (<0.46)	BRL (<0.52)	BRL (<0.53)	
PFDA	0.3	300	0.3	0.53	BRL(<0.45)	1.3	BRL(<0.46)	BRL(<0.42)	BRL(<0.43)	BRL(<0.43)	BRL (<0.51)	BRL (<0.50)	BRL (<0.46)	BRL (<0.51)	BRL (<0.49)	BRL (<0.46)	BRL (<0.52)	BRL (<0.53)	
Wet Chemistry																			
Percent Solids (%)	NE	NE	NE	87.8	93.3	46.8	94.3	98.5	99.4	97.1	85.1	87.4	91.8	87.7	88.3	90.1	80.8	81.8	
Total Iron (mg/kg)	NE	NE	NE	5,090	---	---	3170	---	---	---	---	---	---	---	---	---	---	---	
TOC (mg/kg dry)	NE	NE	NE	10,200	---	---	9200	---	1	---	---	---	---	---	---	---	---	---	

- Notes:
- 1. PFOS: Perfluorooctanesulfonic acid (PFOS)
 - 2. PFOA: Perfluoro-n-Octanoic Acid
 - 3. PFHpA: Perfluoroheptanoic Acid
 - 4. PFHxS: Perfluorohexane Sulfonate
 - 5. PFNA: Perfluorononanoic Acid
 - 6. PFDA: Perfluorodecanoic acid
 - 7. Concentrations in µg/kg - micrograms per kilogram
 - 8. (BRL <0.14) - Below Laboratory Detection Limit shown in parentheses.
 - 9. MassDEP finalized and established standards for 6 indiviudal PFAS compounds in soil on December 27, 2019.
(PFOS, PFOA, PFHpA, PFNA, PFHxs, and PFDA) compounds.
 - 10. Bolded values indicate concentrations above the aplicable MCP Method 1 Risk Standards.
 - 11. NE - Not Established

Table 5B - Summary of Phase II CSA Soil Boring PFAS Analytical Data - MW-400 Series PC-39D
 Barnstable County Fire and Rescue Training Academy
 155 S. Flint Rock Road, Barnstable, MA
 RTN 4-26179

SAMPLE ID	MCP Method 1 S-1/GW-1 Soil Standards	MCP Method 1 S-1/GW-3 Soil Standards	MCP Method 1 S-2/GW-1 Soil Standards	MCP Method 1 S-3/GW-1 Soil Standards	PC-39D	MW-401D	MW-402D	MW-403D
SAMPLE DEPTH (FT)					28-30'	50-52'	34-35'	18-20'
SAMPLING DATE					7/10/2023	7/11/2023	7/12/2023	7/14/2023
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
PFAS (PACE SOP 466)								
PFOS	2	300	2	2	BRL(<0.50)	BRL(<0.54)	BRL(<0.52)	BRL(<0.45)
PFOA	0.72	300	0.72	0.72	BRL(<0.50)	BRL(<0.54)	BRL(<0.52)	BRL(<0.45)
PFHpA	0.5	300	0.5	0.5	BRL(<0.50)	BRL(<0.54)	BRL(<0.52)	BRL(<0.45)
PFNA	0.32	300	0.32	0.32	BRL(<0.50)	BRL(<0.54)	BRL(<0.52)	BRL(<0.45)
PFHxS	0.3	300	0.3	0.3	BRL(<0.50)	BRL(<0.54)	BRL(<0.52)	BRL(<0.45)
PFDA	0.3	300	0.3	0.3	BRL(<0.50)	BRL(<0.54)	BRL(<0.52)	BRL(<0.45)
PFAS (ASTM Method D7968-17a m)								
% Solids	NE	NE	NE	NE	87.2	81.3	83.9	98.1

Notes:

1. PFOS: Perfluorooctanesulfonic acid (PFOS)
2. PFOA: Perfluoro-n-Octanoic Acid
3. PFHpA: Perfluoroheptanoic Acid (PFHpA)
4. PFHxS: Perfluorohexane Sulfonate
5. PFNA: Perfluorononanoic Acid
6. PFDA: Perfluorodecanoic acid
7. Concentrations in µg/kg - micrograms per kilogram
8. (BRL <0.14) - Below Laboratory Detection Limit shown in parentheses.
9. MassDEP finalized and established standards for 6 individual PFAS compounds in soil on December 27, 2019.
(PFOS, PFOA, PFHpA, PFNA, PFHxS, and PFDA) compounds.
10. Bolded values indicate concentrations above the MCP applicable Method 1 S-1 Soil Standards
11. NE - Not Established

Table 6 - Summary of Mary Dunn Pond Sediment Analytical Results
Former Barnstable County Fire Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	MDP-101	MDP-102	MDP-103	MDP-104	MDP-105	MDP-106
SAMPLE DATE	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Per- and polyfluoroalkyl substances (PFAS)						
Perfluorooctanesulfonic acid (PFOS)	16	1.80	7.70	11	20	20
Perfluoro-n-Octanoic Acid (PFOA)	BRL (<2.0)	BRL (<0.61)	BRL (<1.7)	BRL (<3.8)	BRL (<4.3)	BRL (<3.8)
Perfluoroheptanoic Acid (PFHpA)	BRL (<2.0)	BRL (<0.61)	BRL (<1.7)	BRL (<3.8)	BRL (<4.3)	BRL (<3.8)
Perfluorohexane Sulfonate (PFHxS)	BRL (<2.0)	BRL (<0.61)	BRL (<1.7)	BRL (<3.8)	BRL (<4.3)	BRL (<3.8)
Perfluorononanoic Acid (PFNA)	BRL (<2.0)	BRL (<0.61)	BRL (<1.7)	BRL (<3.8)	BRL (<4.3)	BRL (<3.8)
Perfluorodecanoic acid (PFDA)	BRL (<2.0)	BRL (<0.61)	BRL (<1.7)	BRL (<3.8)	BRL (<4.3)	BRL (<3.8)
% Solids	21.30	69.80	25.0	11.2	9.78	11

Notes: (Applicable to all pages within table)

1.(<500) - Below Laboratory Detection Limit shown in parentheses.

2. µg/kg - micrograms per kilograms (parts per billion-ppb).

3. Field Duplicate - Duplicate Sediment Sample Collected at MDP-112

4. Field Duplicate and Rinsate Blank samples were collected as quality control samples as required by the PFAS Analytical Methods.

5. There is no official or draft MassDEP standards for contaminants in sediments.

Table 6 - Summary of Mary Dunn Pond Sediment Analytical Results
Former Barnstable County Fire Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	MDP-107	MDP-108	MDP-109	MDP-110	MDP-111	MDP-112
SAMPLE DATE	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Per- and polyfluoroalkyl substances (PFAS)						
Perfluorooctanesulfonic acid (PFOS)	15	9.90	12	12	6.10	1.5
Perfluoro-n-Octanoic Acid (PFOA)	BRL (<3.8)	BRL (<3.9)	BRL (<4.1)	BRL (<4.4)	BRL (<3.6)	BRL (<0.44)
Perfluoroheptanoic Acid (PFHpA)	BRL (<3.8)	BRL (<3.9)	BRL (<4.1)	BRL (<4.4)	BRL (<3.6)	BRL (<0.44)
Perfluorohexane Sulfonate (PFHxS)	BRL (<3.8)	BRL (<3.9)	BRL (<4.1)	BRL (<4.4)	BRL (<3.6)	BRL (<0.44)
Perfluorononanoic Acid (PFNA)	BRL (<3.8)	BRL (<3.9)	BRL (<4.1)	BRL (<4.4)	BRL (<3.6)	BRL (<0.44)
Perfluorodecanoic acid (PFDA)	BRL (<3.8)	BRL (<3.9)	BRL (<4.1)	BRL (<4.4)	BRL (<3.6)	BRL (<0.44)
% Solids	11	11.10	10.20	9.59	12.20	---

Notes: (Applicable to all pages within table)

1.(<500) - Below Laboratory Detection Limit shown in parentheses.

2. µg/kg - micrograms per kilograms (parts per billion-ppb).

3. Field Duplicate - Duplicate Sediment Sample Collected at MDP-112

4. Field Duplicate and Rinsate Blank samples were collected as quality control samples as required by the PFAS Analytical Methods.

5. There is no official or draft MassDEP standards for contaminants in sediments.

Table 6 - Summary of Mary Dunn Pond Sediment Analytical Results
Former Barnstable County Fire Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	MDP-113	MDP-114	MDP-115	MDP-116	MDP-DUP
SAMPLE DATE	6/21/2023	6/21/2023	6/21/2023	6/21/2023	6/21/2023
UNITS	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Per- and polyfluoroalkyl substances (PFAS)					
Perfluorooctanesulfonic acid (PFOS)	20	4.40	6.9	BRL (<0.51)	12
Perfluoro-n-Octanoic Acid (PFOA)	BRL (<5.2)	BRL (<2.5)	BRL (<2.3)	BRL (<0.51)	BRL (<3.5)
Perfluoroheptanoic Acid (PFHpA)	BRL (<5.2)	BRL (<2.5)	BRL (<2.3)	BRL (<0.51)	BRL (<3.5)
Perfluorohexane Sulfonate (PFHxS)	BRL (<5.2)	BRL (<2.5)	BRL (<2.3)	BRL (<0.51)	BRL (<3.5)
Perfluorononanoic Acid (PFNA)	BRL (<5.2)	BRL (<2.5)	BRL (<2.3)	BRL (<0.51)	BRL (<3.5)
Perfluorodecanoic acid (PFDA)	BRL (<5.2)	BRL (<2.5)	BRL (<2.3)	BRL (<0.51)	BRL (<3.5)
% Solids	7.90	17.50	19.10	86.5	12.70

Notes: (Applicable to all pages within table)

1.(<500) - Below Laboratory Detection Limit shown in parentheses.

2. µg/kg - micrograms per kilograms (parts per billion-ppb).

3. Field Duplicate - Duplicate Sediment Sample Collected at MDP-112

4. Field Duplicate and Rinsate Blank samples were collected as quality control samples as required by the PFAS Analytical Methods.

5. There is no official or draft MassDEP standards for contaminants in sediments.

Table 7 - Summary of Mary Dunn Pond Surface Water Analytical Results
 Barnstable County Fire & Rescue Training Academy
 155 S. Flint Rock Road, Barnstable, MA
 RTN 4-26179

SAMPLE ID	MDP-SW1	MDP-SW2	MDP-SW3
Sampling Date	6/21/2023	6/21/2023	6/21/2023
Units	ng/L	ng/L	ng/L
Per- and polyfluoroalkyl substances (PFAS)			
Perfluorooctane Sulfonate (PFOS)	16	13	25
Perfluoro-n-Octanoic Acid (PFOA)	2.5	2.3	2.7
Perfluoroheptanoic Acid (PFHpA)	4	3.4	4
Perfluorohexane Sulfonate (PFHxS)	10	8.4	9.3
Perfluorononanoic Acid (PFNA)	2.6	2.1	3.1
Perfluorodecanoic acid (PFDA)	BRL (<1.8)	BRL (<1.8)	BRL (<1.9)
TOTAL Σ6 PFAS	35.1	29.2	44.1

Notes:

1. (<5.6) - Below Laboratory Detection Limit, shown in parentheses.
2. ng/L - nanograms per liter; parts per trillion (ppt).
3. NE - Not Established.

Table 8 - Summary of HW-S Groundwater Analytical Results
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	USEPA ^{1,2} HEALTH ADVISORY	Method 1 GW 1 Standards ⁴	HW-S(S)	HW-S(M)
SCREEN DEPTH (FEET)			12.1-22.1	27.04-32.04
SAMPLING DATE			6/9/2023	6/9/2023
UNITS	ng/L	ng/L	ng/L	ng/L
PFAS (PACE SOP 454)				
PFOS	70	20	300	310
PFOA	70	20	67	35
PFNA	NE	20	60	30
PFHxS	NE	20	40	25
PFHpA	NE	20	61	31
PFDA	NE	20	BRL (<1.9)	BRL (<1.8)
TOTAL Σ6 PFAS	70	20	528	431

Notes:

1. BRL - Below Laboratory Detection Limits
2. Concentrations presented in ng/L - nanograms per Liter - parts per trillion
3. Concentrations in bold exceed applicable MCP Method 1 GW-1 Standard
4. PFOS - Perfluorooctanesulfonate
5. PFOA - Perfluorooctanoic Acid
6. PFNA - Perfluorononanoic Acid
7. PFHxS - Perfluorohexanesulfonic Acid
8. PFHpA - Perfluoroheptanoic Acid
9. PFDA - Perfluorodecanoic Acid

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	HSW-6/HS-2(a)																		HSW-1/HS-1(a)																	
SCREEN DEPTH (FEET)		Unknown ¹⁶																		Unknown ¹⁶																	
WELL DIAMETER (INCHES)		2																		2																	
WELL STATUS		Viable																		Viable																	
SAMPLING DATE		1/21/2016	3/30/2016	8/11/2016	4/10/2017	7/27/2017	11/17/2017	2/9/2018	6/26/2018	1/9/2019	10/28/2019	7/28/2020	10/20/2020	1/26/2021	5/20/2021	7/28/2021	11/2/2021	1/25/2022	11/9/2022	1/21/2016	8/11/2016	4/10/2017	7/27/2017	11/17/2017	2/9/2018	1/9/2019	4/23/2019	7/22/2019	10/28/2019	2/18/2020	5/11/2020	11/2/2021					
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L						
PFAS (Method 537.1m or PACE SOP 454)																																					
PFOS	20	77,000	320,000	41,000	28,000	21,000	45,000	25,000	950	1,300	3,600	2,300	5,700	2,800	2,700	1,500	1,900	1,600	1,700	110,000	56,000	38,000	24,000	25,000	13,000	1,800	2,000	1,100	1,800	740	1,300	1,800					
PFOA	20	--	--	--	660	--	320	160	15	94	79	80	48	320	180	45	550	170	160	--	--	1,000	350	1,300	320	840	100	64	46	36	100	470					
PFNA	20	--	--	--	--	--	--	--	BRL (<87)	26	46	40	52	35	47	57	65	46	150	--	--	--	--	--	--	43	65	43	33	22	57	46					
PFHxS	20	--	--	--	--	--	--	--	26	140	310	350	71	1,400	440	100	2,500	410	350	--	--	--	--	--	--	1,700	300	170	150	66	300	1,600					
PFHpA	20	--	--	--	--	--	--	--	15	66	100	69	56	640	150	49	870	160	200	--	--	--	--	--	--	510	67	52	43	32	63	430					
PFDA	20	--	--	--	--	--	--	--	--	--	30	18	23	21	19	13	12	7	19	--	--	--	--	--	--	--	55	19	13	9.1	37	12					
TOTAL ~~16~~ PFAS	20	77,000	320,000	41,000	28,660	21,000	45,320	25,160	1,006	1,626	4,165	2,857	5,950	5,216	3,536	1,764	5,897	2,393	2,579	110,000	56,000	39,000	24,350	26,300	13,320	4,893	2,587	1,448	2,085	905	1,857	4,358					

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and COC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	PFW-1																												
SCREEN DEPTH (FEET)		10-19																												
WELL DIAMETER (INCHES)		2																												
WELL STATUS		Viable																												
SAMPLING DATE		4/1/2015	10/7/2015	3/8/2016	3/30/2016	8/11/2016	4/10/2017	2/9/2018	6/26/2018	1/9/2019	4/23/2019	7/22/2019	10/28/2019	2/18/2020	5/11/2020	7/28/2020	10/20/2020	1/26/2021	5/20/2021	7/28/2021	11/2/2021	1/25/2022	4/21/2022	7/27/2022	11/9/2022	1/31/2023	4/4/2023	7/25/2023		
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L		
PFAS (Method 537.1m or PACE SOP 454)																														
PFOS	20	8,400	60,000	7,000	56,000	3,500	4,100	8,100	76,000	38,000	20,000	24,000	16,000	22,000	6,000	5,200	4,000	3,400	3,100	3,300	3,900	4,400	4,500	7,600	7,100	15,000	15,000	15,000		
PFOA	20	360	800	--	--	--	--	470	1,500	160	300	560	130	220	250	210	110	150	160	330	170	270	260	540	500	330	200	730		
PFNA	20	--	--	--	--	--	--	--	3,900	330	360	210	570	230	94	110	80	94	66	50	69	120	74	99	170	210	150	290		
PFHxS	20	--	--	--	--	--	--	--	7,400	960	1,500	4,800	910	1,000	890	820	450	750	750	2,500	870	1,000	1,500	3,300	2,000	1,500	910	2,500		
PFHpA	20	--	--	--	--	--	--	--	610	140	290	500	150	200	220	160	82	200	250	440	190	390	350	660	330	370	160	390		
PFDA	20	--	--	--	--	--	--	--	--	--	110	160	120	200	81	89	37	69	45	28	54	36	36	38	42	78	79	92		
TOTAL ~~16~~ PFAS	20	8,760	60,800	7,000	56000	3500	4,100	8,570	89,410	39,590	22,560	30,230	17,880	23,850	7,535	6,589	4,759	4,663	4,371	6,648	5,253	6,216	6,720	12,237	10,142	17,488	16,499	19,002		

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and CDC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	PFW-2																					
SCREEN DEPTH (FEET)		10-20																					
WELL DIAMETER (INCHES)		2																					
WELL STATUS		Viable																					
SAMPLING DATE		4/1/2015	6/18/2015	10/27/2015	1/21/2016	3/30/2016	8/11/2016	12/8/2016	4/10/2017	7/27/2017	11/17/2017	2/9/2018	1/9/2019	10/28/2019	5/11/2020	10/20/2020	11/2/2021	4/21/2022	7/27/2022	11/9/2022	1/31/2023	4/2/2023	7/25/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (Method 537.1m or PACE SOP 454)																							
PFOS	20	220,000	200,000	32,000	39,000	120,000	65,000	13,000	17,000	73,000	25,000	32,000	5,200	2,100	690	1,700	1,200	630	2,600	1,900	1,600	1,100	3,300
PFOA	20	5200	BRL(<800)	--	1,100	2,100	--	--	970	910	400	400	720	74	48	30	170	620	190	110	250	730	240
PFNA	20	--	--	--	--	--	--	--	--	--	--	--	110	64	39	52	32	64	140	86	64	160	160
PFHxS	20	--	--	--	--	--	--	--	--	--	--	--	1,800	230	140	71	650	940	470	310	620	1,000	640
PFFHpA	20	--	--	--	--	--	--	--	--	--	--	--	470	68	45	31	270	250	130	180	190	32	150
PFDA	20	--	--	--	--	--	--	--	--	--	--	--	--	27	14	23	4	6.8	15.0	27	BRL (<20)	11	42
TOTAL ~~16~~ PFAS	20	225,200	200,000	32,000	40,100	122,100	65,000	13,000	17,970	73,910	25,400	32,400	8,300	2,563	976	1,907	2,326	2,511	3,545	2,613	2,724	3,033	4,532

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and CDC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	PFW-5																				
SCREEN DEPTH (FEET)		10-20																				
WELL DIAMETER (INCHES)		2																				
WELL STATUS		Viable																				
SAMPLING DATE		3/31/2015	4/11/2017	1/9/2019	4/23/2019	7/22/2019	10/28/2019	2/18/2020	5/11/2020	7/28/2020	10/20/2020	1/26/2021	5/19/2020	7/28/2021	11/2/2021	1/25/2022	4/21/2022	7/27/2022	11/9/2022	1/31/2023	4/4/2023	7/25/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (Method 537.1m or PACE SOP 454)																						
PFOS	20	2,700	2,100	1,100	1,900	1,600	2,400	1,000	1,200	980	1,500	1,200	1,200	3,100	370	370	1,000	1,100	2,700	1,100	660	2,200
PFOA	20	250	170	64	150	120	26	88	120	100	120	84	120	180	89	150	73	14	24	110	110	99
PFNA	20	--	--	BRL (<8.7)	25	16	BRL (<4.9)	11	22	15	29	32	27	15	12	8.6	40.0	5.5	5.5	24.0	55.0	24.0
PFHxS	20	--	--	240	680	630	260	360	720	610	420	310	790	1,100	560	1,300	340	67	500	580	670	860
PFFHpA	20	--	--	30	82	54	22	56	66	44	60	80	110	160	76	240	45	9.2	20	48	100	34
PFDA	20	--	--	--	12	11	BRL (<4.1)	10	13	11	16	5	7	7	BRL (<3.9)	5.4	11.0	13.0	7.8	BRL (<20)	5.1	7.7
TOTAL ~~16~~ PFAS	20	2,950	2,270	1,434	2,849	2,431	2,708	1,525	2,141	1,760	2,145	1,711	2,254	4,562	1,107	2,074	1,509	1,209	3,257	1,862	1,600	3,225

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and COC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	OW-8A																									FS-1SA	
SCREEN DEPTH (FEET)		15-25																									10-20	
WELL DIAMETER (INCHES)		2																									2	
WELL STATUS		Viable																									Viable	
SAMPLING DATE		11/22/2013	6/3/2014	4/11/2017	8/16/2017	6/26/2018	1/9/2019	4/23/2019	7/22/2019	10/28/2019	2/18/2020	5/11/2020	7/28/2020	10/20/2020	1/26/2021	5/19/2021	7/28/2021	11/3/2021	1/25/2022	4/21/2022	7/27/2022	11/9/2022	1/31/2023	4/4/2023	7/25/2023	6/16/2016	5/19/2021	
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	
PFAS (Method 537.1m or PACE SOP 454)																												
PFOS	20	2,700	8,600	1,700	770	2,800	990	880	780	220	650	150	170	40	230	120	11	520	120	1,200	130	76	480	680	130	1,700	12	
PFOA	20	430	1,000	2,000	120	65	420	66	55	130	62	18	12	BRL (<5.0)	290	120	7	720	11	260	16	13	410	210	11	550	BRL (5.0)	
PFNA	20	--	--	--	--	310	150	120	78	10	110	12	11	BRL (<5.1)	120	250	BRL (<5.1)	70	BRL (<5.1)	100	20	BRL (<1.9)	48	25	3	--	BRL (<5.1)	
PFHxS	20	--	--	--	--	250	890	140	100	750	190	77	30	11	760	330	23	3,100	39	620	45	70	2,000	660	42	--	BRL (<4.4)	
PFHpA	20	--	--	--	--	43	210	40	26	190	35	8.9	7.4	BRL (<6.7)	150	66	BRL (<6.7)	360	12	130	12	10	180	140	10	--	BRL (<6.7)	
PFDA	20	--	--	--	--	--	--	15	18	14	17	3.6	10	BRL (<3.9)	BRL (<2.0)	3.9	BRL (<3.9)	BRL (<3.9)	BRL (<3.9)	15.0	BRL (<3.9)	BRL (<1.9)	BRL (<10)	4.6	2.1	--	BRL (<3.9)	
TOTAL ~~16~~ PFAS	20	3,130	9,600	3,700	890	3,468	2,660	1,261	1,057	1,314	1,064	270	240	51	1,550	890	41	4,770	182	2,325	223	169	3,118	1,720	198	2,250	12	

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and CDC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	MW-3S							MW-12S																			
SCREEN DEPTH (FEET)		13.6-23.6							Unknown ¹⁶																			
WELL DIAMETER (INCHES)		2							2																			
WELL STATUS		Viable							Viable																			
SAMPLING DATE		6/3/2014	8/18/2016	11/3/2021	4/21/2022	7/27/2022	11/9/2022 ¹⁸	1/31/2023	8/20/2014	4/1/2015	6/26/2018	1/11/2019	4/23/2019	7/23/2019	10/29/2019	2/19/2020	5/12/2020	7/29/2020	10/21/2020	1/27/2021	5/20/2021	11/2/2021	1/25/2022	4/20/2022	7/28/2022	2/1/2023	4/5/2023	7/25/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (Method 537.1m or PACE SOP 454)																												
PFOS	20	4,900	1,900	1,400	1,300	1,600	4,200	830	2,500	4,800	3,000	2,700	2,800	2,800	2,300	3,100	3,500	2,900	3,900	2,300	360	1,400	950	1,700	1,500	1,100	630	1,100
PFOA	20	530	690	360	330	470	890	220	400	470	280	650	920	250	380	580	280	220	280	230	46	150	100	170	350	190	150	190
PFNA	20	--	--	36	64	68	110	24	--	--	56	64	92	87	80	78	86	51	51	28	6	27	27	18	17	21	14	27
PFHxS	20	--	--	1,800	1,100	1,200	1,600	910	--	--	1,200	1,500	1,700	880	1,300	1,200	1,100	900	93	630	170	670	390	830	900	580	400	800
PFHpA	20	--	--	210	160	190	530	81	--	--	130	490	440	170	310	390	140	120	110	74	14	73	63	75	100	66	71	120
PFDA	20	--	--	BRL (<3.9)	7	10	8.3	BRL (<10)	--	--	--	--	16	11	10	7.5	23	18	13	21	BRL (<3.9)	BRL (<3.9)	4.7	BRL (<6.4)	7.5	BRL (<10)	BRL (<4.1)	5.8
TOTAL ~~16~~ PFAS	20	5,430	2,590	3,806	2,961	3,538	7,338	2,065	2,900	5,270	4,666	5,404	5,968	4,198	4,380	5,356	5,129	4,209	4,447	3,283	596	2,320	1,535	2,793	2,875	1,957	1,265	2,243

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and COC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	MW-13		MW-22																				MW-23		MW-201					
SCREEN DEPTH (FEET)		27-37		14.5-24.5																				14-24		10-20					
WELL DIAMETER (INCHES)		2		2																				2		2					
WELL STATUS		Viable		Viable																				Viable		Viable					
SAMPLING DATE		7/29/2021	11/10/2022	6/3/2014	4/1/2015	6/26/2018	1/11/2019	4/23/2019	7/23/2019	10/29/2019	2/19/2020	5/12/2020	7/29/2020	10/21/20020	1/27/2021	5/20/2021	11/2/2021	1/25/2022	4/20/2022	7/28/2022	2/1/2023	4/5/2023	7/25/2023	7/29/2021	11/10/2022	5/19/2021	11/9/2022				
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L				
PFAS (Method 537.1m or PACE SOP 454)																															
PFOS	20	BRL(<0.020)	200	4,900	600	320	350	320	410	510	460	380	790	680	470	2,300	340	430	35	480	42	86	130	1,100	89	230	18				
PFOA	20	BRL(<0.020)	17	530	90	30	140	160	190	150	230	120	92	160	250	150	83	94	3.3	77.0	BRL (<10)	7.1	15	76	120	14	BRL (<1.9)				
PFNA	20	BRL(<0.020)	4.5	--	--	9	BRL (<8.7)	81	7.6	8.3	5	10	14	14	7	24	BRL (<5.1)	5.7	3.3	8.7	BRL (<10)	BRL (<1.8)	1.8	BRL (<20)	4.9	19	BRL (<1.9)				
PFHxS	20	BRL(<0.020)	95	--	--	130	680	600	520	690	540	330	360	740	800	570	220	280	18	370	25.0	23	67	260	180	84	15				
PFHpA	20	BRL(<0.020)	30	--	--	13	69	49	33	61	38	32	27	100	88	65	13	21	1	20	BRL (<10)	2	2	98	49	24	BRL (<1.9)				
PFDA	20	BRL(<0.020)	BRL (<1.9)	--	--	--	--	BRL (<4.1)	BRL (<4.1)	BRL (<4.1)	BRL (<4.1)	1	5	5	1	15	BRL (<3.9)	<3.9	<0.64	<3.9	BRL (<10)	BRL (<1.8)	BRL (<1.8)	BRL (<20)	BRL (<1.9)	BRL (<3.9)	BRL (<1.9)				
TOTAL ~~16~~ PFAS	20	0	346.5	5,430	690	502	1,239	1,210	1,161	1,419	1,273	873	1,288	1,699	1,616	3,124	656	831	60	956	67	118	216	1,534	443	371	33				

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and COC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	MW-35i							PC-1																											
SCREEN DEPTH (FEET)		Unknown ¹⁶							29-40																											
WELL DIAMETER (INCHES)		2							2																											
WELL STATUS		Viable							Viable																											
SAMPLING DATE		8/20/2014	5/3/2017	1/10/2019	10/30/2019	10/22/2020	11/2/2021	11/11/2022	6/17/2015	10/7/2015	3/30/2016	4/24/2017	2/6/2018	6/26/2018	1/11/2019	4/24/2019	7/23/2019	10/29/2019	2/19/2020	5/12/2020	7/28/2020	10/22/2020	1/27/2021	5/20/2021	11/1/2021	1/26/2022	4/20/2022	7/28/2022	11/10/2022	2/1/2023	4/5/2023	7/25/2023				
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L				
PFAS (Method 537.1m or PACE SOP 454)																																				
PFOS	20	60	42	BRL (<6)	BRL (<5.2)	BRL (<5.9)	BRL (<5.7)	23	48,000	2,000	56,000	5,700	9,000	10,000	1,700	8,000	4,300	1,600	1,700	1,900	1,200	1,500	1,500	440	630	660	940	850	78	510	440					
PFOA	20	BRL	14	BRL (<3.3)	BRL (<7.4)	BRL (<5.0)	BRL (<5.0)	2.8	1,100	BRL (<800)	1,200	--	370	190	140	300	150	72	180	110	63	110	59	49	48	66	76	53	230	35	250	81				
PFNA	20	--	--	BRL (<8.7)	BRL (<4.9)	BRL (<5.1)	BRL (<5.1)	BRL (<1.9)	--	--	--	--	--	140	62	150	140	75	70	110	58	100	52	72	33	31	30	44	61	BRL (<10)	27	30				
PFHxS	20	--	--	BRL (<5.6)	6	6	10.0	17	--	--	--	--	--	850	380	650	430	380	450	400	240	350	190	230	170	180	270	240	960	110	540	140				
PFHpA	20	--	--	BRL (<7.4)	BRL (<7.1)	BRL (<6.7)	BRL (<6.7)	4.1	--	--	--	--	--	200	200	180	230	150	240	150	98	190	76	83	100	95	110	78	550	41	160	130				
PFDA	20	--	--	--	BRL (<4.1)	BRL (<3.9)	BRL (<3.9)	BRL (<1.9)	--	--	--	--	--	--	--	78	67	19	20	28	36	27	26	15	BRL (<3.9)	7.5	6.7	9.4	23.0	BRL (<10)	BRL (<4.2)	7.5				
TOTAL ~~16~~ PFAS	20	60	56	BRL	6	6	10	47	49,100	2,000	57,200	5,700	9,370	11,380	2,482	9,358	5,317	2,296	2,660	2,498	2,395	1,977	1,903	1,949	791	1,010	1,153	1,364	2,674	264	1,487	829				

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and CDC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	PC-6A																					
SCREEN DEPTH (FEET)		35-45																					
WELL DIAMETER (INCHES)		2																					
WELL STATUS		Viable																					
SAMPLING DATE		3/9/2016	4/27/2017	6/26/2018	1/10/2019	4/24/2019	7/23/2019	10/29/2019	2/19/2020	5/12/2020	7/29/2020	10/21/2020	1/27/2021	5/20/2021	7/28/2021	11/1/2021	1/26/2022	4/20/2022	7/28/2022	11/10/2022	2/1/2023	4/5/2023	7/25/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (Method 537.1m or PACE SOP 454)																							
PFOS	20	1,300	3,200	1,300	1,800	1,900	940	1,100	1,600	86	1,300	920	1,100	920	500	550	760	1,100	730	470	640	390	440
PFOA	20	110	150	60	30	68	33	62	67	4.1	37	28	35	31	14	22	29	34	26	30	29	27	19
PFNA	20	--	--	55	25	60	36	48	65	3.8	44	44	58	45	23	32	41	72	42	47	58	45	29
PFHxS	20	--	--	300	190	310	150	290	180	23	99	71	83	72	49	59	62	83	62	72	72	65	53
PFFHpA	20	--	--	75	37	83	45	86	71	9	43	37	43	42	24	32	39	40	33	47	37	36	26
PFDA	20					10	BRL (<4.1)	7.4	5.9	0.7	11	12	12	11	3.9	10	10	16	11	12	13	9	8
TOTAL ~~16~~ PFAS	20	1,410	3,350	1,790	2,082	2,431	1,204	1,583	1,989	127	1,534	1,112	1,331	1,121	614	705	941	1,345	904	678	849	572	575

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and COC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	PC-11																				PC-14				
SCREEN DEPTH (FEET)		35-45																				28-38				
WELL DIAMETER (INCHES)		2																				2				
WELL STATUS		Viable																				Viable				
SAMPLING DATE		4/2/2015	5/12/2016	4/24/2017	2/6/2018	6/26/2018	1/10/2019	4/24/2019	7/23/2019	10/29/2019	2/19/2020	5/12/2020	7/29/2020	10/21/2020	1/27/2021	5/19/2021	7/28/2021	11/1/2021	1/26/2022	4/20/2022	11/10/2022	8/20/2014	3/30/2016	4/28/2017	11/2/2021	11/11/2022
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (Method 537.1m or PACE SOP 454)																										
PFOS	20	4,400	32,000	3,600	4,000	9,600	14,000	200,000	68,000	22,000	18,000	12,000	9,500	7,200	2,700	2,100	2,400	2,900	1,900	1,600	2,300	550	2,100	1,600	700	700
PFOA	20	550	430	250	180	250	410	640	BRL (<240)	150	290	140	130	150	78	59	74	58	40	70	120	40	250	160	26	76
PFNA	20	--	--	--	--	230	190	1,700	540	320	140	130	110	100	74	69	61	78	63	88	82	--	--	--	37	69
PFHxS	20	--	--	--	--	1,500	1,500	2,400	1,200	800	1,300	720	610	640	250	170	320	270	160	240	620	--	--	--	92	160
PFHpA	20	--	--	--	--	200	310	210	BRL (<210)	160	210	140	130	160	92	65	75	88	60	87	210	--	--	--	43	62
PFDA	20	--	--	--	--	--	--	450	BRL (<260)	73	69	56	55	52	69	32	31	21	18	20	22	--	--	--	BRL (<3.9)	7.3
TOTAL ~~16~~ PFAS	20	4950	32430	3850	4180	11,780	16,410	205,400	69,740	23,503	20,009	13,186	10,535	8,302	3,263	2,495	2,961	3,415	2,241	2,105	3,354	590	2,350	1,760	898	1,074

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and CDC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	PC-16d																								PC-18							
SCREEN DEPTH (FEET)		Unknown ¹⁶																								40-50							
WELL DIAMETER (INCHES)		2																								2							
WELL STATUS		Viable																								Viable							
SAMPLING DATE		4/2/2015	10/7/2015	2/6/2018	6/26/2018	1/10/2019	4/24/2019	7/23/2019	10/29/2019	2/19/2020	5/12/2020	7/28/2020	10/21/2020	1/27/2021	5/20/2021	7/28/2021	11/1/2021	1/26/2022	4/20/2022	7/28/2022	11/10/2022	2/1/2023	4/5/2023	7/26/2023	6/17/2015	10/7/2015	4/27/2017	2/6/2018	1/10/2019	10/29/2019	10/21/2020	11/1/2021	11/10/2022
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (Method 537.1m or PACE SOP 454)																																	
PFOS	20	700	560	980	1,900	1,600	2,000	1,400	1,300	1,600	1,200	930	1,900	690	1,200	460	250	300	580	1,300	1,700	290	1,300	410	1,200	900	580	890	1,500	1,500	330	290	140
PFOA	20	70	84	64	150	9.3	140	33	75	130	57	99	99	46	70	18	8.9	18	38	130	89	16	120	20	110	590	--	70	110	75	18	6.3	8.2
PFNA	20	--	--	--	100	BRL (<8.7)	110	36	79	110	63	49	62	48	83	23	8.9	26	45	70	59	18	72	25	--	--	--	--	130	79	20	10	12
PFHxS	20	--	--	--	670	60	520	270	220	360	170	260	280	110	16	72	49	55	160	680	360	75	490	88	--	--	--	--	540	220	57	59	32
PFHpA	20	--	--	--	170	13	140	74	80	92	61	68	63	54	47	15	9	25	42	88	71	19	110	28	--	--	--	--	140	80	21	20	18
PFDA	20	--	--	--	--	--	8.7	BRL (<4.1)	7.2	7.2	8.5	11	11	5	9	6	BRL (<3.9)	BRL (<3.9)	4.2	10.0	11.0	BRL (<10)	8.2	BRL (<10)	--	--	--	--	--	7.2	6.8	BRL (<3.9)	2.2
TOTAL ~~16~~ PFAS	20	770	644	1044	2,990	1,682	2,919	1,813	1,761	2,299	1,560	1,417	2,415	953	1,425	594	326	424	869	2,278	2,290	418	2,100	571	1310	1490	580	960	2420	1,961	453	385	212

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and COC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	PC-28																				
SCREEN DEPTH (FEET)		30-39																				
WELL DIAMETER (INCHES)		2																				
WELL STATUS		Viable																				
SAMPLING DATE		3/9/2016	4/28/2017	1/10/2019	4/24/2019	7/23/2019	10/28/2019	2/19/2020	5/12/2020	7/29/2020	10/21/2020	1/27/2021	5/20/2021	7/28/2021	11/3/2021	1/26/2022	4/20/2022	7/28/2022	11/10/2022	2/1/2023	4/4/2023	7/26/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (Method 537.1m or PACE SOP 454)																						
PFOS	20	400	770	38	18	82	270	270	430	200	1,100	1,200	820	100	730	670	1,200	550	960	1,200	600	190
PFOA	20	27	61	BRL (<3.3)	BRL (<7.4)	190	12	BRL (<7.4)	18	12	65	48	22	38	16	26	34	30	56	48	29	11
PFNA	20	--	--	BRL(<8.7)	BRL (<4.9)	BRL (<4.9)	9	BRL (<4.9)	15	10	49	61	33	45	23	28	59	45	82	95	46	17
PFHxS	20	--	--	17	15	30	94	72	120	71	230	170	110	120	85	83	95	75	130	120	76	55
PFFHpA	20	--	--	20	24	25	33	23	41	30	89	66	45	53	43	51	47	40	75	66	44	26
PFDA	20	--	--	--	BRL (<4.1)	BRL (<4.1)	BRL (<4.1)	BRL (<4.1)	2.2	BRL (<4.1)	8	10	6	9	BRL (<3.9)	7.5	14.0	9.0	15.0	18.0	10.0	4.8
TOTAL ~~16~~ PFAS	20	427	831	75	57	327	418	365	626	323	1,541	1,555	1,036	365	897	865.5	1,449.0	749.0	1,318.0	1,547.0	805.0	303.8

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and COC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	PC-30																							PC-34S					
SCREEN DEPTH (FEET)		39-49																							5-15					
WELL DIAMETER (INCHES)		2																							2					
WELL STATUS		Viable																							Viable					
SAMPLING DATE		3/9/2016	4/27/2017	2/6/2018	6/26/2018	1/10/2019	4/24/2019	7/23/2019	10/29/2019	2/19/2020	5/12/2020	7/29/2020	10/21/2020	1/27/2021	5/20/2021	7/28/2021	11/1/2021	1/26/2022	4/20/2022	7/28/2022	11/10/2022	2/1/2023	4/5/2023	7/25/2023	4/14/2016	11/2/2021	4/21/2022	7/27/2022	11/9/2022	1/31/2023
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS (Method 537.1m or PACE SOP 454)																														
PFOA	20	980	2,500	1,900	1,600	2,200	1,200	4,300	960	1,200	880	1,100	850	580	540	450	720	480	340	180	340	1,100	580	390	1,300	1,300	580	710	1,300	1,500
PFOA	20	88	--	98	99	85	85	79	55	130	45	38	32	48	26	21	30	25	23	16	21	45	35	26	72	74	65	69	80	94
PFNA	20	--	--	--	80	88	100	100	61	74	45	57	40	24	40	BRL (<5.1)	51	34	23	19	43	110	65	45	--	150	100	130	140	230
PFHxS	20	--	--	--	510	390	340	300	220	210	180	120	100	76	64	68	96	72	63	43	59	110	96	80	--	160	140	140	130	210
PFHpA	20	--	--	--	130	110	110	96	71	87	80	48	47	47	40	34	43	35	33	25	29	54	45	41	--	87	77	74	98	110
PFDA	20	--	--	--	--	--	12	BRL (<4.1)	6	5.9	8.2	7.7	6.2	5.3	5.2	4.9	BRL (<3.9)	6.4	4.7	4.8	5.3	16.0	10.0	6.9	--	7.8	7.2	8.6	16	17
TOTAL ~~16~~ PFAS	20	1068	2500	1998	2,419	2,873	1,847	4,875	1,373	1,707	1,238	1,371	1,075	780	715	578	940	652	487	288	497	1,435	831	589	1372	1,779	969	1,132	1,764	2,161

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and CDC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Table 9 - Summary of Long Term Groundwater Monitoring Data
Former Barnstable County Fire and Rescue Training Academy
155 S. Flint Rock Road, Barnstable, MA
RTN 4-26179

SAMPLE ID	Method 1 GW-1 Standards ⁴	PC-36S						PC-38										PC-39								PC-29	HW-1D ¹³											
SCREEN DEPTH (FEET)		14-24						Unknown ¹⁶										Unknown ¹⁶								25-35	Unknown ¹⁹											
WELL DIAMETER (INCHES)		2						2										2								2	2											
WELL STATUS		Viable						Viable										Viable								Viable	Viable											
SAMPLING DATE		4/14/2016	1/11/2019	10/29/2019	10/22/2020	11/3/2021	11/10/2022	4/24/2017	10/29/2019	5/12/2020	7/28/2020	10/21/2020	1/27/2021	5/20/2021	7/28/2021	11/1/2021	1/26/2022	11/10/2022	4/24/2017	2/19/2020	11/2/2021	7/28/2022	11/10/2022	2/1/2023	4/4/2023	7/26/2023	11/10/2022	5/3/2017	1/10/2019	10/28/2019	10/21/2020	11/3/2021	11/11/2022					
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L					
PFAS (Method 537.1m or PACE SOP 454)																																						
PFOS	20	35	64	1,200	700	640	760	BRL (<2.6)	BRL (<5.2)	4.5	BRL (<5.2)	BRL (<5.7)	3	BRL (<5.7)	BRL (<5.7)	BRL (<5.7)	BRL (<5.7)	5.5	1,200	820	140	180	160	180	96	54	2.4	25	BRL (<6)	BRL (<5.2)	BRL (<5.7)	BRL (<5.7)	17					
PFOA	20	BRL (<5.3)	BRL (<3.3)	54	36	32	37	BRL (<4.6)	BRL (<7.4)	BRL (<0.23)	BRL (<7.4)	BRL (<5.0)	BRL (<2.0)	BRL (<5.0)	BRL (<5.0)	BRL (<5.0)	BRL (<2.0)	46	28	BRL (<5.0)	BRL (<5.0)	2.2	BRL (<10)	BRL (<4.1)	BRL (<1.9)	BRL (<1.8)	8	BRL (<3.3)	BRL (<7.4)	BRL (<5.0)	BRL (<5.0)	BRL (<1.9)						
PFNA	20	--	BRL (<8.7)	80	57	71	120	--	BRL (<4.9)	BRL (<0.48)	BRL (<4.9)	BRL (<5.1)	BRL (<2.0)	BRL (<5.1)	BRL (<5.1)	BRL (<5.1)	BRL (<2.0)	--	61	6.9	6.0	5.2	BRL (<10)	BRL (<4.1)	2.4	BRL (<1.8)	--	BRL (<8.7)	BRL (<4.9)	BRL (<5.1)	BRL (<5.1)	BRL (<1.9)						
PFHxS	20	--	38	120	79	73	90	--	6	2.2	BRL (<5.2)	BRL (<4.4)	2	BRL (<4.4)	BRL (<4.4)	BRL (<4.4)	BRL (<4.4)	BRL (<2.0)	--	100	4.9	12.0	12	13	9.2	5.7	3.6	--	BRL (<5.6)	BRL (<5.2)	BRL (<4.4)	BRL (<4.4)	37					
PFHpA	20	--	BRL (<7.4)	62	42	38	49	--	BRL (<7.1)	BRL (<0.37)	BRL (<7.1)	BRL (<6.7)	BRL (<2.0)	BRL (<6.7)	BRL (<6.7)	BRL (<6.7)	BRL (<6.7)	BRL (<2.0)	--	28	BRL (<6.7)	BRL (<6.7)	4	BRL (<10)	BRL (<4.1)	2.4	BRL (<1.8)	--	BRL (<7.4)	BRL (<7.1)	BRL (<6.7)	BRL (<6.7)	BRL (<1.9)					
PFDA	20	--	--	11	11	11	13	--	BRL (<4.1)	BRL (<0.18)	BRL (<4.1)	BRL (<3.9)	BRL (<2.0)	BRL (<3.9)	BRL (<3.9)	BRL (<3.9)	BRL (<3.9)	BRL (<2.0)	--	BRL (<4.1)	BRL (<3.9)	BRL (<3.9)	BRL (<1.8)	BRL (<10)	BRL (<4.1)	BRL (<1.9)	BRL (<1.8)	--	--	BRL (<4.1)	BRL (<3.9)	BRL (<3.9)	BRL (<1.9)					
TOTAL ¹⁶ PFAS	20	35	102	1,527	925	865	1,069	BRL	6.1	6.7	BRL	BRL	4.3	BRL	BRL	BRL	BRL	5.5	1,246	1037	151.8	198	183.4	193	105.2	64.5	6	33	BRL	BRL	BRL	BRL	54					

Notes:

1. The complete PFAS concentration data set collected from PRW-4 is detailed in the data table titled "Summary of Groundwater Pump and Treatment System PFOS/PFOA Analytical Data in the IRA Status Reports. Data presented herein is summarized and data was selected based on quarterly sampling events.

2. On December 27, 2019 MassDEP MCP GW-1 Risk Standards for groundwater became final. The MCP GW-1 Risk Standard of 20 ng/L apply to the sum of and individual concentrations of the six PFAS compounds presented above.

3. BRL - Below Laboratory Detection Limits

4. Concentrations presented in ng/L - nanograms per Liter - parts per trillion

7. Concentrations in bold exceed applicable Health Advisory Limit or Method 1 GW-1 Standard

5. PFOS - Perfluorooctanesulfonate

6. PFOA - Perfluorooctanoic Acid

7. PFNA - Perfluorononanoic Acid

8. PFHxS - Perfluorohexanesulfonic Acid

9. PFHpA - Perfluoroheptanoic Acid

10. PFDA - Perfluorodecanoic Acid

11. NA - Concentration data not available

12. Monitoring well HS-1, HS-2, HS-2S, and HS-6 were destroyed or removed during soil removal activities in January 2017 as part of an Immediate Response Action Plan. The wells were replaced with HSW-1/HS-1(a), HWS-2/HS2(a) as post-exacavation activities.

13. Monitoring well HW-1D is a downgradient well located on the north side of Mary Dunn Pond.

14. NE- Not Established

15. Due to labeling error MW-3S was labeled as MW-3 on the laboratory report and COC in the November 2022.

16. Well construction logs could not be located for this monitoring well. Therefore well screen depth is unknown at this time.

Figures

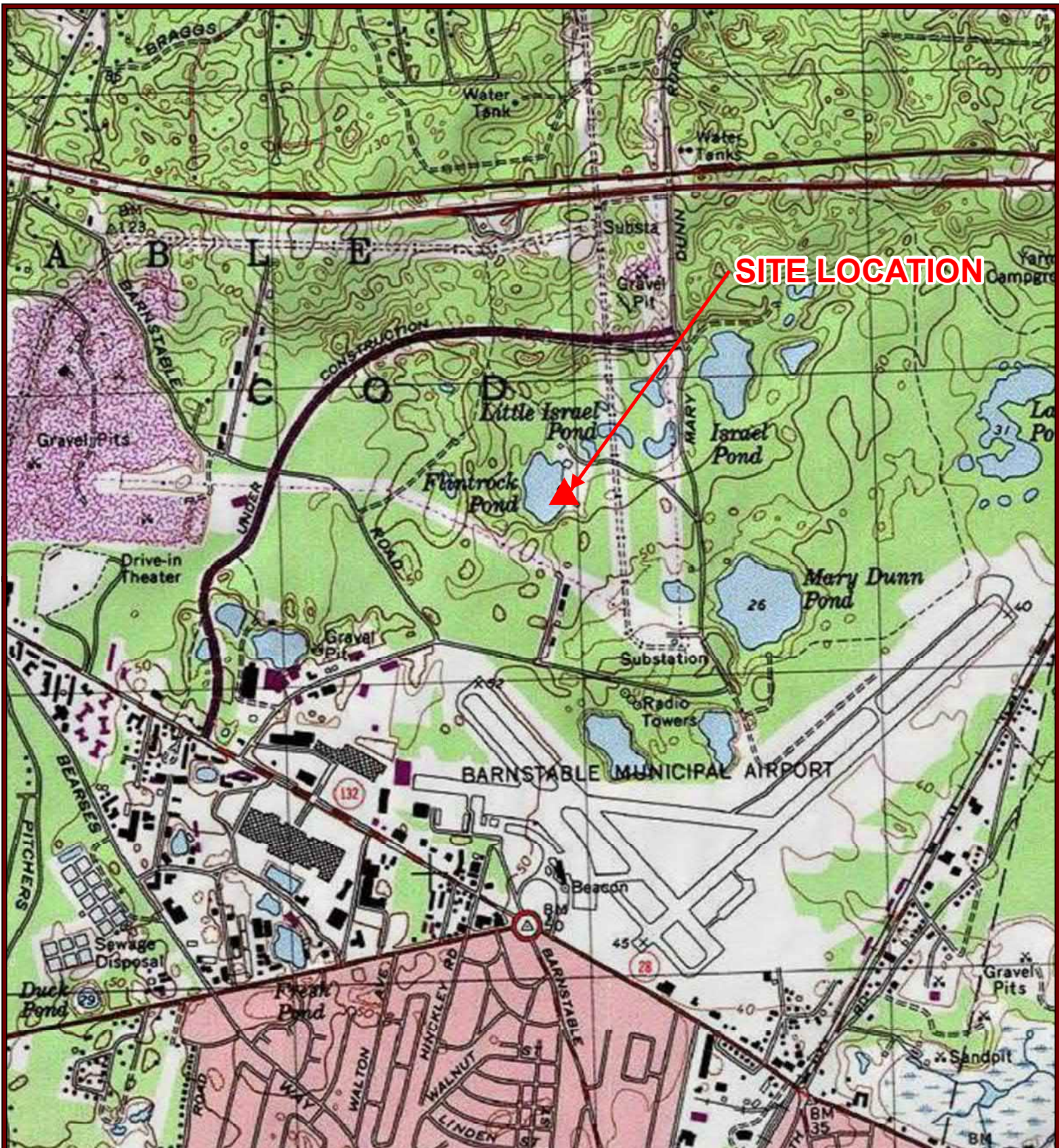


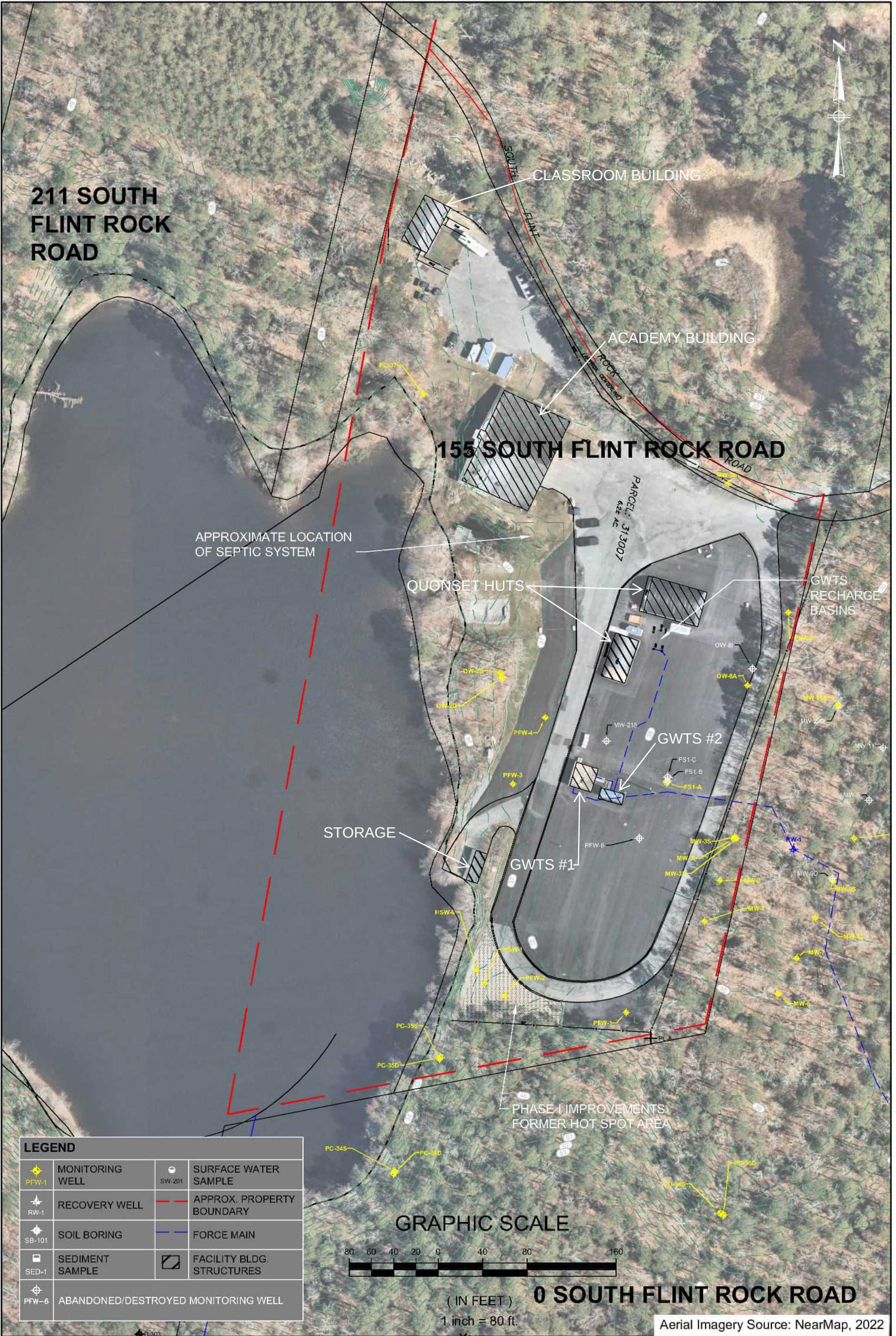
FIGURE 1 - SITE LOCATION

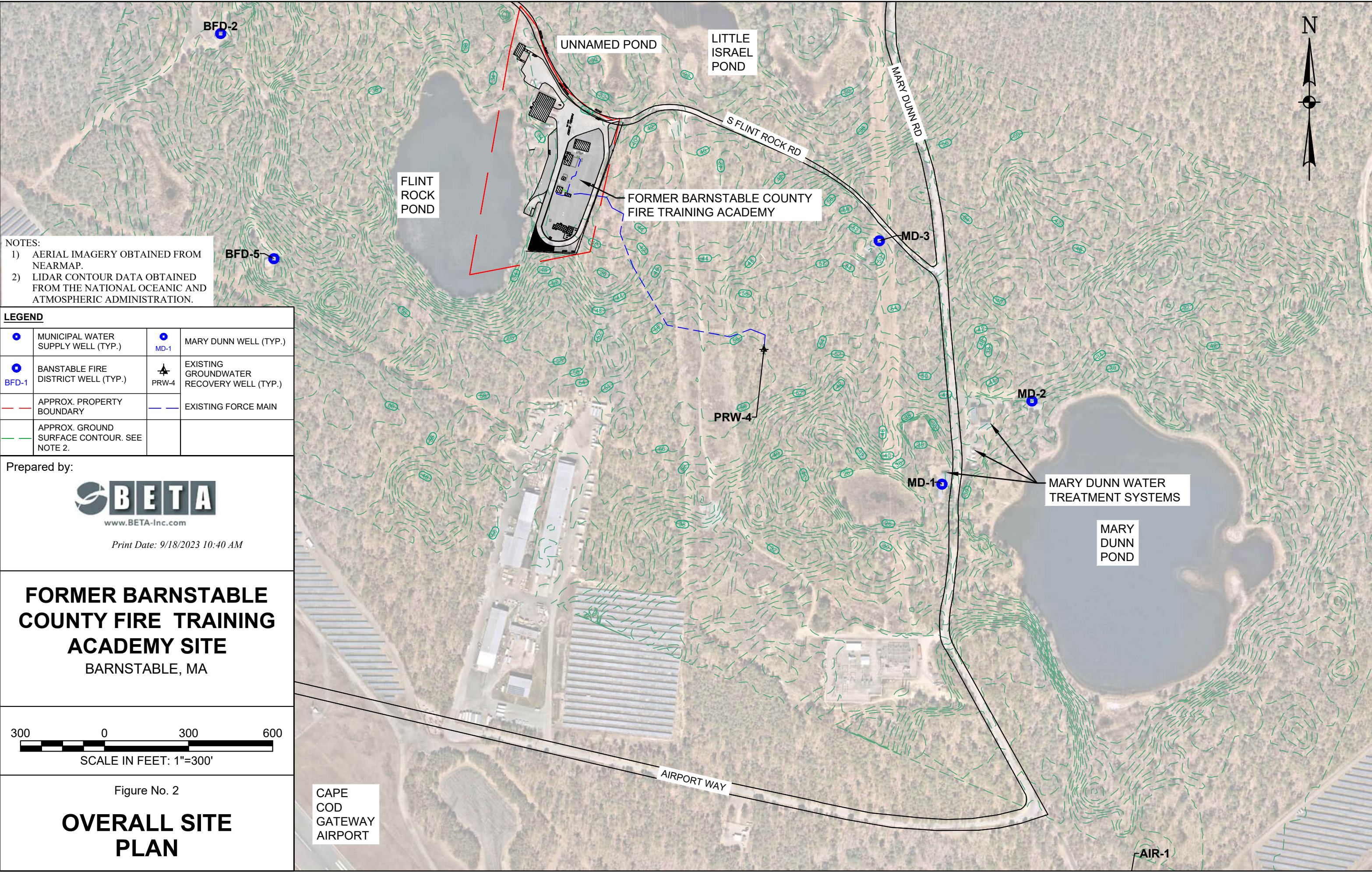
BARNSTABLE COUNTY
FIRE & RESCUE TRAINING ACADEMY SITE
155 S. FLINT ROCK ROAD
BARNSTABLE, MA 02630
RTN 4-26179

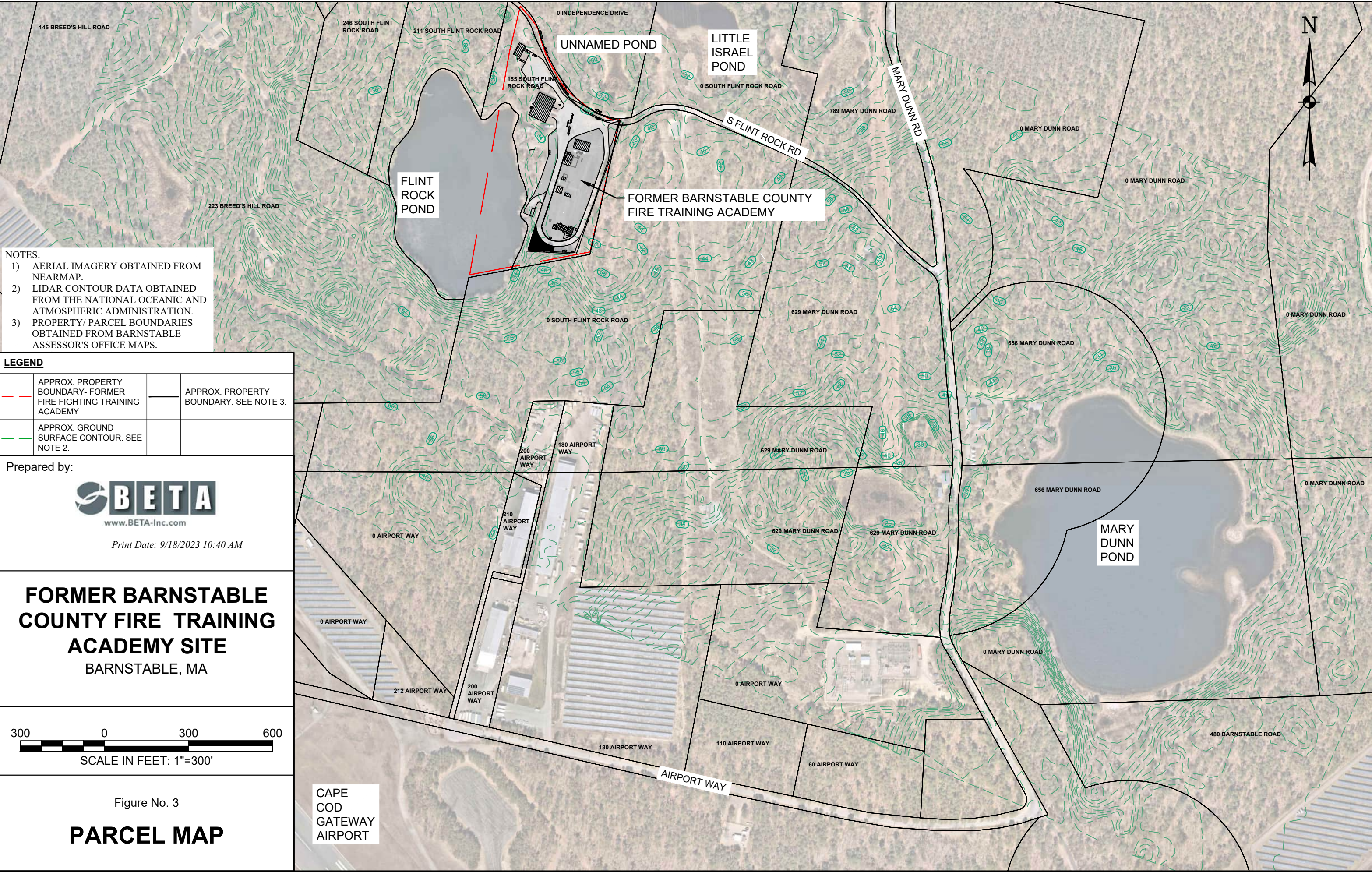
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LONGITUDE: 70°17'7.82"W

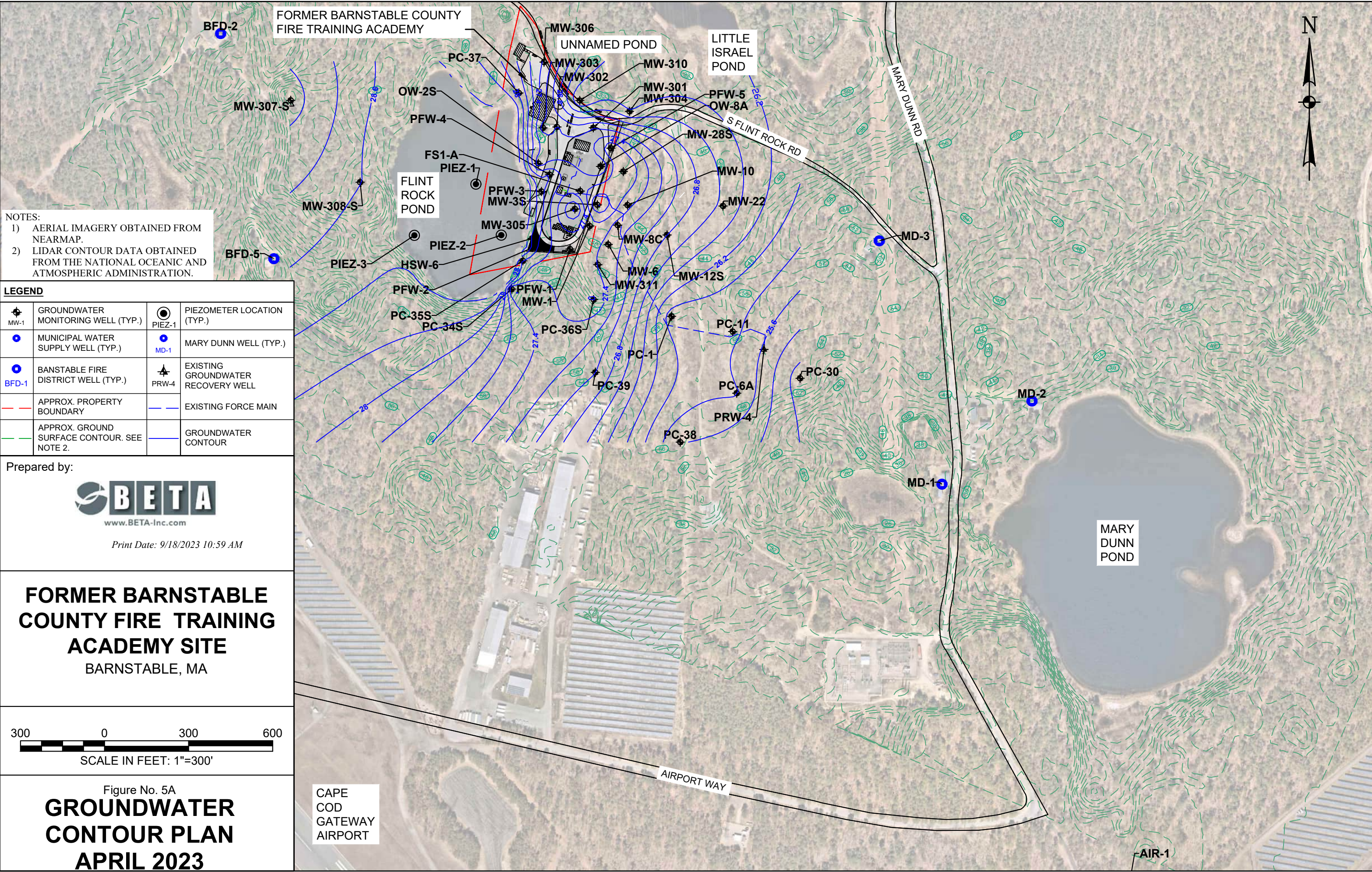
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Feet

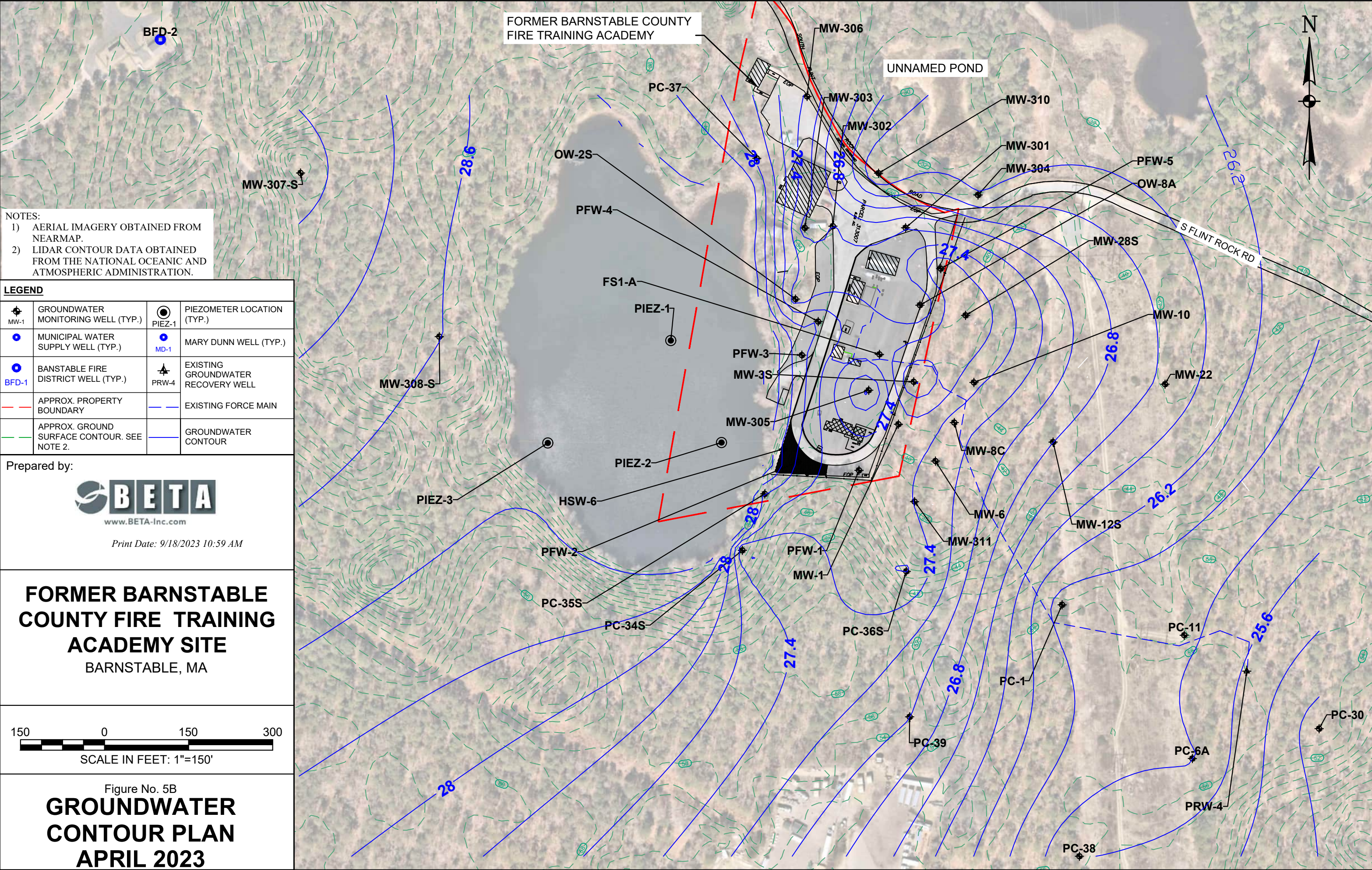












NOTES:
1) AERIAL IMAGERY OBTAINED FROM NEARMAP.
2) LIDAR CONTOUR DATA OBTAINED FROM THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

LEGEND			
	GROUNDWATER MONITORING WELL (TYP.)		PIEZOMETER LOCATION (TYP.)
	MUNICIPAL WATER SUPPLY WELL (TYP.)		MARY DUNN WELL (TYP.)
	BANSTABLE FIRE DISTRICT WELL (TYP.)		EXISTING GROUNDWATER RECOVERY WELL
	APPROX. PROPERTY BOUNDARY		EXISTING FORCE MAIN
	APPROX. GROUND SURFACE CONTOUR. SEE NOTE 2.		GROUNDWATER CONTOUR

Prepared by:



www.BETA-inc.com

Print Date: 9/18/2023 10:59 AM

**FORMER BARNSTABLE
COUNTY FIRE TRAINING
ACADEMY SITE**
BARNSTABLE, MA

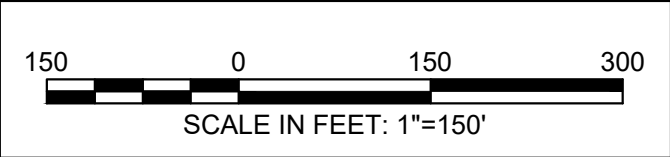
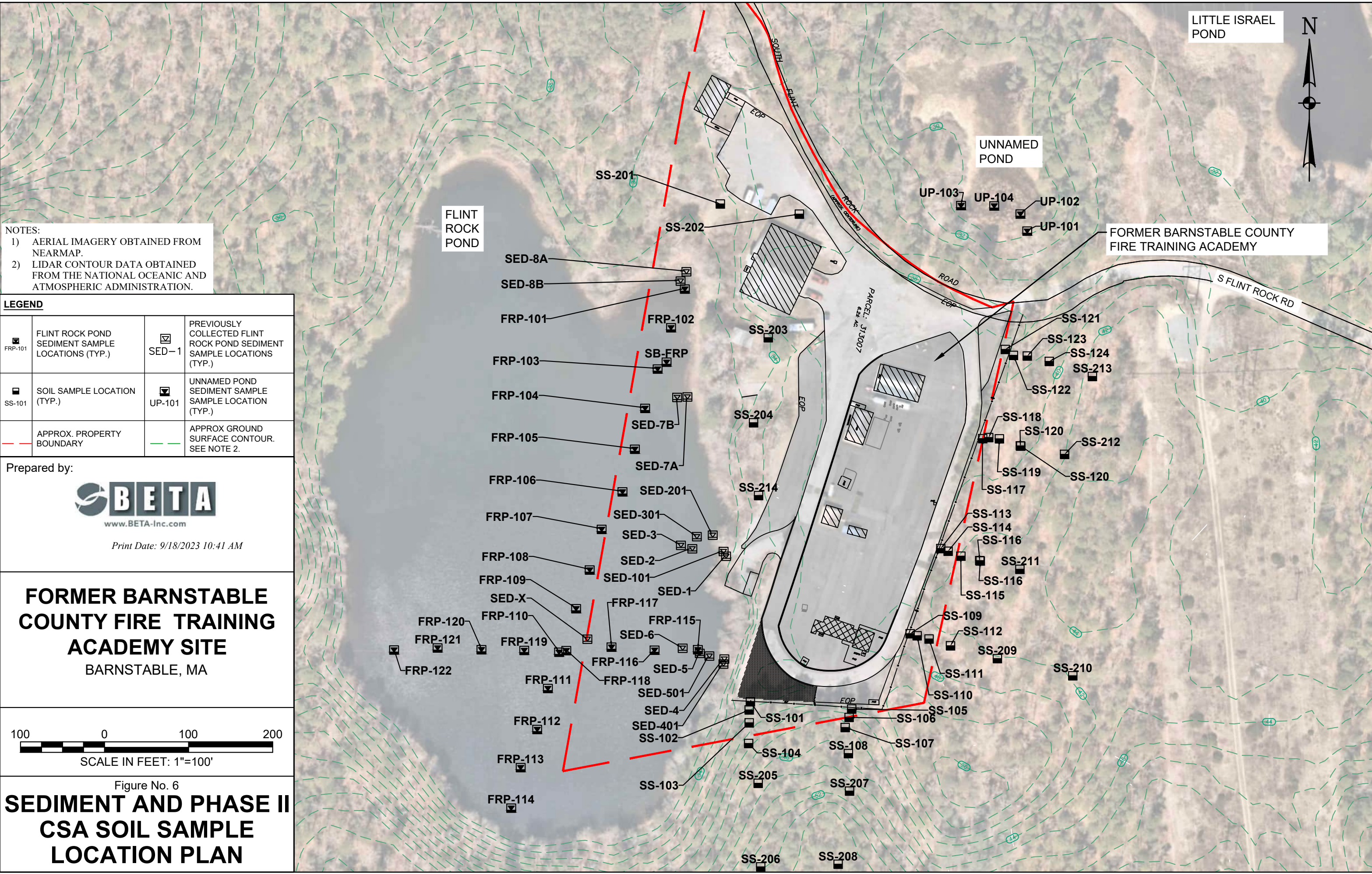


Figure No. 5B
**GROUNDWATER
CONTOUR PLAN**
APRIL 2023



NOTES:
1) AERIAL IMAGERY OBTAINED FROM NEARMAP.
2) LIDAR CONTOUR DATA OBTAINED FROM THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

LEGEND			
	FLINT ROCK POND SEDIMENT SAMPLE LOCATIONS (TYP.)		PREVIOUSLY COLLECTED FLINT ROCK POND SEDIMENT SAMPLE LOCATIONS (TYP.)
	SOIL SAMPLE LOCATION (TYP.)		UNNAMED POND SEDIMENT SAMPLE LOCATION (TYP.)
	APPROX. PROPERTY BOUNDARY		APPROX. GROUND SURFACE CONTOUR. SEE NOTE 2.

Prepared by:



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Print Date: 9/18/2023 10:41 AM

FORMER BARNSTABLE COUNTY FIRE TRAINING ACADEMY SITE
BARNSTABLE, MA

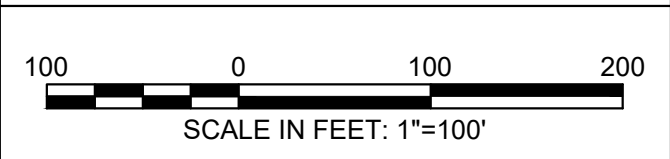
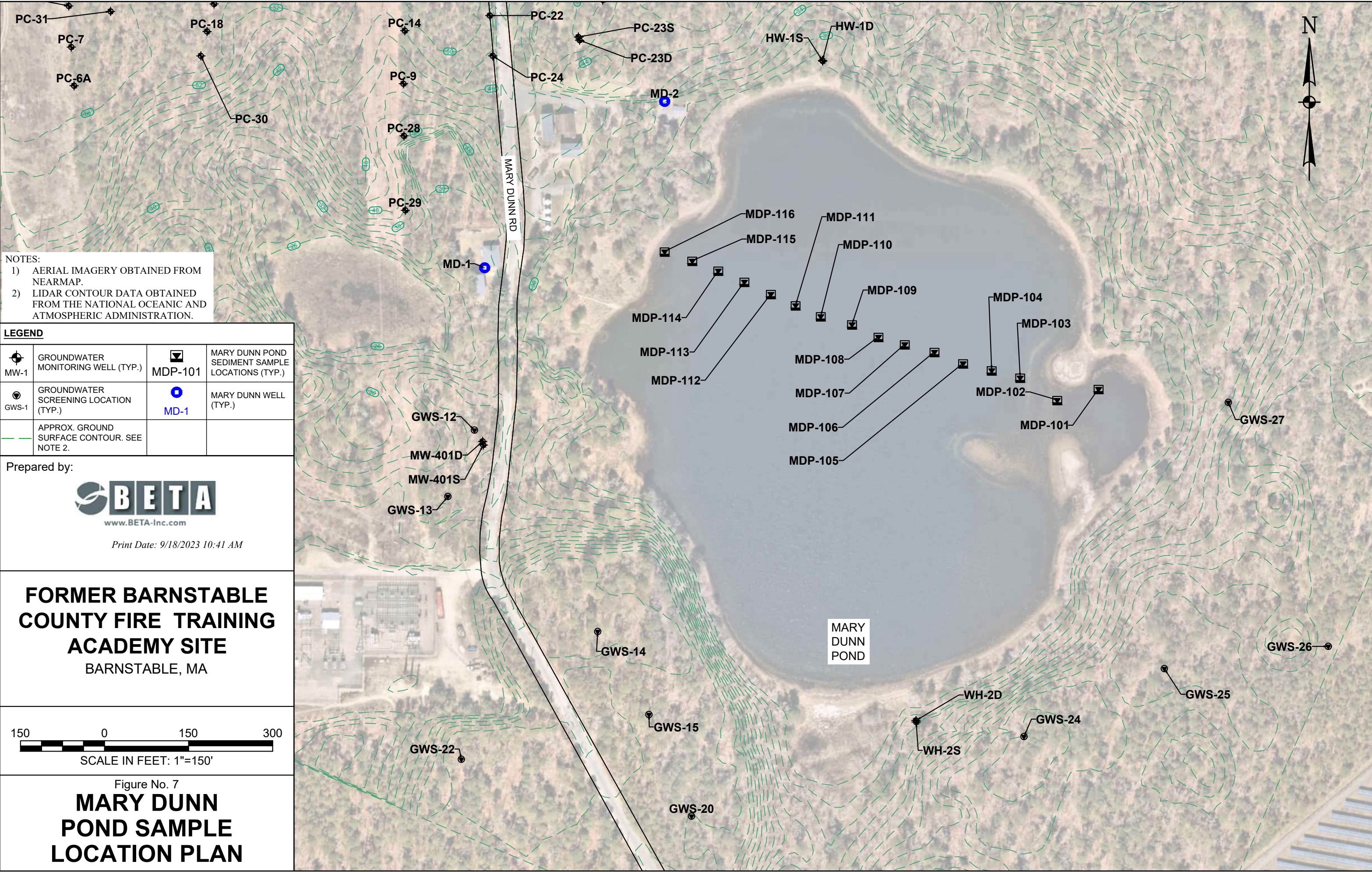
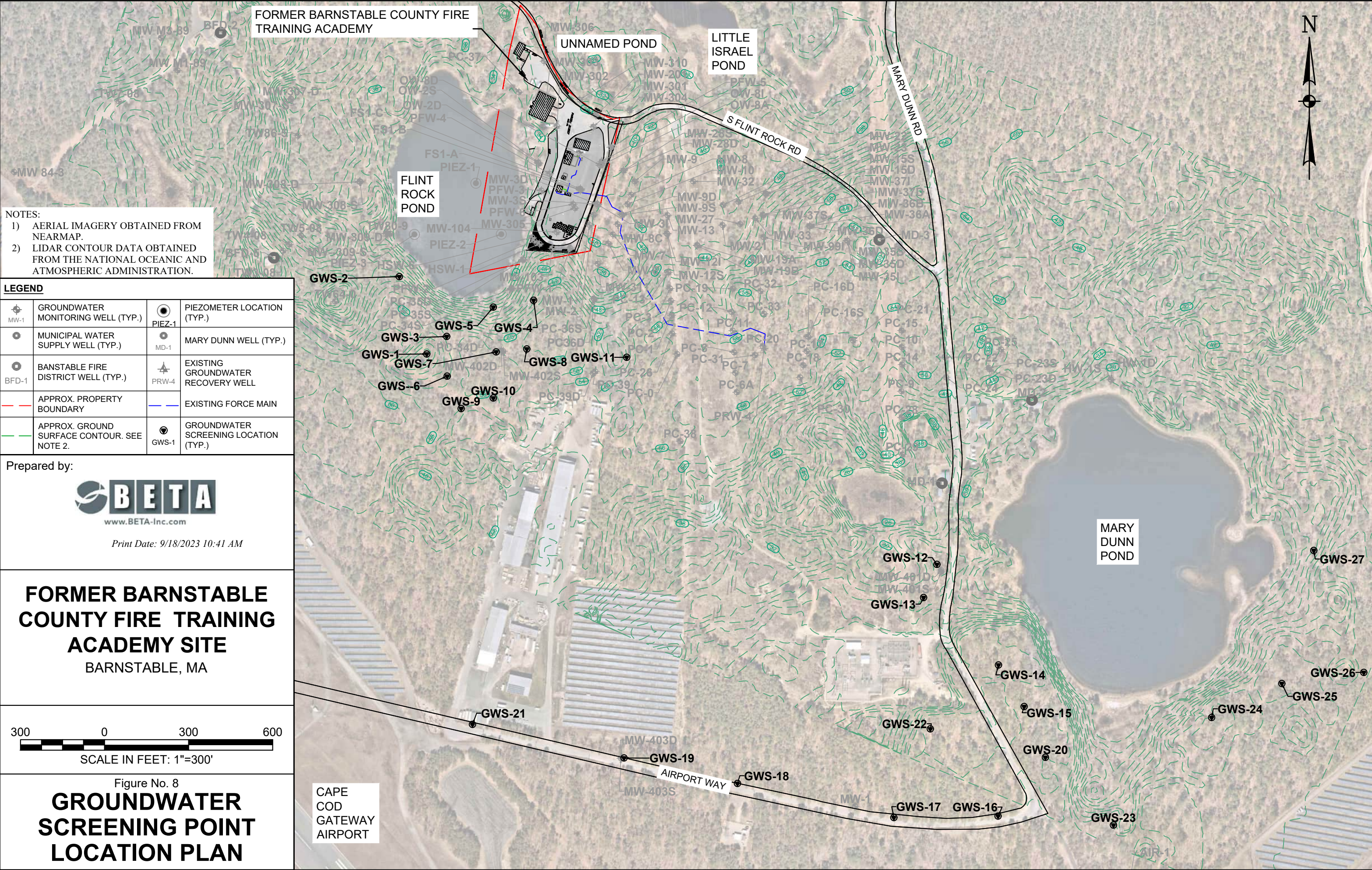


Figure No. 6
SEDIMENT AND PHASE II CSA SOIL SAMPLE LOCATION PLAN





NOTES:
1) AERIAL IMAGERY OBTAINED FROM NEARMAP.
2) LIDAR CONTOUR DATA OBTAINED FROM THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.

LEGEND			
	GROUNDWATER MONITORING WELL (TYP.)		PIEZOMETER LOCATION (TYP.)
	MUNICIPAL WATER SUPPLY WELL (TYP.)		MARY DUNN WELL (TYP.)
	BANSTABLE FIRE DISTRICT WELL (TYP.)		EXISTING GROUNDWATER RECOVERY WELL
	APPROX. PROPERTY BOUNDARY		EXISTING FORCE MAIN
	APPROX. GROUND SURFACE CONTOUR. SEE NOTE 2.		GROUNDWATER SCREENING LOCATION (TYP.)

Prepared by:



www.BETA-Inc.com

Print Date: 9/18/2023 10:41 AM

FORMER BARNSTABLE
COUNTY FIRE TRAINING
ACADEMY SITE

BARNSTABLE, MA



Figure No. 8

GROUNDWATER
SCREENING POINT
LOCATION PLAN

CAPE
COD
GATEWAY
AIRPORT

Appendix A - BWSC Transmittal Form



**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
FORM & PHASE I COMPLETION STATEMENT**

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number

4

26179

A. SITE LOCATION:

1. Site Name: BARNSTABLE COUNTY FIRE TRAINING ACADEMY

2. Street Address: 155 SOUTH FLINT ROCK ROAD

3. City/Town: BARNSTABLE 4. ZIP Code: 026300000

☒ 5. Check here if the disposal site that is the source of the release is Tier Classified. Check the current Tier Classification Category:

☒ a. Tier I ☐ b. Tier ID ☐ c. Tier II

B. THIS FORM IS BEING USED TO: (check all that apply)

- ☐ 1. Submit a **Phase I Completion Statement**, pursuant to 310 CMR 40.0484.
- ☐ 2. Submit a **Revised Phase I Completion Statement**, pursuant to 310 CMR 40.0484.
- ☐ 3. Submit a **Phase II Scope of Work**, pursuant to 310 CMR 40.0834.
- ☒ 4. Submit an **interim Phase II Report**. This report does not satisfy the response action deadline requirements in 310 CMR 40.0510.
- ☐ 5. Submit a **final Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.
- ☐ 6. Submit a **Revised Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.
- ☐ 7. Submit a **Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.
- ☐ 8. Submit a **Revised Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.
- ☐ 9. Submit a **Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.
- ☐ 10. Submit a **Modified Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.
- ☐ 11. Submit an **As-Built Construction Report**, pursuant to 310 CMR 40.0875.
- ☐ 12. Submit a **Phase IV Status Report**, pursuant to 310 CMR 40.0877.
- ☐ 13. Submit a **Phase IV Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.

Specify the outcome of Phase IV activities: (check one)

- ☐ a. Phase V Operation, Maintenance or Monitoring of the Comprehensive Remedial Action is necessary to achieve a Permanent or Temporary Solution.
- ☐ b. The requirements of a Permanent Solution have been met. A completed Permanent Solution Statement and Report (BWSC104) will be submitted to DEP.
- ☐ c. The requirements of a Temporary Solution have been met. A completed Temporary Solution Statement and Report (BWSC104) will be submitted to DEP.



**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
FORM & PHASE I COMPLETION STATEMENT**

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number

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B. THIS FORM IS BEING USED TO (cont.): (check all that apply)

- ☐ 14. Submit a **Revised Phase IV Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.
- ☐ 15. Submit a **Phase V Status Report**, pursuant to 310 CMR 40.0892.
- ☐ 16. Submit a **Remedial Monitoring Report**. (This report can only be submitted through eDEP.)
- a. Type of Report: (check one) ☐ i. Initial Report ☐ ii. Interim Report ☐ iii. Final Report
- b. Frequency of Submittal: (check all that apply)
- ☐ i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.
- ☐ ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.
- ☐ iii. A Remedial Monitoring Report(s) submitted every six months, concurrent with a Status Report.
- ☐ iv. A Remedial Monitoring Report(s) submitted annually, concurrent with a Status Report.
- c. Status of Site: (check one) ☐ i. Phase IV ☐ ii. Phase V ☐ iii. Remedy Operation Status ☐ iv. Temporary Solution
- d. Number of Remedial Systems and/or Monitoring Programs: _____
- A separate BWSC108A, CRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.
- ☐ 17. Submit a **Remedy Operation Status**, pursuant to 310 CMR 40.0893.
- ☐ 18. Submit a **Status Report to maintain a Remedy Operation Status**, pursuant to 310 CMR 40.0893(2).
- ☐ 19. Submit a **Transfer and/or a Modification of Persons Maintaining a Remedy Operation Status (ROS)**, pursuant to 310 CMR 40.0893(5) (check one, or both, if applicable).
- ☐ a. Submit a **Transfer of Persons Maintaining an ROS** (the transferee should be the person listed in Section D, "Person Undertaking Response Actions").
- ☐ b. Submit a **Modification of Persons Maintaining an ROS** (the primary representative should be the person listed in Section D, "Person Undertaking Response Actions").
- c. Number of Persons Maintaining an ROS not including the primary representative: _____
- ☐ 20. Submit a **Termination of a Remedy Operation Status**, pursuant to 310 CMR 40.0893(6). (check one)
- ☐ a. Submit a notice indicating ROS performance standards have not been met. A plan and timetable pursuant to 310 CMR 40.0893(6)(b) for resuming the ROS are attached.
- ☐ b. Submit a notice of Termination of ROS.
- ☐ 21. Submit a **Phase V Completion Statement**, pursuant to 310 CMR 40.0894.
- Specify the outcome of Phase V activities: (check one)
- ☐ a. The requirements of a Permanent Solution have been met. A completed Permanent Solution Statement and Report (BWSC104) will be submitted to DEP.
- ☐ b. The requirements for a Temporary Solution have been met. A completed Temporary Solution Statement and Report (BWSC104) will be submitted to DEP.
- ☐ 22. Submit a **Revised Phase V Completion Statement**, pursuant to 310 CMR 40.0894.
- ☐ 23. Submit a **Temporary Solution Status Report**, pursuant to 310 CMR 40.0898.
- ☐ 24. Submit a **Plan for the Application of Remedial Additives** near a sensitive receptor, pursuant to 310 CMR 40.0046(3).
- a. Status of Site: (check one)
- ☐ i. Phase IV ☐ ii. Phase V ☐ iii. Remedy Operation Status ☐ iv. Temporary Solution



**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
FORM & PHASE I COMPLETION STATEMENT**

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number

4 - 26179

C. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

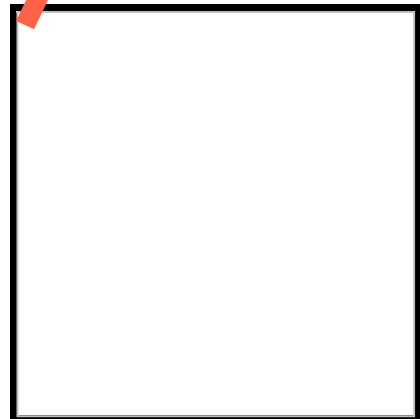
> if Section B indicates that a **Phase I, Phase II, Phase III, Phase IV or Phase V Completion Statement** and/or a **Termination of a Remedy Operation Status** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B indicates that a **Phase II Scope of Work** or a **Phase IV Remedy Implementation Plan** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B indicates that an **As-Built Construction Report**, a **Remedy Operation Status**, a **Phase IV, Phase V or Temporary Solution Status Report**, a **Status Report to Maintain a Remedy Operation Status**, a **Transfer or Modification of Persons Maintaining a Remedy Operation Status** and/or a **Remedial Monitoring Report** is being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP#: 1443
2. First Name: ROGER P
3. Last Name: THIBAUT
4. Telephone: 5083312700 5. Ext.: 6. Fax:
7. Signature:
8. Date: (mm/dd/yyyy) 9. LSP Stamp:





**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
FORM & PHASE I COMPLETION STATEMENT**

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number

4 - 26179

D. PERSON UNDERTAKING RESPONSE ACTIONS:

1. Check all that apply: ☒ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions

2. Name of Organization: BARNSTABLE COUNTY COMMISSIONERS

3. Contact First Name: PAUL 4. Last Name: RUSZALA

5. Street: 3195 MAIN ST 6. Title: ASSETS & INFRASTRUCTURE MGR.

7. City/Town: BARNSTABLE 8. State: MA 9. ZIP Code: 026301105

10. Telephone: 5084192860 11. Ext: 12. Email: paul.ruszala@capecod.gov

E. RELATIONSHIP TO SITE OF PERSON UNDERTAKING RESPONSE ACTIONS: ☐ Check here to change relationship

- ☒ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter
- ☒ e. Other RP or PRP Specify: NON-SPECIFIED PRP
- ☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)
- ☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))
- ☐ 4. Any Other Person Undertaking Response Actions Specify Relationship:

F. REQUIRED ATTACHMENT AND SUBMITTALS:

- ☒ 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.
- ☒ 2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of any Phase Reports to DEP.
- ☐ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase III Remedial Action Plan.
- ☐ 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase IV Remedy Implementation Plan.
- ☐ 5. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of any field work involving the implementation of a Phase IV Remedial Action.
- ☐ 6. If submitting a Transfer of a Remedy Operation Status (as per 310 CMR 40.0893(5)), check here to certify that a statement detailing the compliance history for the person making this submittal (transferee) is attached.
- ☐ 7. If submitting a Modification of a Remedy Operation Status (as per 310 CMR 40.0893(5)), check here to certify that a statement detailing the compliance history for each new person making this submittal is attached.
- ☐ 8. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to: BWSC.eDEP@state.ma.us.
- ☒ 9. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



**COMPREHENSIVE RESPONSE ACTION TRANSMITTAL
FORM & PHASE I COMPLETION STATEMENT**

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number

4 - 26179

G. CERTIFICATION OF PERSON UNDERTAKING RESPONSE ACTIONS:

1. I, _____, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

>if Section B indicates that this is a **Modification of a Remedy Operation Status (ROS)**, I attest under the pains and penalties of perjury that I am fully authorized to act on behalf of all persons performing response actions under the ROS as stated in 310 CMR 40.0893(5)(d) to receive oral and written correspondence from MassDEP with respect to performance of response actions under the ROS, and to receive a statement of fee amount as per 4.03(3).

I understand that any material received by the Primary Representative from MassDEP shall be deemed received by all the persons performing response actions under the ROS, and I am aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate or incomplete information.

2. By: _____ 3. Title: ASSETS & INFRASTRUCTURE MGR.
Signature

4. For: BARNSTABLE COUNTY COMMISSIONERS 5. Date: _____
(Name of person or entity recorded in Section D) (mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section D.

7. Street: _____

8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

11. Telephone: _____ 12. Ext.: _____ 13. Email: _____

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)





BARNSTABLE COUNTY
SUPERIOR COURTHOUSE
3195 MAIN STREET
P.O. BOX 427
BARNSTABLE, MASSACHUSETTS 02630

Paul Ruszala, P.E.
Assets and Infrastructure Manager
(508) 419-2860
paul.ruszala@capecod.gov

June 6, 2023

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup
Southeast Regional Office
20 Riverside Drive
Lakeville, MA 02587

ATTN: Navpreet Brolowski, P.E., LSP, Project Manager

Re: Delegation of Authority
Massachusetts Contingency Plan Filings
Former Barnstable County Fire Training Academy Site
155 South Flint Rock Road, Barnstable, MA
DEP Release Tracking No. RTN 4-26179

Dear Ms. Brolowski:

The purpose of this letter is to delegate signature authority for the filing of Massachusetts Contingency Plan submittals related to the Former Barnstable County Fire Training Academy Site to the Licensed Site Professional (LSP) on record, Roger Thibault, P.E., LSP. Effective upon the issuance of this letter, I authorize Roger Thibault, P.E., LSP, to submit and sign the above referenced documents on behalf of myself and Barnstable County.

If you have any questions upon review of this notification, please contact me, or Roger Thibault, P.E., LSP for the Site at BETA Group, Inc. at your convenience.

Thank you,

A handwritten signature in blue ink that reads "Paul Ruszala". The signature is fluid and cursive, with the first name "Paul" being more prominent than the last name "Ruszala".

Paul Ruszala, P.E.
Assets and Infrastructure Manager

**Statement of Provisions
Attachment To:**

BWSC 108 – Comprehensive Response Action Transmittal Form, Section F, Item 1

**For
Former Barnstable County Fire & Rescue Training Academy
(FTA)
155 South Flint Rock Road
Hyannis, MA 02630
RTN 4-26179**

The FTA facility was donated to the Town of Barnstable by the Cobb Trust in 1955, when it began to be used as a fire training area. The current owner-of-record is the County of Barnstable, which acquired the Site from the Town in 1983. The FTA was used for public safety training from the 1950's through 2019. Fires (for training purposes) were ignited and then extinguished with water CO₂, and/or aqueous film-forming foam (AFFF). The FTA was used for public safety training by fire departments and fire districts from throughout Barnstable County, fire departments outside of Barnstable County, and other public and private institutions.

Under the USEPA's Third Unregulated Contaminant Monitoring Rule (UCMR3) for "emerging contaminants" in public water supplies, samples collected from three of the Town of Barnstable Mary Dunn public water supply wells were analyzed for PFAS (PFOS and PFOA) in November 2013. Analytical results revealed evidence of PFOS contamination in all three wells sampled. Subsequently, Barnstable County collected soils and groundwater samples from the FTA, which is located west and likely upgradient of the Mary Dunn wells. Groundwater analytical results revealed that FTA groundwater was impacted by PFOS and MassDEP was notified. In 2015, Barnstable County funded an initial hydrogeological assessment, implementation of a groundwater pump and treat system to capture PFOS upgradient of the Mary Dunn wells, and additional assessment and immediate response actions.

Massachusetts Department of Environmental Protection (MassDEP) issued a Notice of Responsibility (NOR) to Barnstable County on August 4, 2016. MassDEP determined that the releases of PFAS from the use of AFFF at the FTA is a source of PFAS affecting the water supply of the Mary Dunn wells. MassDEP requested Immediate Response Action (IRA) response actions to include:

- Evaluation of potential Imminent Hazards.
- Assessment and monitoring of nearby public and private water supply wells.
- Prevention, elimination, and/or abate of any hazards associated with the
- consumption of drinking water impacted by PFAS above the USEPA Health Advisory (HA) level of 0.07 µg/L¹.
- Excavation and off-site removal of impacted soils located in a "hot spot" area; and/or expansion of the existing groundwater recovery and treatment system.

MassDEP issued a *Notice of Audit Findings – Immediate Response Action Field Inspection and Request For IRA Modification/Interim Deadline* on June 1, 2018 (NOAF/Request For IRA Modification). In the NOAF/Request For IRA Modification MassDEP indicated that the IRAs currently being conducted at the Site comply with the

¹ Since MassDEP finalization of the MCP Method 1 groundwater standards for PFAS and Maximum Contaminant Limit (MCL) for PFAS in drinking water in December 2019 and October 2020 respectively, current and future IRA response actions implemented at the Site will address the groundwater and drinking water impacted by PFAS above the Method 1 groundwater standards and drinking water MCL. The Method 1 groundwater standards and MCL supersede the USEPA HA.

relevant regulations and the IRA Plan previously submitted. However, the NOAF/Request For IRA Modification indicated that MassDEP had determined that additional IRA response actions were necessary at the Site to minimize continued mobilization of contaminants. MassDEP required the submittal of an IRA Plan Modification that included the installation of drainage controls and/or construction of berms, dikes, or impoundments at the Site to prevent stormwater and/or water from fire training activities from entering the Hot Spot area. The IRA Plan Modification was to be submitted to MassDEP on or before June 29, 2018. This IRA Plan Modification was submitted on June 29, 2018 and subsequently executed in December 2018 through March 2019 following local permitting by the Town of Barnstable Conservation Commission.

MassDEP issued a *Notice of Audit Findings/Compliance and Technical Assistance /Interim Deadline* dated November 21, 2018 (NOAF/Interim Deadline). The evaluations and additional information required by the NOAF/Interim Deadline document were presented in Immediate Response Action (IRA) Status and Remedial Monitoring Report (RMR) No. 27, submitted on February 28, 2019. In the February Status report, planned actions to address breakthrough of PFAS from the activated carbon were described, as was a long-term groundwater monitoring plan.

The November 21, 2018 NOAF/Interim Deadline also required the evaluation of the feasibility of an expansion of groundwater pumping and treatment, and, if an expansion is feasible, a definitive IRA Plan Modification for such expansion to be presented in the next full IRA Status Report (August 2019.) Expanding the existing groundwater recovery and treatment system, both in terms of pumping rate and locations, was evaluated and judged to be feasible. Based on limited funds available, a short-term expansion of groundwater pumping and treatment was judged to likely be financially feasible to implement within the required time frame dictated by the November 21, 2018 NOAF/Interim Deadline.

The NOAF/Interim Deadline also required the evaluation of the feasibility of placing a more robust cap over the former Hot Spot area and the Fire Training Area. If such capping measures were feasible, a definitive IRA Plan Modification for such capping was required in the next full IRA Status Report (August 2019.) The implementation of a more robust cap system in the Hot Spot area was considered not feasible, in the opinion of Barnstable County or BETA Group Inc. (BETA) and its LSP, based on the very recent implementation of a cap system in the Hot Spot area. The implementation of a more robust cap system over portions of or most of the FTA training area was considered not feasible within the time frame specified in the NOAF/Interim Deadline, in the opinion of Barnstable County or BETA, based on multiple factors.

MassDEP issued a *Request For Expedited IRA Plan Modification/Interim Deadline Enforcement Document No. 00006694* on May 1, 2019 that requested that the County submit an expedited IRA Plan Modification by June 28, 2019 including detailed plans for expansion of the groundwater recovery and treatment system and for capping to prevent infiltration of precipitation through PFAS-contaminated soil at the Site. On June 3, 2019, the County submitted a formal request to restore the original IRA Plan Modification Deadline to August 28, 2019, indicating that it was not technically feasible to meet the expedited deadline and that the Public Involvement Plan for the Site required that the document be a public comment draft only. The County received email response from MassDEP indicating that the County's request was accepted and the deadline for the IRA Plan Modification was restored to August 28, 2019.

Following the receipt of public comment, the IRA Plan Modification was finalized and submitted to DEP on December 20, 2019 and DEP contingently approved the capping design. The December 2019 IRA Plan Modification was the second IRA Plan modification proposed and approved for the Disposal Site and will therefore be described as IRA Plan Modification No. 2.

BETA, on behalf of Barnstable County, proceeded with the design of the major capping and stormwater improvements project. BETA submitted the original Notice of Intent for the capping project to the Town of Barnstable Conservation Commission (the Commission) in February 2020.

Based on the public and Commission comments and the decision by the County to permanently end live-fire training at the FTA, the County opted to include the demolition of the two former, live-fire training buildings and all training props at the FTA in the capping project. Following multiple hearings and re-design of the project, the Commission approved the capping design and the public hearing was closed On November 10, 2020. On December 30, 2020, The Barnstable Conservation Commission issued the *Order of Conditions: Special Conditions of Approval (SE3-5772)*.

Based on the decision to include building and training prop demolition in the project, MassDEP requested the filing of an IRA Plan Modification to formalize those inclusions. Following the receipt of public comment on the Draft IRA Plan Modification, IRA Plan Modification No. 3 was finalized and submitted to DEP on June 22, 2021 as an amendment to both the original (September 2016) IRA Plan and the December 2019 IRA Plan Modification. IRA Plan Modification No. 3 presented the selected building demolition design revisions and several minor other additions to the capping project, added during the local approval process. MassDEP issued the *Conditional Approval – Final Immediate Response Action Plan Modification No. 3* on July 8, 2021. The Condition Approval included:

- 1) notifying MassDEP at least 72 hours before start of response actions.
- 2) Complying with MCP requirements for any new reportable conditions.
- 3) Continuing PIP activities
- 4) Complying with MassDEP and federal regulations for solid waste and hazardous waste and materials.
- 5) Complying with municipal permitting requirements.

Construction for the capping and select demolition project started in late August 2021 and was substantially completed in November 2021. Project closeout extended through 2022.

Barnstable County issued a *Notice of Delay of Filing the Phase II Comprehensive Site Assessment Report* dated April 1, 2021. The Notice indicated that due to multiple factors including those related to temporary cessation of all but basic IRA work at the Site due to emergency obligations to respond to the COVID-19 pandemic and the requirements of local permitting and re-design of the capping project, the Phase II CSA Report filing would be delayed.

MassDEP issued the *Notice of Noncompliance Enforcement Document No. 00010606* on May 25, 2021. The Notice stated that the Phase II Comprehensive Site Assessment (CSA) Report had not been submitted by its due date of May 7, 2021. The Notice noted that the County had submitted a Notification of Delay for the Phase II Report but had not included a specific date for submittal of the report. The Notice stated that a Phase II Comprehensive Site Assessment Report must be submitted by May 9, 2022.

Barnstable County issued a response to the MassDEP *Notice of Noncompliance Enforcement Document No. 00010606* on June 7, 2021. The response again noted the reasons for the delay in executing the Phase II CSA and noted that the work related to the Phase II CSA, including preparation of the mandated Phase II CSA Scope of Work (Public Comment Draft and Final) and execution of the Phase II CSA tasks would be proceeding.

MassDEP issued the *Administrative Consent Order – Enforcement Document No. 0031761* on February 27, 2023, which presented a Draft Administrative Consent Order for all comprehensive MCP response actions to be conducted at the Site. Barnstable County and MassDEP are in deliberations regarding the Draft ACO as of April and May 2023.

Appendix B - Laboratory Reports - Phase II Groundwater Screening

February 13, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: Barnstable, MA
Client Job Number:
Project Number: 6206
Laboratory Work Order Number: 23A1283

Enclosed are results of analyses for samples as received by the laboratory on January 12, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 2/13/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23A1283

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

PROJECT LOCATION: Barnstable, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
GWS-12S	23A1283-01	Ground Water		SOP-454 PFAS	
GWS-12D	23A1283-02	Ground Water		SOP-454 PFAS	
GWS-13S	23A1283-03	Ground Water		SOP-454 PFAS	
GWS-13D	23A1283-04	Ground Water		SOP-454 PFAS	
GWS-14S	23A1283-05	Ground Water		SOP-454 PFAS	
GWS-14D	23A1283-06	Ground Water		SOP-454 PFAS	
GWS-15S	23A1283-07	Ground Water		SOP-454 PFAS	
GWS-15D	23A1283-08	Ground Water		SOP-454 PFAS	
GWS-16S	23A1283-09	Ground Water		SOP-454 PFAS	
GWS-16D	23A1283-10	Ground Water		SOP-454 PFAS	
GWS-17S	23A1283-11	Ground Water		SOP-454 PFAS	
GWS-17D	23A1283-12	Ground Water		SOP-454 PFAS	
GWS-18S	23A1283-13	Ground Water		SOP-454 PFAS	
GWS-18D	23A1283-14	Ground Water		SOP-454 PFAS	
GWS-19S	23A1283-15	Ground Water		SOP-454 PFAS	
GWS-19D	23A1283-16	Ground Water		SOP-454 PFAS	
GWS-20S	23A1283-17	Ground Water		SOP-454 PFAS	
GWS-20D	23A1283-18	Ground Water		SOP-454 PFAS	
GWS-EB	23A1283-19	Ground Water		SOP-454 PFAS	
GWS-Equipment Blank-2	23A1283-20	Ground Water		SOP-454 PFAS	
GWS-16D Filtrate	23A1283-21	Ground Water		SOP-454 PFAS	
GWS-20D Filtrate	23A1283-22	Ground Water		SOP-454 PFAS	

CASE NARRATIVE SUMMARY

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

SOP-454 PFAS

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:

Perfluorononanesulfonic acid (PFNS)

B329868-BSD1

Perfluorononanoic acid (PFNA)

B329868-BSD1

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:

D3-NMeFOSAA

23A1283-22[GWS-20D Filtrate], B329868-BLK1

D5-NEtFOSAA

23A1283-21[GWS-16D Filtrate], 23A1283-22[GWS-20D Filtrate], B329868-BLK1

M2-4:2FTS

23A1283-21[GWS-16D Filtrate], B329868-BLK1

M2-6:2FTS

23A1283-20[GWS-Equipment Blank-2], 23A1283-22[GWS-20D Filtrate], B329868-BLK1

M2-8:2FTS

23A1283-10[GWS-16D], 23A1283-20[GWS-Equipment Blank-2], 23A1283-21[GWS-16D Filtrate], 23A1283-22[GWS-20D Filtrate], B329868-BLK1

M2PFTA

23A1283-21[GWS-16D Filtrate], B329868-BLK1

M3HFPO-DA

23A1283-15[GWS-19S], 23A1283-17[GWS-20S], 23A1283-19[GWS-EB], 23A1283-20[GWS-Equipment Blank-2], 23A1283-21[GWS-16D Filtrate], 23A1283-22[GWS-20D Filtrate], B329868-BLK1

M3PFBS

23A1283-21[GWS-16D Filtrate], 23A1283-22[GWS-20D Filtrate], B329868-BLK1

M3PFHxS

23A1283-20[GWS-Equipment Blank-2], 23A1283-22[GWS-20D Filtrate], B329868-BLK1

M4PFHpA

23A1283-22[GWS-20D Filtrate], B329868-BLK1

M5PFHxA

B329868-BLK1

M5PFPeA

B329868-BLK1

M6PFDA

B329868-BLK1

M7PFUnA

23A1283-21[GWS-16D Filtrate], 23A1283-22[GWS-20D Filtrate], B329868-BLK1

M8FOSA

23A1283-21[GWS-16D Filtrate]

M8PFOA

23A1283-22[GWS-20D Filtrate], B329868-BLK1

M8PFOS

23A1283-22[GWS-20D Filtrate], B329868-BLK1

M9PFNA

23A1283-21[GWS-16D Filtrate], 23A1283-22[GWS-20D Filtrate], B329868-BLK1

MPFBA

23A1283-22[GWS-20D Filtrate], B329868-BLK1

MPFDoA

23A1283-21[GWS-16D Filtrate], 23A1283-22[GWS-20D Filtrate], B329868-BLK1

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

D3-NMeFOSAA

23A1283-10[GWS-16D], 23A1283-16[GWS-19D], 23A1283-20[GWS-Equipment Blank-2], B329868-BS1, B329868-BSD1

D5-NEtFOSAA

23A1283-12[GWS-17D], 23A1283-16[GWS-19D], 23A1283-18[GWS-20D], B329868-BS1, B329868-BSD1

M2-6:2FTS

23A1283-10[GWS-16D], 23A1283-13[GWS-18S], 23A1283-15[GWS-19S], 23A1283-21[GWS-16D Filtrate]

M2-8:2FTS

23A1283-16[GWS-19D]

M2PFtA

23A1283-04[GWS-13D], 23A1283-11[GWS-17S], 23A1283-12[GWS-17D], 23A1283-14[GWS-18D], 23A1283-16[GWS-19D], 23A1283-18[GWS-20D], B329868-BSD1, S083095-CCV3, S083095-CCV4, S083118-CCV2, S083118-CCV3

M3HFPO-DA

23A1283-13[GWS-18S], B329868-BS1, B329868-BSD1, S083095-CCV4, S083118-CCV3

M3PFBS

23A1283-13[GWS-18S], B329868-BS1, B329868-BSD1, S083095-CCV4

M3PFHxS

23A1283-13[GWS-18S], 23A1283-21[GWS-16D Filtrate], B329868-BS1, B329868-BSD1, S083095-CCV4, S083118-CCV2, S083118-CCV3

M4PFHpA

23A1283-13[GWS-18S], 23A1283-21[GWS-16D Filtrate], B329868-BS1, B329868-BSD1, S083118-CCV3

M5PFHxA

23A1283-13[GWS-18S], 23A1283-21[GWS-16D Filtrate], 23A1283-22[GWS-20D Filtrate], B329868-BS1, B329868-BSD1, S083095-CCV4, S083118-CCV3

M5PFPeA

23A1283-21[GWS-16D Filtrate], 23A1283-22[GWS-20D Filtrate], B329868-BS1, B329868-BSD1

M6PFDA

B329868-BS1, B329868-BSD1

M7PFUnA

23A1283-12[GWS-17D], 23A1283-16[GWS-19D], 23A1283-18[GWS-20D], B329868-BSD1

M8FOSA

23A1283-01[GWS-12S], 23A1283-02[GWS-12D], 23A1283-03[GWS-13S], 23A1283-04[GWS-13D], 23A1283-11[GWS-17S], 23A1283-12[GWS-17D], 23A1283-14[GWS-18D], 23A1283-16[GWS-19D], 23A1283-18[GWS-20D], 23A1283-20[GWS-Equipment Blank-2]

M8PFOA

23A1283-13[GWS-18S], 23A1283-21[GWS-16D Filtrate], B329868-BS1, B329868-BSD1, S083118-CCV3

M8PFOS

B329868-BSD1

M9PFNA

B329868-BS1, B329868-BSD1

MPFBA

23A1283-21[GWS-16D Filtrate], B329868-BS1, B329868-BSD1

MPFDoA

23A1283-04[GWS-13D], 23A1283-12[GWS-17D], 23A1283-16[GWS-19D], 23A1283-18[GWS-20D], B329868-BS1, B329868-BSD1, S083118-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:

11Cl-PF3OUdS (F53B Major)

S083095-CCV4

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-12S

Sampled: 1/9/2023 08:30

Sample ID: 23A1283-01

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	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluoro-1-butanedisulfonamide (FBSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:32	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-12D

Sampled: 1/9/2023 09:00

Sample ID: 23A1283-02

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)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorohexanesulfonic acid (PFHxS)	11	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorooctanesulfonic acid (PFOS)	14	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:39	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-13S

Sampled: 1/9/2023 09:30

Sample ID: 23A1283-03

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)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:47	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-13D

Sampled: 1/9/2023 10:00

Sample ID: 23A1283-04

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)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 17:54	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-14S

Sampled: 1/9/2023 12:30

Sample ID: 23A1283-05

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)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:01	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-14D

Sampled: 1/9/2023 13:00

Sample ID: 23A1283-06

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)	17	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluoropentanoic acid (PFPeA)	47	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorohexanoic acid (PFHxA)	49	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorohexanesulfonic acid (PFHxS)	200	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluoroheptanoic acid (PFHpA)	21	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorooctanoic acid (PFOA)	36	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorooctanesulfonic acid (PFOS)	680	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:09	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-15S

Sampled: 1/9/2023 13:30

Sample ID: 23A1283-07

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)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:16	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-15D

Sampled: 1/9/2023 14:30

Sample ID: 23A1283-08

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)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluoropentanoic acid (PFPeA)	17	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorohexanoic acid (PFHxA)	15	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
11Cl-PF3OUdS (F53B Major)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
9Cl-PF3ONS (F53B Minor)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorodecanoic acid (PFDA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorododecanoic acid (PFDoA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
N-EtFOSAA (NEtFOSAA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
N-MeFOSAA (NMeFOSAA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorotetradecanoic acid (PFTA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorooctanesulfonamide (FOSA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorononanesulfonic acid (PFNS)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorohexanesulfonic acid (PFHxS)	45	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluoroundecanoic acid (PFUnA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluoroheptanoic acid (PFHpA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorooctanoic acid (PFOA)	19	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorooctanesulfonic acid (PFOS)	330	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW
Perfluorononanoic acid (PFNA)	ND	9.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:23	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-16S

Sampled: 1/10/2023 08:30

Sample ID: 23A1283-09

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)	16	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluoropentanoic acid (PFPeA)	48	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorohexanoic acid (PFHxA)	34	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorodecanoic acid (PFDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorohexanesulfonic acid (PFHxS)	9.5	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	45	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluoroheptanoic acid (PFHpA)	15	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorooctanoic acid (PFOA)	11	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorooctanesulfonic acid (PFOS)	5.5	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW
Perfluorononanoic acid (PFNA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:31	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-16D

Sampled: 1/10/2023 09:00

Sample ID: 23A1283-10

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	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluoropentanoic acid (PFPeA)	59	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorohexanoic acid (PFHxA)	41	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorodecanoic acid (PFDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorohexanesulfonic acid (PFHxS)	9.5	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	52	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluoroheptanoic acid (PFHpA)	20	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorooctanoic acid (PFOA)	13	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorooctanesulfonic acid (PFOS)	12	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW
Perfluorononanoic acid (PFNA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:38	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-17S

Sampled: 1/10/2023 10:00

Sample ID: 23A1283-11

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	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluoropentanoic acid (PFPeA)	7.7	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorohexanoic acid (PFHxA)	5.5	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorodecanoic acid (PFDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorohexanesulfonic acid (PFHxS)	4.0	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluoroheptanoic acid (PFHpA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorooctanoic acid (PFOA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorooctanesulfonic acid (PFOS)	9.0	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW
Perfluorononanoic acid (PFNA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 18:53	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-17D

Sampled: 1/10/2023 10:30

Sample ID: 23A1283-12

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)	16	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluoropentanoic acid (PFPeA)	43	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorohexanoic acid (PFHxA)	27	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorodecanoic acid (PFDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorohexanesulfonic acid (PFHxS)	19	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	56	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluoroheptanoic acid (PFHpA)	16	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorooctanoic acid (PFOA)	14	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorooctanesulfonic acid (PFOS)	28	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW
Perfluorononanoic acid (PFNA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:01	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-18S

Sampled: 1/10/2023 11:30

Sample ID: 23A1283-13

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)	38	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorobutanesulfonic acid (PFBS)	7.4	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluoropentanoic acid (PFPeA)	110	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorohexanoic acid (PFHxA)	75	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorodecanoic acid (PFDA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluoroheptanesulfonic acid (PFHpS)	10	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorohexanesulfonic acid (PFHxS)	73	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	190	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluoropentanesulfonic acid (PFPeS)	4.8	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluoroheptanoic acid (PFHpA)	42	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorooctanoic acid (PFOA)	42	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorooctanesulfonic acid (PFOS)	80	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW
Perfluorononanoic acid (PFNA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:08	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-18D

Sampled: 1/10/2023 12:00

Sample ID: 23A1283-14

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	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluoropentanoic acid (PFPeA)	27	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorohexanoic acid (PFHxA)	21	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorodecanoic acid (PFDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorohexanesulfonic acid (PFHxS)	26	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	32	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluoroheptanoic acid (PFHpA)	13	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorooctanoic acid (PFOA)	13	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorooctanesulfonic acid (PFOS)	53	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW
Perfluorononanoic acid (PFNA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:15	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-19S

Sampled: 1/10/2023 13:00

Sample ID: 23A1283-15

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)	150	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluoropentanoic acid (PFPeA)	430	41	ng/L	10		SOP-454 PFAS	2/2/23	2/10/23 9:18	QNW
Perfluorohexanoic acid (PFHxA)	350	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	6.1	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorodecanoic acid (PFDA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorohexanesulfonic acid (PFHxS)	13	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2100	41	ng/L	10		SOP-454 PFAS	2/2/23	2/10/23 9:18	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluoroheptanoic acid (PFHpA)	390	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorooctanoic acid (PFOA)	230	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorooctanesulfonic acid (PFOS)	4.9	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW
Perfluorononanoic acid (PFNA)	18	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:23	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Sampled: 1/10/2023 13:30

Field Sample #: GWS-19D

Sample ID: 23A1283-16

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	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluoropentanoic acid (PFPeA)	52	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorohexanoic acid (PFHxA)	38	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorodecanoic acid (PFDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorohexanesulfonic acid (PFHxS)	21	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	230	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluoroheptanoic acid (PFHpA)	39	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorooctanoic acid (PFOA)	29	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorooctanesulfonic acid (PFOS)	41	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW
Perfluorononanoic acid (PFNA)	4.0	4.0	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:30	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-20S

Sampled: 1/10/2023 14:30

Sample ID: 23A1283-17

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	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluoropentanoic acid (PFPeA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorohexanoic acid (PFHxA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorodecanoic acid (PFDA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluoroheptanoic acid (PFHpA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorooctanoic acid (PFOA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW
Perfluorononanoic acid (PFNA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:37	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-20D

Sampled: 1/10/2023 15:00

Sample ID: 23A1283-18

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	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluoropentanoic acid (PFPeA)	8.2	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorohexanoic acid (PFHxA)	5.7	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorodecanoic acid (PFDA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	7.3	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluoroheptanoic acid (PFHpA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorooctanoic acid (PFOA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorooctanesulfonic acid (PFOS)	5.7	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW
Perfluorononanoic acid (PFNA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:45	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-EB

Sampled: 1/9/2023 15:00

Sample ID: 23A1283-19

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	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:52	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-Equipment Blank-2

Sampled: 1/10/2023 14:00

Sample ID: 23A1283-20

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	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorodecanoic acid (PFDA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorooctanoic acid (PFOA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW
Perfluorononanoic acid (PFNA)	ND	1.7	ng/L	1		SOP-454 PFAS	2/2/23	2/8/23 19:59	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-16D Filtrate

Sampled: 1/10/2023 08:05

Sample ID: 23A1283-21

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)	26	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorobutanesulfonic acid (PFBS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluoropentanoic acid (PFPeA)	76	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorohexanoic acid (PFHxA)	49	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
11Cl-PF3OUdS (F53B Major)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
9Cl-PF3ONS (F53B Minor)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorodecanoic acid (PFDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorododecanoic acid (PFDoA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
N-EtFOSAA (NEtFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
N-MeFOSAA (NMeFOSAA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorotetradecanoic acid (PFTA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorotridecanoic acid (PFTTrDA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorooctanesulfonamide (FOSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorononanesulfonic acid (PFNS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluoro-1-butanedisulfonamide (FBSA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorohexanesulfonic acid (PFHxS)	8.6	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	78	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluoropentanesulfonic acid (PFPeS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluoroundecanoic acid (PFUnA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluoroheptanoic acid (PFHpA)	24	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorooctanoic acid (PFOA)	16	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorooctanesulfonic acid (PFOS)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB
Perfluorononanoic acid (PFNA)	ND	4.0	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 19:52	RRB

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23A1283

Date Received: 1/12/2023

Field Sample #: GWS-20D Filtrate

Sampled: 1/10/2023 15:05

Sample ID: 23A1283-22

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	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorobutanesulfonic acid (PFBS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluoropentanoic acid (PFPeA)	9.8	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorohexanoic acid (PFHxA)	6.1	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorodecanoic acid (PFDA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorononanesulfonic acid (PFNS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluoro-1-butanesulfonamide (FBSA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorohexanesulfonic acid (PFHxS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluoropentanesulfonic acid (PFPeS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluoroundecanoic acid (PFUnA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluoroheptanoic acid (PFHpA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorooctanoic acid (PFOA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorooctanesulfonic acid (PFOS)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB
Perfluorononanoic acid (PFNA)	ND	4.1	ng/L	1		SOP-454 PFAS	2/1/23	2/9/23 20:00	RRB

Sample Extraction Data

Prep Method: SOP 454-PFAAS Analytical Method: SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23A1283-01 [GWS-12S]	B328788	49.4	1.00	02/02/23
23A1283-02 [GWS-12D]	B328788	49.4	1.00	02/02/23
23A1283-03 [GWS-13S]	B328788	49.3	1.00	02/02/23
23A1283-04 [GWS-13D]	B328788	50.2	1.00	02/02/23
23A1283-05 [GWS-14S]	B328788	49.0	1.00	02/02/23
23A1283-06 [GWS-14D]	B328788	48.2	1.00	02/02/23
23A1283-07 [GWS-15S]	B328788	49.3	1.00	02/02/23
23A1283-08 [GWS-15D]	B328788	50.5	1.00	02/02/23
23A1283-09 [GWS-16S]	B328788	124	1.00	02/02/23
23A1283-10 [GWS-16D]	B328788	124	1.00	02/02/23
23A1283-11 [GWS-17S]	B328788	125	1.00	02/02/23
23A1283-12 [GWS-17D]	B328788	124	1.00	02/02/23
23A1283-13 [GWS-18S]	B328788	123	1.00	02/02/23
23A1283-14 [GWS-18D]	B328788	124	1.00	02/02/23
23A1283-15 [GWS-19S]	B328788	123	1.00	02/02/23
23A1283-15RE1 [GWS-19S]	B328788	123	1.00	02/02/23
23A1283-16 [GWS-19D]	B328788	124	1.00	02/02/23
23A1283-17 [GWS-20S]	B328788	123	1.00	02/02/23
23A1283-18 [GWS-20D]	B328788	123	1.00	02/02/23
23A1283-19 [GWS-EB]	B328788	269	1.00	02/02/23
23A1283-20 [GWS-Equipment Blank-2]	B328788	288	1.00	02/02/23

Prep Method: SOP 454-PFAAS Analytical Method: SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23A1283-21 [GWS-16D Filtrate]	B329868	124	1.00	02/01/23
23A1283-22 [GWS-20D Filtrate]	B329868	122	1.00	02/01/23

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 B328788 - SOP 454-PFAAS
Blank (B328788-BLK1)

Prepared: 02/02/23 Analyzed: 02/08/23

Perfluorobutanoic acid (PFBA)	ND	1.8	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L

LCS (B328788-BS1)

Prepared: 02/02/23 Analyzed: 02/08/23

Perfluorobutanoic acid (PFBA)	6.57	1.7	ng/L	8.52	77.1	73-129
Perfluorobutanesulfonic acid (PFBS)	5.88	1.7	ng/L	7.54	78.0	72-130
Perfluoropentanoic acid (PFPeA)	6.48	1.7	ng/L	8.52	76.1	72-129
Perfluorohexanoic acid (PFHxA)	6.61	1.7	ng/L	8.52	77.5	72-129
11Cl-PF3OUdS (F53B Major)	6.73	1.7	ng/L	8.03	83.9	55.1-141
9Cl-PF3ONS (F53B Minor)	5.79	1.7	ng/L	7.94	72.9	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.06	1.7	ng/L	8.03	75.4	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.32	1.7	ng/L	8.52	86.0	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	6.76	1.7	ng/L	8.18	82.7	67-138
Perfluorodecanoic acid (PFDA)	6.91	1.7	ng/L	8.52	81.0	71-129
Perfluorododecanoic acid (PFDoA)	7.16	1.7	ng/L	8.52	84.1	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	6.04	1.7	ng/L	7.58	79.7	49.4-154

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 B328788 - SOP 454-PFAAS
LCS (B328788-BS1)

Prepared: 02/02/23 Analyzed: 02/08/23

Perfluoroheptanesulfonic acid (PFHpS)	7.00	1.7	ng/L	8.14		86.0	69-134			
N-EtFOSAA (NEtFOSAA)	8.20	1.7	ng/L	8.52		96.2	61-135			
N-MeFOSAA (NMeFOSAA)	7.67	1.7	ng/L	8.52		90.0	65-136			
Perfluorotetradecanoic acid (PFTA)	7.15	1.7	ng/L	8.52		83.9	71-132			
Perfluorotridecanoic acid (PFTTrDA)	6.90	1.7	ng/L	8.52		81.0	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	6.08	1.7	ng/L	7.97		76.4	63-143			
Perfluorodecanesulfonic acid (PFDS)	6.57	1.7	ng/L	8.22		79.9	53-142			
Perfluorooctanesulfonamide (FOSA)	6.86	1.7	ng/L	8.52		80.5	67-137			
Perfluorononanesulfonic acid (PFNS)	7.75	1.7	ng/L	8.18		94.7	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	6.61	1.7	ng/L	8.52		77.5	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	6.19	1.7	ng/L	8.52		72.7	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	5.67	1.7	ng/L	7.80		72.7	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	6.97	1.7	ng/L	8.52		81.8	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	6.94	1.7	ng/L	8.52		81.4	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6.85	1.7	ng/L	8.10		84.7	64-140			
Perfluoropentanesulfonic acid (PFPeS)	6.08	1.7	ng/L	8.01		75.9	71-127			
Perfluoroundecanoic acid (PFUnA)	7.84	1.7	ng/L	8.52		92.1	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.83	1.7	ng/L	8.52		80.1	58.5-143			
Perfluoroheptanoic acid (PFHpA)	6.62	1.7	ng/L	8.52		77.7	72-130			
Perfluorooctanoic acid (PFOA)	6.19	1.7	ng/L	8.52		72.6	71-133			
Perfluorooctanesulfonic acid (PFOS)	6.00	1.7	ng/L	7.88		76.1	65-140			
Perfluorononanoic acid (PFNA)	7.09	1.7	ng/L	8.52		83.2	69-130			

Matrix Spike (B328788-MS1)
Source: 23A1283-09

Prepared: 02/02/23 Analyzed: 02/08/23

Perfluorobutanoic acid (PFBA)	35.2	4.0	ng/L	20.2	16.4	93.3	73-129			
Perfluorobutanesulfonic acid (PFBS)	18.7	4.0	ng/L	17.9	ND	104	72-130			
Perfluoropentanoic acid (PFPeA)	63.4	4.0	ng/L	20.2	47.5	78.5	72-129			
Perfluorohexanoic acid (PFHxA)	52.3	4.0	ng/L	20.2	33.7	91.7	72-129			
11Cl-PF3OUdS (F53B Major)	20.6	4.0	ng/L	19.1	ND	108	58.3-140			
9Cl-PF3ONS (F53B Minor)	17.1	4.0	ng/L	18.9	ND	90.8	61.4-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	17.2	4.0	ng/L	19.1	ND	90.3	62.4-128			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	18.0	4.0	ng/L	20.2	ND	88.7	36.7-171			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	21.8	4.0	ng/L	19.4	ND	112	67-138			
Perfluorodecanoic acid (PFDA)	21.6	4.0	ng/L	20.2	ND	107	71-129			
Perfluorododecanoic acid (PFDoA)	20.7	4.0	ng/L	20.2	ND	102	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	18.1	4.0	ng/L	18.0	ND	100	54.3-149			
Perfluoroheptanesulfonic acid (PFHpS)	22.3	4.0	ng/L	19.3	ND	115	69-134			
N-EtFOSAA (NEtFOSAA)	21.9	4.0	ng/L	20.2	ND	108	61-135			
N-MeFOSAA (NMeFOSAA)	21.9	4.0	ng/L	20.2	ND	108	65-136			
Perfluorotetradecanoic acid (PFTA)	20.4	4.0	ng/L	20.2	ND	101	71-132			
Perfluorotridecanoic acid (PFTTrDA)	18.5	4.0	ng/L	20.2	ND	91.4	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	18.5	4.0	ng/L	18.9	ND	97.5	63-143			
Perfluorodecanesulfonic acid (PFDS)	19.8	4.0	ng/L	19.5	ND	102	53-142			
Perfluorooctanesulfonamide (FOSA)	21.0	4.0	ng/L	20.2	ND	104	67-137			
Perfluorononanesulfonic acid (PFNS)	22.4	4.0	ng/L	19.4	ND	115	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	20.8	4.0	ng/L	20.2	ND	103	64.2-154			
Perfluoro-1-butanefulfonamide (FBSA)	19.3	4.0	ng/L	20.2	ND	95.5	65.9-140			
Perfluorohexanesulfonic acid (PFHxS)	28.1	4.0	ng/L	18.5	9.55	100	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	21.9	4.0	ng/L	20.2	ND	108	61.9-143			
Perfluoro-5-oxahexanoic acid (PFMBA)	21.1	4.0	ng/L	20.2	ND	104	61.4-142			

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 B328788 - SOP 454-PFAAS

Matrix Spike (B328788-MS1)		Source: 23A1283-09			Prepared: 02/02/23 Analyzed: 02/08/23					
6:2 Fluorotelomersulfonic acid (6:2FTS A)	59.6	4.0	ng/L	19.2	44.6	78.1	64-140			
Perfluoropetanesulfonic acid (PFPeS)	19.8	4.0	ng/L	19.0	ND	104	71-127			
Perfluoroundecanoic acid (PFUnA)	24.8	4.0	ng/L	20.2	ND	123	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	21.3	4.0	ng/L	20.2	ND	105	62-138			
Perfluoroheptanoic acid (PFHpA)	32.6	4.0	ng/L	20.2	15.0	86.8	72-130			
Perfluorooctanoic acid (PFOA)	28.8	4.0	ng/L	20.2	10.6	90.0	71-133			
Perfluorooctanesulfonic acid (PFOS)	24.7	4.0	ng/L	18.7	5.49	103	65-140			
Perfluorononanoic acid (PFNA)	24.3	4.0	ng/L	20.2	ND	120	69-130			

Matrix Spike Dup (B328788-MSD1)		Source: 23A1283-09			Prepared: 02/02/23 Analyzed: 02/08/23					
Perfluorobutanoic acid (PFBA)	35.6	4.1	ng/L	20.5	16.4	94.2	73-129	1.11	30	
Perfluorobutanesulfonic acid (PFBS)	18.9	4.1	ng/L	18.1	ND	104	72-130	0.796	30	
Perfluoropentanoic acid (PFPeA)	64.5	4.1	ng/L	20.5	47.5	82.9	72-129	1.70	30	
Perfluorohexanoic acid (PFHxA)	52.4	4.1	ng/L	20.5	33.7	91.0	72-129	0.115	30	
11Cl-PF3OUdS (F53B Major)	21.1	4.1	ng/L	19.3	ND	109	58.3-140	2.22	30	
9Cl-PF3ONS (F53B Minor)	17.3	4.1	ng/L	19.1	ND	90.7	61.4-144	1.03	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	17.1	4.1	ng/L	19.3	ND	88.5	62.4-128	0.939	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	15.6	4.1	ng/L	20.5	ND	76.2	36.7-171	14.2	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	19.2	4.1	ng/L	19.6	ND	97.9	67-138	12.5	30	
Perfluorodecanoic acid (PFDA)	20.4	4.1	ng/L	20.5	ND	99.7	71-129	5.82	30	
Perfluorododecanoic acid (PFDoA)	21.3	4.1	ng/L	20.5	ND	104	72-134	2.51	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	19.2	4.1	ng/L	18.2	ND	105	54.3-149	5.93	30	
Perfluoroheptanesulfonic acid (PFHpS)	19.9	4.1	ng/L	19.5	ND	102	69-134	11.6	30	
N-EtFOSAA (NEtFOSAA)	23.4	4.1	ng/L	20.5	ND	114	61-135	6.94	30	
N-MeFOSAA (NMeFOSAA)	22.1	4.1	ng/L	20.5	ND	108	65-136	0.787	30	
Perfluorotetradecanoic acid (PFTA)	21.9	4.1	ng/L	20.5	ND	107	71-132	6.72	30	
Perfluorotridecanoic acid (PFTrDA)	20.6	4.1	ng/L	20.5	ND	100	65-144	10.5	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	18.9	4.1	ng/L	19.1	ND	98.6	63-143	2.16	30	
Perfluorodecanesulfonic acid (PFDS)	21.1	4.1	ng/L	19.7	ND	107	53-142	6.28	30	
Perfluorooctanesulfonamide (FOSA)	20.0	4.1	ng/L	20.5	ND	97.9	67-137	4.82	30	
Perfluorononanesulfonic acid (PFNS)	22.8	4.1	ng/L	19.6	ND	116	69-127	1.85	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	21.4	4.1	ng/L	20.5	ND	104	64.2-154	2.72	30	
Perfluoro-1-butanedisulfonamide (FBSA)	19.8	4.1	ng/L	20.5	ND	96.8	65.9-140	2.40	30	
Perfluorohexanesulfonic acid (PFHxS)	28.2	4.1	ng/L	18.7	9.55	99.9	68-131	0.363	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	22.2	4.1	ng/L	20.5	ND	108	61.9-143	1.24	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	21.9	4.1	ng/L	20.5	ND	107	61.4-142	3.99	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	65.8	4.1	ng/L	19.4	44.6	109	64-140	9.88	30	
Perfluoropetanesulfonic acid (PFPeS)	20.7	4.1	ng/L	19.2	ND	107	71-127	4.49	30	
Perfluoroundecanoic acid (PFUnA)	23.7	4.1	ng/L	20.5	ND	116	69-133	4.68	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	21.9	4.1	ng/L	20.5	ND	107	62-138	2.63	30	
Perfluoroheptanoic acid (PFHpA)	33.2	4.1	ng/L	20.5	15.0	89.0	72-130	1.96	30	
Perfluorooctanoic acid (PFOA)	29.1	4.1	ng/L	20.5	10.6	90.2	71-133	0.821	30	
Perfluorooctanesulfonic acid (PFOS)	25.0	4.1	ng/L	18.9	5.49	103	65-140	1.20	30	
Perfluorononanoic acid (PFNA)	24.9	4.1	ng/L	20.5	ND	121	69-130	2.33	30	

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 B329868 - SOP 454-PFAAS
Blank (B329868-BLK1)

Prepared: 02/01/23 Analyzed: 02/09/23

Perfluorobutanoic acid (PFBA)	ND	1.8	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L

LCS (B329868-BS1)

Prepared: 02/01/23 Analyzed: 02/09/23

Perfluorobutanoic acid (PFBA)	9.81	1.8	ng/L	8.95	110	73-129
Perfluorobutanesulfonic acid (PFBS)	8.47	1.8	ng/L	7.92	107	72-130
Perfluoropentanoic acid (PFPeA)	9.34	1.8	ng/L	8.95	104	72-129
Perfluorohexanoic acid (PFHxA)	9.60	1.8	ng/L	8.95	107	72-129
11Cl-PF3OUdS (F53B Major)	10.0	1.8	ng/L	8.43	119	55.1-141
9Cl-PF3ONS (F53B Minor)	8.96	1.8	ng/L	8.34	107	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.00	1.8	ng/L	8.43	107	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.01	1.8	ng/L	8.95	89.5	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.65	1.8	ng/L	8.59	112	67-138
Perfluorodecanoic acid (PFDA)	8.83	1.8	ng/L	8.95	98.7	71-129
Perfluorododecanoic acid (PFDoA)	9.65	1.8	ng/L	8.95	108	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	9.08	1.8	ng/L	7.97	114	49.4-154

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 B329868 - SOP 454-PFAAS
LCS (B329868-BS1)

Prepared: 02/01/23 Analyzed: 02/09/23

Perfluoroheptanesulfonic acid (PFHpS)	11.4	1.8	ng/L	8.55		133	69-134			
N-EtFOSAA (NEtFOSAA)	11.4	1.8	ng/L	8.95		127	61-135			
N-MeFOSAA (NMeFOSAA)	10.7	1.8	ng/L	8.95		119	65-136			
Perfluorotetradecanoic acid (PFTA)	9.82	1.8	ng/L	8.95		110	71-132			
Perfluorotridecanoic acid (PFTTrDA)	12.2	1.8	ng/L	8.95		136	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.98	1.8	ng/L	8.37		107	63-143			
Perfluorodecanesulfonic acid (PFDS)	8.95	1.8	ng/L	8.64		104	53-142			
Perfluorooctanesulfonamide (FOSA)	9.64	1.8	ng/L	8.95		108	67-137			
Perfluorononanesulfonic acid (PFNS)	10.2	1.8	ng/L	8.59		119	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	9.63	1.8	ng/L	8.95		108	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	8.67	1.8	ng/L	8.95		96.8	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	8.19	1.8	ng/L	8.19		99.9	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	10.2	1.8	ng/L	8.95		114	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.99	1.8	ng/L	8.95		112	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.87	1.8	ng/L	8.50		116	64-140			
Perfluoropentanesulfonic acid (PFPeS)	8.88	1.8	ng/L	8.41		106	71-127			
Perfluoroundecanoic acid (PFUnA)	11.2	1.8	ng/L	8.95		125	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.1	1.8	ng/L	8.95		113	58.5-143			
Perfluoroheptanoic acid (PFHpA)	10.1	1.8	ng/L	8.95		112	72-130			
Perfluorooctanoic acid (PFOA)	9.50	1.8	ng/L	8.95		106	71-133			
Perfluorooctanesulfonic acid (PFOS)	9.30	1.8	ng/L	8.28		112	65-140			
Perfluorononanoic acid (PFNA)	11.1	1.8	ng/L	8.95		124	69-130			

LCS Dup (B329868-BSD1)

Prepared: 02/01/23 Analyzed: 02/09/23

Perfluorobutanoic acid (PFBA)	10.3	1.8	ng/L	8.87		116	73-129	4.70	30	
Perfluorobutanesulfonic acid (PFBS)	9.02	1.8	ng/L	7.85		115	72-130	6.31	30	
Perfluoropentanoic acid (PFPeA)	9.93	1.8	ng/L	8.87		112	72-129	6.17	30	
Perfluorohexanoic acid (PFHxA)	10.1	1.8	ng/L	8.87		114	72-129	5.28	30	
11Cl-PF3OUdS (F53B Major)	10.6	1.8	ng/L	8.36		126	55.1-141	5.13	30	
9Cl-PF3ONS (F53B Minor)	8.42	1.8	ng/L	8.27		102	59.6-146	6.14	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.14	1.8	ng/L	8.36		109	60.3-131	1.53	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.99	1.8	ng/L	8.87		90.0	37.6-167	0.325	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.8	1.8	ng/L	8.52		127	67-138	11.7	30	
Perfluorodecanoic acid (PFDA)	9.97	1.8	ng/L	8.87		112	71-129	12.1	30	
Perfluorododecanoic acid (PFDoA)	10.2	1.8	ng/L	8.87		115	72-134	5.89	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	9.96	1.8	ng/L	7.90		126	49.4-154	9.26	30	
Perfluoroheptanesulfonic acid (PFHpS)	10.9	1.8	ng/L	8.47		129	69-134	4.05	30	
N-EtFOSAA (NEtFOSAA)	11.1	1.8	ng/L	8.87		125	61-135	2.41	30	
N-MeFOSAA (NMeFOSAA)	11.6	1.8	ng/L	8.87		131	65-136	8.70	30	
Perfluorotetradecanoic acid (PFTA)	9.97	1.8	ng/L	8.87		112	71-132	1.58	30	
Perfluorotridecanoic acid (PFTTrDA)	9.92	1.8	ng/L	8.87		112	65-144	20.5	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.54	1.8	ng/L	8.30		115	63-143	6.07	30	
Perfluorodecanesulfonic acid (PFDS)	10.3	1.8	ng/L	8.56		120	53-142	14.2	30	
Perfluorooctanesulfonamide (FOSA)	9.38	1.8	ng/L	8.87		106	67-137	2.77	30	
Perfluorononanesulfonic acid (PFNS)	11.0	1.8	ng/L	8.52		130	* 69-127	7.53	30	L-01
Perfluoro-1-hexanesulfonamide (FHxSA)	9.18	1.8	ng/L	8.87		103	61.7-156	4.81	30	
Perfluoro-1-butanefulfonamide (FBSA)	9.11	1.8	ng/L	8.87		103	61.3-145	4.93	30	
Perfluorohexanesulfonic acid (PFHxS)	8.80	1.8	ng/L	8.12		108	68-131	7.22	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	10.7	1.8	ng/L	8.87		121	59.8-147	4.97	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	10.6	1.8	ng/L	8.87		120	59.5-146	6.15	30	

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 B329868 - SOP 454-PFAAS
LCS Dup (B329868-BSD1)

Prepared: 02/01/23 Analyzed: 02/09/23

6:2 Fluorotelomersulfonic acid (6:2FTS A)	10.6	1.8	ng/L	8.43		126	64-140	7.16	30	
Perfluoropetanesulfonic acid (PFPeS)	9.39	1.8	ng/L	8.34		113	71-127	5.59	30	
Perfluoroundecanoic acid (PFUnA)	11.6	1.8	ng/L	8.87		131	69-133	3.68	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.7	1.8	ng/L	8.87		120	58.5-143	5.60	30	
Perfluoroheptanoic acid (PFHpA)	10.1	1.8	ng/L	8.87		114	72-130	0.265	30	
Perfluorooctanoic acid (PFOA)	10.4	1.8	ng/L	8.87		117	71-133	9.12	30	
Perfluorooctanesulfonic acid (PFOS)	9.28	1.8	ng/L	8.21		113	65-140	0.245	30	
Perfluorononanoic acid (PFNA)	11.8	1.8	ng/L	8.87		133	* 69-130	6.29	30	L-01

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.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
S-29	Extracted Internal Standard is outside of control limits.
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.

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-12S (23A1283-01) Lab File ID: 23A1283-01.d Analyzed: 02/08/23 17:32									
M8FOSA	239421.2	4.0765	491,387.00	4.0765	49	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	89454.74	2.69535	155,513.00	2.69535	58	50 - 150	0.0000	+/-0.50	
M2PFTA	548315.1	4.410917	812,007.00	4.410917	68	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	104741.4	3.88305	189,856.00	3.88305	55	50 - 150	0.0000	+/-0.50	
MPFBA	454788.3	1.158183	476,135.00	1.149867	96	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	123131.4	2.994683	83,586.00	2.994683	147	50 - 150	0.0000	+/-0.50	
M6PFDA	684183.9	3.883583	776,979.00	3.883583	88	50 - 150	0.0000	+/-0.50	
M3PFBS	138179.9	2.071467	144,252.00	2.071467	96	50 - 150	0.0000	+/-0.50	
M7PFUnA	800602.2	4.033967	877,121.00	4.033967	91	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	63438.65	3.5336	106,083.00	3.5336	60	50 - 150	0.0000	+/-0.50	
M5PFPeA	386976.4	1.882533	402,391.00	1.874233	96	50 - 150	0.0083	+/-0.50	
M5PFHxA	652297.7	2.788133	678,326.00	2.788133	96	50 - 150	0.0000	+/-0.50	
M3PFHxS	110103	3.316417	121,527.00	3.316417	91	50 - 150	0.0000	+/-0.50	
M4PFHpA	718031.2	3.2853	764,612.00	3.2853	94	50 - 150	0.0000	+/-0.50	
M8PFOA	670944.5	3.542133	683,426.00	3.542133	98	50 - 150	0.0000	+/-0.50	
M8PFOS	147308.5	3.724233	166,286.00	3.724233	89	50 - 150	0.0000	+/-0.50	
M9PFNA	645308.8	3.725233	722,381.00	3.725233	89	50 - 150	0.0000	+/-0.50	
MPFDoA	634042.9	4.169267	782,381.00	4.169267	81	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	177749	4.041433	234,800.00	4.041433	76	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	220049.9	3.961867	283,150.00	3.961867	78	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-12D (23A1283-02)		Lab File ID: 23A1283-02.d				Analyzed: 02/08/23 17:39			
M8FOSA	153835.9	4.0765	491,387.00	4.0765	31	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	115533.8	2.69535	155,513.00	2.69535	74	50 - 150	0.0000	+/-0.50	
M2PFTA	701584.2	4.402783	812,007.00	4.410917	86	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	136887.5	3.88305	189,856.00	3.88305	72	50 - 150	0.0000	+/-0.50	
MPFBA	553122.4	1.158183	476,135.00	1.149867	116	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	104263.7	2.994683	83,586.00	2.994683	125	50 - 150	0.0000	+/-0.50	
M6PFDA	804050.9	3.883583	776,979.00	3.883583	103	50 - 150	0.0000	+/-0.50	
M3PFBS	171297.9	2.071467	144,252.00	2.071467	119	50 - 150	0.0000	+/-0.50	
M7PFUnA	835213.8	4.033967	877,121.00	4.033967	95	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	80157.72	3.5336	106,083.00	3.5336	76	50 - 150	0.0000	+/-0.50	
M5PFPeA	464610.4	1.874233	402,391.00	1.874233	115	50 - 150	0.0000	+/-0.50	
M5PFHxA	807393.2	2.788133	678,326.00	2.788133	119	50 - 150	0.0000	+/-0.50	
M3PFHxS	146879.8	3.316417	121,527.00	3.316417	121	50 - 150	0.0000	+/-0.50	
M4PFHpA	901002.4	3.2853	764,612.00	3.2853	118	50 - 150	0.0000	+/-0.50	
M8PFOA	816571.3	3.542133	683,426.00	3.542133	119	50 - 150	0.0000	+/-0.50	
M8PFOS	171145.9	3.724233	166,286.00	3.724233	103	50 - 150	0.0000	+/-0.50	
M9PFNA	775255.9	3.725233	722,381.00	3.725233	107	50 - 150	0.0000	+/-0.50	
MPFDoA	718610.5	4.169267	782,381.00	4.169267	92	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	211912.9	4.041433	234,800.00	4.041433	90	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	271588.5	3.961867	283,150.00	3.961867	96	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-13S (23A1283-03)		Lab File ID: 23A1283-03.d				Analyzed: 02/08/23 17:47			
M8FOSA	172150.8	4.0765	491,387.00	4.0765	35	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	98447.92	2.69535	155,513.00	2.69535	63	50 - 150	0.0000	+/-0.50	
M2PFTA	667470.1	4.402783	812,007.00	4.410917	82	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	113066.8	3.88305	189,856.00	3.88305	60	50 - 150	0.0000	+/-0.50	
MPFBA	482371	1.149867	476,135.00	1.149867	101	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	109617	2.994683	83,586.00	2.994683	131	50 - 150	0.0000	+/-0.50	
M6PFDA	722753.1	3.883583	776,979.00	3.883583	93	50 - 150	0.0000	+/-0.50	
M3PFBS	152481.3	2.0632	144,252.00	2.071467	106	50 - 150	-0.0083	+/-0.50	
M7PFUnA	759743.3	4.025967	877,121.00	4.033967	87	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	70461.9	3.5336	106,083.00	3.5336	66	50 - 150	0.0000	+/-0.50	
M5PFPeA	415500.5	1.874233	402,391.00	1.874233	103	50 - 150	0.0000	+/-0.50	
M5PFHxA	707050.4	2.788133	678,326.00	2.788133	104	50 - 150	0.0000	+/-0.50	
M3PFHxS	124456.1	3.316417	121,527.00	3.316417	102	50 - 150	0.0000	+/-0.50	
M4PFHpA	776800.5	3.2853	764,612.00	3.2853	102	50 - 150	0.0000	+/-0.50	
M8PFOA	721970.4	3.542133	683,426.00	3.542133	106	50 - 150	0.0000	+/-0.50	
M8PFOS	158634.1	3.724233	166,286.00	3.724233	95	50 - 150	0.0000	+/-0.50	
M9PFNA	705056.2	3.725233	722,381.00	3.725233	98	50 - 150	0.0000	+/-0.50	
MPFDoA	676810.2	4.169267	782,381.00	4.169267	87	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	186258.5	4.03345	234,800.00	4.041433	79	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	221883	3.961867	283,150.00	3.961867	78	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-13D (23A1283-04) Lab File ID: 23A1283-04.d Analyzed: 02/08/23 17:54									
M8FOSA	79302.53	4.0765	491,387.00	4.0765	16	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	105673.3	2.69535	155,513.00	2.69535	68	50 - 150	0.0000	+/-0.50	
M2PFTA	36449.55	4.402783	812,007.00	4.410917	04	50 - 150	-0.0081	+/-0.50	*
M2-8:2FTS	108466.4	3.88305	189,856.00	3.88305	57	50 - 150	0.0000	+/-0.50	
MPFBA	465268.9	1.158183	476,135.00	1.149867	98	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	84600.71	2.994683	83,586.00	2.994683	101	50 - 150	0.0000	+/-0.50	
M6PFDA	688850.8	3.883583	776,979.00	3.883583	89	50 - 150	0.0000	+/-0.50	
M3PFBS	143465	2.071467	144,252.00	2.071467	99	50 - 150	0.0000	+/-0.50	
M7PFUnA	632831.4	4.025967	877,121.00	4.033967	72	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	67481.13	3.5336	106,083.00	3.5336	64	50 - 150	0.0000	+/-0.50	
M5PFPeA	407609.3	1.874233	402,391.00	1.874233	101	50 - 150	0.0000	+/-0.50	
M5PFHxA	683872.8	2.788133	678,326.00	2.788133	101	50 - 150	0.0000	+/-0.50	
M3PFHxS	118907.5	3.316417	121,527.00	3.316417	98	50 - 150	0.0000	+/-0.50	
M4PFHpA	771204.1	3.2853	764,612.00	3.2853	101	50 - 150	0.0000	+/-0.50	
M8PFOA	674167.1	3.542133	683,426.00	3.542133	99	50 - 150	0.0000	+/-0.50	
M8PFOS	147034.5	3.724233	166,286.00	3.724233	88	50 - 150	0.0000	+/-0.50	
M9PFNA	659236.4	3.725233	722,381.00	3.725233	91	50 - 150	0.0000	+/-0.50	
MPFDoA	310606	4.169267	782,381.00	4.169267	40	50 - 150	0.0000	+/-0.50	*
D5-NEtFOSAA	169158.8	4.03345	234,800.00	4.041433	72	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	187312.7	3.961867	283,150.00	3.961867	66	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-14S (23A1283-05)		Lab File ID: 23A1283-05.d				Analyzed: 02/08/23 18:01			
M8FOSA	384790.1	4.0765	491,387.00	4.0765	78	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	107614.1	2.69535	155,513.00	2.69535	69	50 - 150	0.0000	+/-0.50	
M2PFTA	827428.6	4.402783	812,007.00	4.410917	102	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	119835.6	3.88305	189,856.00	3.88305	63	50 - 150	0.0000	+/-0.50	
MPFBA	582408.6	1.149867	476,135.00	1.149867	122	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	103863.6	2.994683	83,586.00	2.994683	124	50 - 150	0.0000	+/-0.50	
M6PFDA	878279.9	3.883567	776,979.00	3.883583	113	50 - 150	0.0000	+/-0.50	
M3PFBS	178363.6	2.0632	144,252.00	2.071467	124	50 - 150	-0.0083	+/-0.50	
M7PFUnA	943718	4.025967	877,121.00	4.033967	108	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	77616.48	3.5336	106,083.00	3.5336	73	50 - 150	0.0000	+/-0.50	
M5PFPeA	491738.5	1.874233	402,391.00	1.874233	122	50 - 150	0.0000	+/-0.50	
M5PFHxA	839124.1	2.788133	678,326.00	2.788133	124	50 - 150	0.0000	+/-0.50	
M3PFHxS	149703.6	3.316417	121,527.00	3.316417	123	50 - 150	0.0000	+/-0.50	
M4PFHpA	935147.6	3.2853	764,612.00	3.2853	122	50 - 150	0.0000	+/-0.50	
M8PFOA	850154	3.542133	683,426.00	3.542133	124	50 - 150	0.0000	+/-0.50	
M8PFOS	182090.5	3.724233	166,286.00	3.724233	110	50 - 150	0.0000	+/-0.50	
M9PFNA	821084	3.725233	722,381.00	3.725233	114	50 - 150	0.0000	+/-0.50	
MPFDoA	798876.6	4.169267	782,381.00	4.169267	102	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	222354.7	4.033433	234,800.00	4.041433	95	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	274563.3	3.961867	283,150.00	3.961867	97	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-14D (23A1283-06)		Lab File ID: 23A1283-06.d				Analyzed: 02/08/23 18:09			
M8FOSA	456641.5	4.0765	491,387.00	4.0765	93	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	97059.1	2.69535	155,513.00	2.69535	62	50 - 150	0.0000	+/-0.50	
M2PFTA	842283.1	4.402783	812,007.00	4.410917	104	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	107598.6	3.88305	189,856.00	3.88305	57	50 - 150	0.0000	+/-0.50	
MPFBA	546456.9	1.149867	476,135.00	1.149867	115	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	114297.6	2.994683	83,586.00	2.994683	137	50 - 150	0.0000	+/-0.50	
M6PFDA	811699.8	3.883583	776,979.00	3.883583	104	50 - 150	0.0000	+/-0.50	
M3PFBS	168379.4	2.0632	144,252.00	2.071467	117	50 - 150	-0.0083	+/-0.50	
M7PFUnA	872494.8	4.025967	877,121.00	4.033967	99	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	69955.6	3.5336	106,083.00	3.5336	66	50 - 150	0.0000	+/-0.50	
M5PFPeA	469095.8	1.874233	402,391.00	1.874233	117	50 - 150	0.0000	+/-0.50	
M5PFHxA	793441.8	2.77995	678,326.00	2.788133	117	50 - 150	-0.0082	+/-0.50	
M3PFHxS	146456.6	3.316417	121,527.00	3.316417	121	50 - 150	0.0000	+/-0.50	
M4PFHpA	895964.2	3.2853	764,612.00	3.2853	117	50 - 150	0.0000	+/-0.50	
M8PFOA	827221.4	3.542133	683,426.00	3.542133	121	50 - 150	0.0000	+/-0.50	
M8PFOS	180298.1	3.724233	166,286.00	3.724233	108	50 - 150	0.0000	+/-0.50	
M9PFNA	795005.8	3.725233	722,381.00	3.725233	110	50 - 150	0.0000	+/-0.50	
MPFDoA	796770.9	4.169267	782,381.00	4.169267	102	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	200930.6	4.03345	234,800.00	4.041433	86	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	259097.9	3.953867	283,150.00	3.961867	92	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-15S (23A1283-07) Lab File ID: 23A1283-07.d Analyzed: 02/08/23 18:16									
M8FOSA	349398.6	4.0765	491,387.00	4.0765	71	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	80909.26	2.69535	155,513.00	2.69535	52	50 - 150	0.0000	+/-0.50	
M2PFTA	707581.1	4.402783	812,007.00	4.410917	87	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	104087.1	3.88305	189,856.00	3.88305	55	50 - 150	0.0000	+/-0.50	
MPFBA	456038	1.149867	476,135.00	1.149867	96	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	96424.13	2.994683	83,586.00	2.994683	115	50 - 150	0.0000	+/-0.50	
M6PFDA	676593.4	3.8756	776,979.00	3.883583	87	50 - 150	-0.0080	+/-0.50	
M3PFBS	139846.5	2.0632	144,252.00	2.071467	97	50 - 150	-0.0083	+/-0.50	
M7PFUnA	790045.9	4.025967	877,121.00	4.033967	90	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	59897.26	3.5336	106,083.00	3.5336	56	50 - 150	0.0000	+/-0.50	
M5PFPeA	392230.4	1.874233	402,391.00	1.874233	97	50 - 150	0.0000	+/-0.50	
M5PFHxA	653330	2.77995	678,326.00	2.788133	96	50 - 150	-0.0082	+/-0.50	
M3PFHxS	125172.6	3.308383	121,527.00	3.316417	103	50 - 150	-0.0080	+/-0.50	
M4PFHpA	738885.1	3.285283	764,612.00	3.2853	97	50 - 150	0.0000	+/-0.50	
M8PFOA	662283.4	3.542133	683,426.00	3.542133	97	50 - 150	0.0000	+/-0.50	
M8PFOS	140710.2	3.724233	166,286.00	3.724233	85	50 - 150	0.0000	+/-0.50	
M9PFNA	650702.1	3.725233	722,381.00	3.725233	90	50 - 150	0.0000	+/-0.50	
MPFDoA	673476.9	4.1612	782,381.00	4.169267	86	50 - 150	-0.0081	+/-0.50	
D5-NEtFOSAA	176671.6	4.033433	234,800.00	4.041433	75	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	233129.1	3.953867	283,150.00	3.961867	82	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-15D (23A1283-08)		Lab File ID: 23A1283-08.d				Analyzed: 02/08/23 18:23			
M8FOSA	257447.1	4.0765	491,387.00	4.0765	52	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	84940.29	2.69535	155,513.00	2.69535	55	50 - 150	0.0000	+/-0.50	
M2PFTA	696745.9	4.402783	812,007.00	4.410917	86	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	108018.1	3.88305	189,856.00	3.88305	57	50 - 150	0.0000	+/-0.50	
MPFBA	470860.3	1.149867	476,135.00	1.149867	99	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	101121.8	2.994683	83,586.00	2.994683	121	50 - 150	0.0000	+/-0.50	
M6PFDA	722305.9	3.8756	776,979.00	3.883583	93	50 - 150	-0.0080	+/-0.50	
M3PFBS	142421.9	2.0632	144,252.00	2.071467	99	50 - 150	-0.0083	+/-0.50	
M7PFUnA	807982.4	4.025967	877,121.00	4.033967	92	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	54908.84	3.5336	106,083.00	3.5336	52	50 - 150	0.0000	+/-0.50	
M5PFPeA	401399.8	1.874233	402,391.00	1.874233	100	50 - 150	0.0000	+/-0.50	
M5PFHxA	686502.9	2.77995	678,326.00	2.788133	101	50 - 150	-0.0082	+/-0.50	
M3PFHxS	119918.3	3.316417	121,527.00	3.316417	99	50 - 150	0.0000	+/-0.50	
M4PFHpA	754346.3	3.2853	764,612.00	3.2853	99	50 - 150	0.0000	+/-0.50	
M8PFOA	680276.4	3.542133	683,426.00	3.542133	100	50 - 150	0.0000	+/-0.50	
M8PFOS	158455.3	3.724233	166,286.00	3.724233	95	50 - 150	0.0000	+/-0.50	
M9PFNA	691529.8	3.725233	722,381.00	3.725233	96	50 - 150	0.0000	+/-0.50	
MPFDoA	668813.4	4.1612	782,381.00	4.169267	85	50 - 150	-0.0081	+/-0.50	
D5-NEtFOSAA	173792.6	4.033433	234,800.00	4.041433	74	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	207563.6	3.953867	283,150.00	3.961867	73	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-16S (23A1283-09) Lab File ID: 23A1283-09.d Analyzed: 02/08/23 18:31									
M8FOSA	416620.5	4.0765	491,387.00	4.0765	85	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	88188.1	2.68715	155,513.00	2.69535	57	50 - 150	-0.0082	+/-0.50	
M2PFTA	801365.5	4.402783	812,007.00	4.410917	99	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	132046.6	3.875067	189,856.00	3.88305	70	50 - 150	-0.0080	+/-0.50	
MPFBA	486059.8	1.149867	476,135.00	1.149867	102	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	109025.3	2.986567	83,586.00	2.994683	130	50 - 150	-0.0081	+/-0.50	
M6PFDA	782293.5	3.8756	776,979.00	3.883583	101	50 - 150	-0.0080	+/-0.50	
M3PFBS	154965.4	2.0632	144,252.00	2.071467	107	50 - 150	-0.0083	+/-0.50	
M7PFUnA	872362.4	4.025967	877,121.00	4.033967	99	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	75031.94	3.5256	106,083.00	3.5336	71	50 - 150	-0.0080	+/-0.50	
M5PFPeA	426140.8	1.86595	402,391.00	1.874233	106	50 - 150	-0.0083	+/-0.50	
M5PFHxA	720606.4	2.77995	678,326.00	2.788133	106	50 - 150	-0.0082	+/-0.50	
M3PFHxS	135934.8	3.308383	121,527.00	3.316417	112	50 - 150	-0.0080	+/-0.50	
M4PFHpA	800597.3	3.2853	764,612.00	3.2853	105	50 - 150	0.0000	+/-0.50	
M8PFOA	764854	3.542133	683,426.00	3.542133	112	50 - 150	0.0000	+/-0.50	
M8PFOS	154406.9	3.724233	166,286.00	3.724233	93	50 - 150	0.0000	+/-0.50	
M9PFNA	727695.7	3.725233	722,381.00	3.725233	101	50 - 150	0.0000	+/-0.50	
MPFDoA	762499	4.1612	782,381.00	4.169267	97	50 - 150	-0.0081	+/-0.50	
D5-NEtFOSAA	214213	4.033433	234,800.00	4.041433	91	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	249574.1	3.953867	283,150.00	3.961867	88	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-16D (23A1283-10) Lab File ID: 23A1283-10.d Analyzed: 02/08/23 18:38									
M8FOSA	382973.9	4.0765	491,387.00	4.0765	78	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	193027.6	2.68715	155,513.00	2.69535	124	50 - 150	-0.0082	+/-0.50	
M2PFTA	822851.9	4.4028	812,007.00	4.410917	101	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	316685.1	3.875067	189,856.00	3.88305	167	50 - 150	-0.0080	+/-0.50	*
MPFBA	427077.1	1.149867	476,135.00	1.149867	90	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	78739.2	2.986567	83,586.00	2.994683	94	50 - 150	-0.0081	+/-0.50	
M6PFDA	702565.6	3.8756	776,979.00	3.883583	90	50 - 150	-0.0080	+/-0.50	
M3PFBS	145543.5	2.054933	144,252.00	2.071467	101	50 - 150	-0.0165	+/-0.50	
M7PFUnA	841290.6	4.025967	877,121.00	4.033967	96	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	221835	3.5256	106,083.00	3.5336	209	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	387422.1	1.86595	402,391.00	1.874233	96	50 - 150	-0.0083	+/-0.50	
M5PFHxA	675896.7	2.771783	678,326.00	2.788133	100	50 - 150	-0.0164	+/-0.50	
M3PFHxS	129412.4	3.308383	121,527.00	3.316417	106	50 - 150	-0.0080	+/-0.50	
M4PFHpA	737173.1	3.27725	764,612.00	3.2853	96	50 - 150	-0.0080	+/-0.50	
M8PFOA	719690.9	3.542133	683,426.00	3.542133	105	50 - 150	0.0000	+/-0.50	
M8PFOS	149974.3	3.716267	166,286.00	3.724233	90	50 - 150	-0.0080	+/-0.50	
M9PFNA	665230.7	3.717267	722,381.00	3.725233	92	50 - 150	-0.0080	+/-0.50	
MPFDoA	634843.8	4.1612	782,381.00	4.169267	81	50 - 150	-0.0081	+/-0.50	
D5-NEtFOSAA	253475	4.03345	234,800.00	4.041433	108	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	129744.5	3.953867	283,150.00	3.961867	46	50 - 150	-0.0080	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-17S (23A1283-11) Lab File ID: 23A1283-11.d Analyzed: 02/08/23 18:53									
M8FOSA	235912.9	4.0765	491,387.00	4.0765	48	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	142041.2	2.68715	155,513.00	2.678933	91	50 - 150	0.0082	+/-0.50	
M2PFTA	107041.5	4.402783	812,007.00	4.4028	13	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	159021	3.875067	189,856.00	3.875067	84	50 - 150	0.0000	+/-0.50	
MPFBA	559562.9	1.149867	476,135.00	1.149867	118	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	100787	2.986567	83,586.00	2.986567	121	50 - 150	0.0000	+/-0.50	
M6PFDA	813102.8	3.8756	776,979.00	3.8756	105	50 - 150	0.0000	+/-0.50	
M3PFBS	178873.3	2.054933	144,252.00	2.054933	124	50 - 150	0.0000	+/-0.50	
M7PFUnA	795147.8	4.017983	877,121.00	4.025967	91	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	155719.7	3.5256	106,083.00	3.5256	147	50 - 150	0.0000	+/-0.50	
M5PFPeA	501665.9	1.86595	402,391.00	1.86595	125	50 - 150	0.0000	+/-0.50	
M5PFHxA	872511.7	2.771783	678,326.00	2.771783	129	50 - 150	0.0000	+/-0.50	
M3PFHxS	162336.3	3.308383	121,527.00	3.308383	134	50 - 150	0.0000	+/-0.50	
M4PFHpA	971335.6	3.2853	764,612.00	3.27725	127	50 - 150	0.0080	+/-0.50	
M8PFOA	903225.4	3.542133	683,426.00	3.542133	132	50 - 150	0.0000	+/-0.50	
M8PFOS	171478.9	3.716267	166,286.00	3.716267	103	50 - 150	0.0000	+/-0.50	
M9PFNA	823020.8	3.717267	722,381.00	3.725233	114	50 - 150	-0.0080	+/-0.50	
MPFDoA	467378.5	4.1612	782,381.00	4.1612	60	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	264808.8	4.03345	234,800.00	4.03345	113	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	260797.2	3.953867	283,150.00	3.953867	92	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-17D (23A1283-12) Lab File ID: 23A1283-12.d Analyzed: 02/08/23 19:01									
M8FOSA	30116.47	4.0765	491,387.00	4.0765	06	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	118030.3	2.68715	155,513.00	2.678933	76	50 - 150	0.0082	+/-0.50	
M2PFTA	10958.47	4.402783	812,007.00	4.4028	01	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	126015.7	3.875067	189,856.00	3.875067	66	50 - 150	0.0000	+/-0.50	
MPFBA	564758.6	1.149867	476,135.00	1.149867	119	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	121165.6	2.986567	83,586.00	2.986567	145	50 - 150	0.0000	+/-0.50	
M6PFDA	591592.6	3.8756	776,979.00	3.8756	76	50 - 150	0.0000	+/-0.50	
M3PFBS	171267.2	2.054933	144,252.00	2.054933	119	50 - 150	0.0000	+/-0.50	
M7PFUnA	347064.4	4.025967	877,121.00	4.025967	40	50 - 150	0.0000	+/-0.50	*
M2-6:2FTS	130670.4	3.5256	106,083.00	3.5256	123	50 - 150	0.0000	+/-0.50	
M5PFPeA	475604.1	1.86595	402,391.00	1.86595	118	50 - 150	0.0000	+/-0.50	
M5PFHxA	835237.6	2.771783	678,326.00	2.771783	123	50 - 150	0.0000	+/-0.50	
M3PFHxS	151132.3	3.308383	121,527.00	3.308383	124	50 - 150	0.0000	+/-0.50	
M4PFHpA	921216.9	3.27725	764,612.00	3.27725	120	50 - 150	0.0000	+/-0.50	
M8PFOA	887324.2	3.534133	683,426.00	3.542133	130	50 - 150	-0.0080	+/-0.50	
M8PFOS	148497.1	3.716267	166,286.00	3.716267	89	50 - 150	0.0000	+/-0.50	
M9PFNA	739996.1	3.717267	722,381.00	3.725233	102	50 - 150	-0.0080	+/-0.50	
MPFDoA	95681.31	4.1612	782,381.00	4.1612	12	50 - 150	0.0000	+/-0.50	*
D5-NEtFOSAA	107187.7	4.03345	234,800.00	4.03345	46	50 - 150	0.0000	+/-0.50	*
D3-NMeFOSAA	176182.4	3.953867	283,150.00	3.953867	62	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-18S (23A1283-13)		Lab File ID: 23A1283-13.d				Analyzed: 02/08/23 19:08			
M8FOSA	351117.9	4.0765	491,387.00	4.0765	71	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	160006.1	2.670733	155,513.00	2.678933	103	50 - 150	-0.0082	+/-0.50	
M2PFTA	1211746	4.394667	812,007.00	4.4028	149	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	247380	3.86685	189,856.00	3.875067	130	50 - 150	-0.0082	+/-0.50	
MPFBA	678463.2	1.141567	476,135.00	1.149867	142	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	131939.7	2.97845	83,586.00	2.986567	158	50 - 150	-0.0081	+/-0.50	*
M6PFDA	1027892	3.867333	776,979.00	3.8756	132	50 - 150	-0.0083	+/-0.50	
M3PFBS	225465.6	2.044217	144,252.00	2.054933	156	50 - 150	-0.0107	+/-0.50	*
M7PFUnA	1108722	4.009984	877,121.00	4.025967	126	50 - 150	-0.0160	+/-0.50	
M2-6:2FTS	192915	3.5256	106,083.00	3.5256	182	50 - 150	0.0000	+/-0.50	*
M5PFPeA	604477.8	1.857667	402,391.00	1.86595	150	50 - 150	-0.0083	+/-0.50	
M5PFHxA	1033663	2.7636	678,326.00	2.771783	152	50 - 150	-0.0082	+/-0.50	*
M3PFHxS	211841.9	3.300333	121,527.00	3.308383	174	50 - 150	-0.0080	+/-0.50	*
M4PFHpA	1184250	3.27725	764,612.00	3.27725	155	50 - 150	0.0000	+/-0.50	*
M8PFOA	1130420	3.534133	683,426.00	3.542133	165	50 - 150	-0.0080	+/-0.50	*
M8PFOS	242268.8	3.716267	166,286.00	3.716267	146	50 - 150	0.0000	+/-0.50	
M9PFNA	980073.6	3.717267	722,381.00	3.725233	136	50 - 150	-0.0080	+/-0.50	
MPFDoA	869469.9	4.153133	782,381.00	4.1612	111	50 - 150	-0.0081	+/-0.50	
D5-NEtFOSAA	286364.1	4.02545	234,800.00	4.03345	122	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	218453.1	3.945867	283,150.00	3.953867	77	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-18D (23A1283-14) Lab File ID: 23A1283-14.d Analyzed: 02/08/23 19:15									
M8FOSA	117566.4	4.0765	491,387.00	4.0765	24	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	80511.53	2.661333	155,513.00	2.678933	52	50 - 150	-0.0176	+/-0.50	
M2PFTA	264065.9	4.38655	812,007.00	4.4028	33	50 - 150	-0.0163	+/-0.50	*
M2-8:2FTS	142760	3.86685	189,856.00	3.875067	75	50 - 150	-0.0082	+/-0.50	
MPFBA	491882.7	1.141567	476,135.00	1.149867	103	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	122415.9	2.970317	83,586.00	2.986567	146	50 - 150	-0.0162	+/-0.50	
M6PFDA	726998.2	3.867333	776,979.00	3.8756	94	50 - 150	-0.0083	+/-0.50	
M3PFBS	149779.2	2.035933	144,252.00	2.054933	104	50 - 150	-0.0190	+/-0.50	
M7PFUnA	758736.3	4.009984	877,121.00	4.025967	87	50 - 150	-0.0160	+/-0.50	
M2-6:2FTS	89540.22	3.517617	106,083.00	3.5256	84	50 - 150	-0.0080	+/-0.50	
M5PFPeA	417356.8	1.849383	402,391.00	1.86595	104	50 - 150	-0.0166	+/-0.50	
M5PFHxA	716816.4	2.755417	678,326.00	2.771783	106	50 - 150	-0.0164	+/-0.50	
M3PFHxS	139221.8	3.300333	121,527.00	3.308383	115	50 - 150	-0.0080	+/-0.50	
M4PFHpA	795225.3	3.268033	764,612.00	3.27725	104	50 - 150	-0.0092	+/-0.50	
M8PFOA	747758.2	3.52615	683,426.00	3.542133	109	50 - 150	-0.0160	+/-0.50	
M8PFOS	159610.6	3.7083	166,286.00	3.716267	96	50 - 150	-0.0080	+/-0.50	
M9PFNA	637322.3	3.709283	722,381.00	3.725233	88	50 - 150	-0.0159	+/-0.50	
MPFDoA	541689.2	4.14485	782,381.00	4.1612	69	50 - 150	-0.0164	+/-0.50	
D5-NEtFOSAA	227493.6	4.01745	234,800.00	4.03345	97	50 - 150	-0.0160	+/-0.50	
D3-NMeFOSAA	232946.3	3.937883	283,150.00	3.953867	82	50 - 150	-0.0160	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-19S (23A1283-15) Lab File ID: 23A1283-15.d Analyzed: 02/08/23 19:23									
M8FOSA	311882.7	4.0765	491,387.00	4.0765	63	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	109653.8	2.6531	155,513.00	2.678933	71	50 - 150	-0.0258	+/-0.50	
M2PFTA	543207.3	4.38655	812,007.00	4.4028	67	50 - 150	-0.0163	+/-0.50	
M2-8:2FTS	173563.2	3.858883	189,856.00	3.875067	91	50 - 150	-0.0162	+/-0.50	
MPFBA	502873.6	1.141567	476,135.00	1.149867	106	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	126860.5	2.9622	83,586.00	2.986567	152	50 - 150	-0.0244	+/-0.50	*
M6PFDA	815651.9	3.859383	776,979.00	3.8756	105	50 - 150	-0.0162	+/-0.50	
M3PFBS	166455.9	2.035933	144,252.00	2.054933	115	50 - 150	-0.0190	+/-0.50	
M7PFUnA	840552.8	4.009984	877,121.00	4.025967	96	50 - 150	-0.0160	+/-0.50	
M2-6:2FTS	308028.2	3.517617	106,083.00	3.5256	290	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	437335.6	1.8411	402,391.00	1.86595	109	50 - 150	-0.0249	+/-0.50	
M5PFHxA	762842.1	2.747233	678,326.00	2.771783	112	50 - 150	-0.0246	+/-0.50	
M3PFHxS	145292.7	3.2923	121,527.00	3.308383	120	50 - 150	-0.0161	+/-0.50	
M4PFHpA	826932.1	3.268033	764,612.00	3.27725	108	50 - 150	-0.0092	+/-0.50	
M8PFOA	806904	3.52615	683,426.00	3.542133	118	50 - 150	-0.0160	+/-0.50	
M8PFOS	165884.8	3.7083	166,286.00	3.716267	100	50 - 150	-0.0080	+/-0.50	
M9PFNA	696679.6	3.709283	722,381.00	3.725233	96	50 - 150	-0.0159	+/-0.50	
MPFDoA	654851.4	4.14485	782,381.00	4.1612	84	50 - 150	-0.0164	+/-0.50	
D5-NEtFOSAA	236024	4.01745	234,800.00	4.03345	101	50 - 150	-0.0160	+/-0.50	
D3-NMeFOSAA	222505.5	3.937883	283,150.00	3.953867	79	50 - 150	-0.0160	+/-0.50	
GWS-19S (23A1283-15RE1) Lab File ID: 23A1283-15.d Analyzed: 02/10/23 09:18									
M2-6:2FTS	112338	3.5336	137,746.00	3.5336	82	50 - 150	0.0000	+/-0.50	
M5PFPeA	468005.6	1.882533	487,092.00	1.882533	96	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-19D (23A1283-16)		Lab File ID: 23A1283-16.d				Analyzed: 02/08/23 19:30			
M8FOSA	57755.92	4.0765	491,387.00	4.0765	12	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	85117.29	2.6531	155,513.00	2.678933	55	50 - 150	-0.0258	+/-0.50	
M2PFTA			812,007.00	4.4028		50 - 150	-4.4028	+/-0.50	*
M2-8:2FTS	93884.09	3.858883	189,856.00	3.875067	49	50 - 150	-0.0162	+/-0.50	*
MPFBA	488565.5	1.141567	476,135.00	1.149867	103	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	118605.3	2.9622	83,586.00	2.986567	142	50 - 150	-0.0244	+/-0.50	
M6PFDA	440058.9	3.859383	776,979.00	3.8756	57	50 - 150	-0.0162	+/-0.50	
M3PFBS	150645.7	2.02765	144,252.00	2.054933	104	50 - 150	-0.0273	+/-0.50	
M7PFUnA	231644	4.009984	877,121.00	4.025967	26	50 - 150	-0.0160	+/-0.50	*
M2-6:2FTS	76879.7	3.509617	106,083.00	3.5256	72	50 - 150	-0.0160	+/-0.50	
M5PFPeA	415556.2	1.8411	402,391.00	1.86595	103	50 - 150	-0.0249	+/-0.50	
M5PFHxA	720330.8	2.73905	678,326.00	2.771783	106	50 - 150	-0.0327	+/-0.50	
M3PFHxS	130381.6	3.2923	121,527.00	3.308383	107	50 - 150	-0.0161	+/-0.50	
M4PFHpA	777206.3	3.268033	764,612.00	3.27725	102	50 - 150	-0.0092	+/-0.50	
M8PFOA	698870.3	3.52615	683,426.00	3.542133	102	50 - 150	-0.0160	+/-0.50	
M8PFOS	113579.7	3.7083	166,286.00	3.716267	68	50 - 150	-0.0080	+/-0.50	
M9PFNA	537790	3.709283	722,381.00	3.725233	74	50 - 150	-0.0159	+/-0.50	
MPFDoA	52162.76	4.14485	782,381.00	4.1612	07	50 - 150	-0.0164	+/-0.50	*
D5-NEtFOSAA	73294.55	4.01745	234,800.00	4.03345	31	50 - 150	-0.0160	+/-0.50	*
D3-NMeFOSAA	113106.8	3.937883	283,150.00	3.953867	40	50 - 150	-0.0160	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-20S (23A1283-17)		Lab File ID: 23A1283-17.d				Analyzed: 02/08/23 19:37			
M8FOSA	419078.4	4.0765	491,387.00	4.0765	85	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	95303.49	2.644867	155,513.00	2.678933	61	50 - 150	-0.0341	+/-0.50	
M2PFTA	854742	4.378417	812,007.00	4.4028	105	50 - 150	-0.0244	+/-0.50	
M2-8:2FTS	177337.1	3.858883	189,856.00	3.875067	93	50 - 150	-0.0162	+/-0.50	
MPFBA	531975.8	1.13325	476,135.00	1.149867	112	50 - 150	-0.0166	+/-0.50	
M3HFPO-DA	127677.3	2.9622	83,586.00	2.986567	153	50 - 150	-0.0244	+/-0.50	*
M6PFDA	785449.8	3.859383	776,979.00	3.8756	101	50 - 150	-0.0162	+/-0.50	
M3PFBS	164447.8	2.02765	144,252.00	2.054933	114	50 - 150	-0.0273	+/-0.50	
M7PFUnA	883709.6	4.001983	877,121.00	4.025967	101	50 - 150	-0.0240	+/-0.50	
M2-6:2FTS	71144.32	3.509617	106,083.00	3.5256	67	50 - 150	-0.0160	+/-0.50	
M5PFPeA	449026.7	1.8328	402,391.00	1.86595	112	50 - 150	-0.0332	+/-0.50	
M5PFHxA	781905.7	2.73905	678,326.00	2.771783	115	50 - 150	-0.0327	+/-0.50	
M3PFHxS	148361.6	3.2923	121,527.00	3.308383	122	50 - 150	-0.0161	+/-0.50	
M4PFHpA	844751.7	3.25995	764,612.00	3.27725	110	50 - 150	-0.0173	+/-0.50	
M8PFOA	845616.8	3.52615	683,426.00	3.542133	124	50 - 150	-0.0160	+/-0.50	
M8PFOS	177815.8	3.700067	166,286.00	3.716267	107	50 - 150	-0.0162	+/-0.50	
M9PFNA	699514.8	3.709283	722,381.00	3.725233	97	50 - 150	-0.0159	+/-0.50	
MPFDoA	770410.6	4.136817	782,381.00	4.1612	98	50 - 150	-0.0244	+/-0.50	
D5-NEtFOSAA	209671.9	4.009467	234,800.00	4.03345	89	50 - 150	-0.0240	+/-0.50	
D3-NMeFOSAA	257514.2	3.929883	283,150.00	3.953867	91	50 - 150	-0.0240	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-20D (23A1283-18) Lab File ID: 23A1283-18.d Analyzed: 02/08/23 19:45									
M8FOSA	42618.45	4.0765	491,387.00	4.0765	09	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	136788.1	2.636633	155,513.00	2.678933	88	50 - 150	-0.0423	+/-0.50	
M2PFTA	11385.65	4.3703	812,007.00	4.4028	01	50 - 150	-0.0325	+/-0.50	*
M2-8:2FTS	156227	3.850933	189,856.00	3.875067	82	50 - 150	-0.0241	+/-0.50	
MPFBA	569619	1.13325	476,135.00	1.149867	120	50 - 150	-0.0166	+/-0.50	
M3HFPO-DA	112657.8	2.954083	83,586.00	2.986567	135	50 - 150	-0.0325	+/-0.50	
M6PFDA	488669.3	3.851417	776,979.00	3.8756	63	50 - 150	-0.0242	+/-0.50	
M3PFBS	168424.7	2.019367	144,252.00	2.054933	117	50 - 150	-0.0356	+/-0.50	
M7PFUnA	302579.4	4.002	877,121.00	4.025967	34	50 - 150	-0.0240	+/-0.50	*
M2-6:2FTS	117497.8	3.509617	106,083.00	3.5256	111	50 - 150	-0.0160	+/-0.50	
M5PFPeA	487964.1	1.8328	402,391.00	1.86595	121	50 - 150	-0.0332	+/-0.50	
M5PFHxA	840847.8	2.730867	678,326.00	2.771783	124	50 - 150	-0.0409	+/-0.50	
M3PFHxS	143335.3	3.2923	121,527.00	3.308383	118	50 - 150	-0.0161	+/-0.50	
M4PFHpA	908980.1	3.25995	764,612.00	3.27725	119	50 - 150	-0.0173	+/-0.50	
M8PFOA	826065.8	3.51815	683,426.00	3.542133	121	50 - 150	-0.0240	+/-0.50	
M8PFOS	108982.6	3.700067	166,286.00	3.716267	66	50 - 150	-0.0162	+/-0.50	
M9PFNA	684108.5	3.7011	722,381.00	3.725233	95	50 - 150	-0.0241	+/-0.50	
MPFDoA	110710.1	4.136817	782,381.00	4.1612	14	50 - 150	-0.0244	+/-0.50	*
D5-NEtFOSAA	110945.3	4.009467	234,800.00	4.03345	47	50 - 150	-0.0240	+/-0.50	*
D3-NMeFOSAA	163797.2	3.929883	283,150.00	3.953867	58	50 - 150	-0.0240	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-EB (23A1283-19)		Lab File ID: 23A1283-19.d				Analyzed: 02/08/23 19:52			
M8FOSA	351883.7	4.0765	491,387.00	4.0765	72	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	115424	2.636633	155,513.00	2.678933	74	50 - 150	-0.0423	+/-0.50	
M2PFTA	865514.3	4.3703	812,007.00	4.4028	107	50 - 150	-0.0325	+/-0.50	
M2-8:2FTS	228065.6	3.850933	189,856.00	3.875067	120	50 - 150	-0.0241	+/-0.50	
MPFBA	535775.3	1.12495	476,135.00	1.149867	113	50 - 150	-0.0249	+/-0.50	
M3HFPO-DA	139445.5	2.945967	83,586.00	2.986567	167	50 - 150	-0.0406	+/-0.50	*
M6PFDA	743351.6	3.851417	776,979.00	3.8756	96	50 - 150	-0.0242	+/-0.50	
M3PFBS	152351.1	2.011067	144,252.00	2.054933	106	50 - 150	-0.0439	+/-0.50	
M7PFUnA	814255.9	3.994	877,121.00	4.025967	93	50 - 150	-0.0320	+/-0.50	
M2-6:2FTS	63565	3.509617	106,083.00	3.5256	60	50 - 150	-0.0160	+/-0.50	
M5PFPeA	411122.8	1.824517	402,391.00	1.86595	102	50 - 150	-0.0414	+/-0.50	
M5PFHxA	725018.5	2.722683	678,326.00	2.771783	107	50 - 150	-0.0491	+/-0.50	
M3PFHxS	130904.6	3.28425	121,527.00	3.308383	108	50 - 150	-0.0241	+/-0.50	
M4PFHpA	783857.9	3.251867	764,612.00	3.27725	103	50 - 150	-0.0254	+/-0.50	
M8PFOA	756487.6	3.51815	683,426.00	3.542133	111	50 - 150	-0.0240	+/-0.50	
M8PFOS	158462.5	3.700067	166,286.00	3.716267	95	50 - 150	-0.0162	+/-0.50	
M9PFNA	652001	3.7011	722,381.00	3.725233	90	50 - 150	-0.0241	+/-0.50	
MPFDoA	706375.6	4.136817	782,381.00	4.1612	90	50 - 150	-0.0244	+/-0.50	
D5-NEtFOSAA	213354.3	4.001467	234,800.00	4.03345	91	50 - 150	-0.0320	+/-0.50	
D3-NMeFOSAA	242191.1	3.929883	283,150.00	3.953867	86	50 - 150	-0.0240	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-Equipment Blank-2 (23A1283-20) Lab File ID: 23A1283-20.d Analyzed: 02/08/23 19:59									
M8FOSA	100319.2	4.0765	491,387.00	4.0765	20	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	140114	2.636633	155,513.00	2.678933	90	50 - 150	-0.0423	+/-0.50	
M2PFTA	581953.6	4.3703	812,007.00	4.4028	72	50 - 150	-0.0325	+/-0.50	
M2-8:2FTS	497870.4	3.842967	189,856.00	3.875067	262	50 - 150	-0.0321	+/-0.50	*
MPFBA	688351.8	1.12495	476,135.00	1.149867	145	50 - 150	-0.0249	+/-0.50	
M3HFPO-DA	164546.5	2.954083	83,586.00	2.986567	197	50 - 150	-0.0325	+/-0.50	*
M6PFDA	911211.9	3.8355	776,979.00	3.8756	117	50 - 150	-0.0401	+/-0.50	
M3PFBS	208809.2	2.011067	144,252.00	2.054933	145	50 - 150	-0.0439	+/-0.50	
M7PFUnA	787342	3.970017	877,121.00	4.025967	90	50 - 150	-0.0559	+/-0.50	
M2-6:2FTS	189380.4	3.509617	106,083.00	3.5256	179	50 - 150	-0.0160	+/-0.50	*
M5PFPeA	558699.6	1.824517	402,391.00	1.86595	139	50 - 150	-0.0414	+/-0.50	
M5PFHxA	962095.5	2.722683	678,326.00	2.771783	142	50 - 150	-0.0491	+/-0.50	
M3PFHxS	192277.1	3.28425	121,527.00	3.308383	158	50 - 150	-0.0241	+/-0.50	*
M4PFHpA	1073121	3.251867	764,612.00	3.27725	140	50 - 150	-0.0254	+/-0.50	
M8PFOA	972522.7	3.51815	683,426.00	3.542133	142	50 - 150	-0.0240	+/-0.50	
M8PFOS	207133.9	3.700067	166,286.00	3.716267	125	50 - 150	-0.0162	+/-0.50	
M9PFNA	821619.2	3.7011	722,381.00	3.725233	114	50 - 150	-0.0241	+/-0.50	
MPFDoA	619329.9	4.112633	782,381.00	4.1612	79	50 - 150	-0.0486	+/-0.50	
D5-NEtFOSAA	156182.9	3.985483	234,800.00	4.03345	67	50 - 150	-0.0480	+/-0.50	
D3-NMeFOSAA	71835.92	3.897717	283,150.00	3.953867	25	50 - 150	-0.0561	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-16D Filtrate (23A1283-21)		Lab File ID: 23A1283-21.d				Analyzed: 02/09/23 19:52			
M8FOSA	166062.6	4.076517	399,771.00	4.076517	42	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	450018.5	2.670733	129,501.00	2.670733	348	50 - 150	0.0000	+/-0.50	*
M2PFTA	1422328	4.394683	664,714.00	4.394683	214	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	485747	3.86685	162,195.00	3.875083	299	50 - 150	-0.0082	+/-0.50	*
MPFBA	690795.1	1.13325	429,361.00	1.141567	161	50 - 150	-0.0083	+/-0.50	*
M3HFPO-DA	171995.3	2.97845	80,004.00	2.97845	215	50 - 150	0.0000	+/-0.50	*
M6PFDA	1140966	3.86735	763,336.00	3.8756	149	50 - 150	-0.0082	+/-0.50	
M3PFBS	249515.1	2.044233	121,233.00	2.044217	206	50 - 150	0.0000	+/-0.50	*
M7PFUnA	1318299	4.017983	834,627.00	4.017983	158	50 - 150	0.0000	+/-0.50	*
M2-6:2FTS	405133.1	3.517617	88,031.00	3.525617	460	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	798244.4	1.849383	362,310.00	1.857667	220	50 - 150	-0.0083	+/-0.50	*
M5PFHxA	1331527	2.755417	595,773.00	2.7636	223	50 - 150	-0.0082	+/-0.50	*
M3PFHxS	206756.3	3.30035	92,849.00	3.308383	223	50 - 150	-0.0080	+/-0.50	*
M4PFHpA	1345789	3.277267	642,320.00	3.27725	210	50 - 150	0.0000	+/-0.50	*
M8PFOA	1297811	3.53415	571,958.00	3.534133	227	50 - 150	0.0000	+/-0.50	*
M8PFOS	210842.8	3.716267	145,593.00	3.716267	145	50 - 150	0.0000	+/-0.50	
M9PFNA	1116816	3.717267	609,791.00	3.717267	183	50 - 150	0.0000	+/-0.50	*
MPFDoA	1309633	4.15315	635,284.00	4.153133	206	50 - 150	0.0000	+/-0.50	*
D5-NEtFOSAA	376045.8	4.025466	178,134.00	4.02545	211	50 - 150	0.0000	+/-0.50	*
D3-NMeFOSAA	272427.6	3.945883	214,804.00	3.945883	127	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GWS-20D Filtrate (23A1283-22) Lab File ID: 23A1283-22.d Analyzed: 02/09/23 20:00									
M8FOSA	473362.5	4.076517	399,771.00	4.076517	118	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	184810.3	2.670733	129,501.00	2.670733	143	50 - 150	0.0000	+/-0.50	
M2PFTA	965212.5	4.394683	664,714.00	4.394683	145	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	300191.6	3.866867	162,195.00	3.875083	185	50 - 150	-0.0082	+/-0.50	*
MPFBA	662554.9	1.141567	429,361.00	1.141567	154	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	122476.9	2.97845	80,004.00	2.97845	153	50 - 150	0.0000	+/-0.50	*
M6PFDA	1141867	3.86735	763,336.00	3.8756	150	50 - 150	-0.0082	+/-0.50	
M3PFBS	215909.8	2.044217	121,233.00	2.044217	178	50 - 150	0.0000	+/-0.50	*
M7PFUnA	1321034	4.018	834,627.00	4.017983	158	50 - 150	0.0000	+/-0.50	*
M2-6:2FTS	166295.8	3.517633	88,031.00	3.525617	189	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	689729	1.857667	362,310.00	1.857667	190	50 - 150	0.0000	+/-0.50	*
M5PFHxA	1147614	2.7636	595,773.00	2.7636	193	50 - 150	0.0000	+/-0.50	*
M3PFHxS	193741.1	3.30035	92,849.00	3.308383	209	50 - 150	-0.0080	+/-0.50	*
M4PFHpA	1229210	3.27725	642,320.00	3.27725	191	50 - 150	0.0000	+/-0.50	*
M8PFOA	1150435	3.53415	571,958.00	3.534133	201	50 - 150	0.0000	+/-0.50	*
M8PFOS	232769.5	3.716283	145,593.00	3.716267	160	50 - 150	0.0000	+/-0.50	*
M9PFNA	1096237	3.717283	609,791.00	3.717267	180	50 - 150	0.0000	+/-0.50	*
MPFDoA	1105067	4.15315	635,284.00	4.153133	174	50 - 150	0.0000	+/-0.50	*
D5-NEtFOSAA	335413.9	4.025466	178,134.00	4.02545	188	50 - 150	0.0000	+/-0.50	*
D3-NMeFOSAA	400283.1	3.9459	214,804.00	3.945883	186	50 - 150	0.0000	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B328788-BLK1)			Lab File ID: B328788-BLK1.d			Analyzed: 02/08/23 17:10			
M8FOSA	325482.3	4.0765	491,387.00	4.0765	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	133097.6	2.704983	155,513.00	2.69535	86	50 - 150	0.0096	+/-0.50	
M2PFTA	614110.1	4.410917	812,007.00	4.410917	76	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	134931	3.88305	189,856.00	3.88305	71	50 - 150	0.0000	+/-0.50	
MPFBA	427528.8	1.149867	476,135.00	1.149867	90	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	98910.63	2.994683	83,586.00	2.994683	118	50 - 150	0.0000	+/-0.50	
M6PFDA	626188.9	3.883567	776,979.00	3.883583	81	50 - 150	0.0000	+/-0.50	
M3PFBS	129177.4	2.071467	144,252.00	2.071467	90	50 - 150	0.0000	+/-0.50	
M7PFUnA	676338.9	4.033967	877,121.00	4.033967	77	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	91680.27	3.5336	106,083.00	3.5336	86	50 - 150	0.0000	+/-0.50	
M5PFPeA	358008.8	1.882533	402,391.00	1.874233	89	50 - 150	0.0083	+/-0.50	
M5PFHxA	624159.8	2.788133	678,326.00	2.788133	92	50 - 150	0.0000	+/-0.50	
M3PFHxS	114095.9	3.316417	121,527.00	3.316417	94	50 - 150	0.0000	+/-0.50	
M4PFHpA	707249.9	3.285283	764,612.00	3.2853	92	50 - 150	0.0000	+/-0.50	
M8PFOA	643282.4	3.542133	683,426.00	3.542133	94	50 - 150	0.0000	+/-0.50	
M8PFOS	131198.7	3.724233	166,286.00	3.724233	79	50 - 150	0.0000	+/-0.50	
M9PFNA	656082.8	3.725233	722,381.00	3.725233	91	50 - 150	0.0000	+/-0.50	
MPFDoA	573287.4	4.169267	782,381.00	4.169267	73	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	173229.1	4.041433	234,800.00	4.041433	74	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	216243.3	3.961867	283,150.00	3.961867	76	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B328788-BS1)			Lab File ID: B328788-BS1.d			Analyzed: 02/08/23 17:03			
M8FOSA	467312.3	4.0765	491,387.00	4.0765	95	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	188293.6	2.704983	155,513.00	2.69535	121	50 - 150	0.0096	+/-0.50	
M2PFTA	913416.9	4.410917	812,007.00	4.410917	112	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	205468.1	3.88305	189,856.00	3.88305	108	50 - 150	0.0000	+/-0.50	
MPFBA	586609.9	1.149867	476,135.00	1.149867	123	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	106132.9	2.994683	83,586.00	2.994683	127	50 - 150	0.0000	+/-0.50	
M6PFDA	904236.6	3.883583	776,979.00	3.883583	116	50 - 150	0.0000	+/-0.50	
M3PFBS	181449.6	2.071467	144,252.00	2.071467	126	50 - 150	0.0000	+/-0.50	
M7PFUnA	1077969	4.033967	877,121.00	4.033967	123	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	137330.3	3.5336	106,083.00	3.5336	129	50 - 150	0.0000	+/-0.50	
M5PFPeA	499307.5	1.874233	402,391.00	1.874233	124	50 - 150	0.0000	+/-0.50	
M5PFHxA	853006.2	2.788133	678,326.00	2.788133	126	50 - 150	0.0000	+/-0.50	
M3PFHxS	156465.2	3.316417	121,527.00	3.316417	129	50 - 150	0.0000	+/-0.50	
M4PFHpA	953922.2	3.2853	764,612.00	3.2853	125	50 - 150	0.0000	+/-0.50	
M8PFOA	886924.8	3.542133	683,426.00	3.542133	130	50 - 150	0.0000	+/-0.50	
M8PFOS	194915	3.724233	166,286.00	3.724233	117	50 - 150	0.0000	+/-0.50	
M9PFNA	910204.3	3.725233	722,381.00	3.725233	126	50 - 150	0.0000	+/-0.50	
MPFDoA	874164.8	4.169267	782,381.00	4.169267	112	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	247213.1	4.041433	234,800.00	4.041433	105	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	300256.8	3.961867	283,150.00	3.961867	106	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B328788-MS1)			Lab File ID: B328788-MS1.d			Analyzed: 02/08/23 17:17			
M8FOSA	348491.1	4.0765	491,387.00	4.0765	71	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	85682.02	2.704983	155,513.00	2.69535	55	50 - 150	0.0096	+/-0.50	
M2PFTA	733224.4	4.410917	812,007.00	4.410917	90	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	109898.9	3.88305	189,856.00	3.88305	58	50 - 150	0.0000	+/-0.50	
MPFBA	428837.2	1.149867	476,135.00	1.149867	90	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	90881.54	2.994683	83,586.00	2.994683	109	50 - 150	0.0000	+/-0.50	
M6PFDA	649280.4	3.883583	776,979.00	3.883583	84	50 - 150	0.0000	+/-0.50	
M3PFBS	136352.1	2.071467	144,252.00	2.071467	95	50 - 150	0.0000	+/-0.50	
M7PFUnA	715751.9	4.033967	877,121.00	4.033967	82	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	68314.27	3.5336	106,083.00	3.5336	64	50 - 150	0.0000	+/-0.50	
M5PFPeA	373341.5	1.874233	402,391.00	1.874233	93	50 - 150	0.0000	+/-0.50	
M5PFHxA	627122.6	2.788133	678,326.00	2.788133	92	50 - 150	0.0000	+/-0.50	
M3PFHxS	112771.1	3.316417	121,527.00	3.316417	93	50 - 150	0.0000	+/-0.50	
M4PFHpA	724481.4	3.293333	764,612.00	3.2853	95	50 - 150	0.0080	+/-0.50	
M8PFOA	647281.1	3.542133	683,426.00	3.542133	95	50 - 150	0.0000	+/-0.50	
M8PFOS	140123.5	3.724233	166,286.00	3.724233	84	50 - 150	0.0000	+/-0.50	
M9PFNA	645396.3	3.725233	722,381.00	3.725233	89	50 - 150	0.0000	+/-0.50	
MPFDoA	656514.5	4.169267	782,381.00	4.169267	84	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	185623.2	4.041433	234,800.00	4.041433	79	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	222672	3.961867	283,150.00	3.961867	79	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B328788-MSD1)			Lab File ID: B328788-MSD1.d			Analyzed: 02/08/23 17:25			
M8FOSA	354297.9	4.0765	491,387.00	4.0765	72	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	83185.15	2.69535	155,513.00	2.69535	53	50 - 150	0.0000	+/-0.50	
M2PFTA	709288.3	4.410917	812,007.00	4.410917	87	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	108717.6	3.88305	189,856.00	3.88305	57	50 - 150	0.0000	+/-0.50	
MPFBA	432699.8	1.149867	476,135.00	1.149867	91	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	100768	2.994683	83,586.00	2.994683	121	50 - 150	0.0000	+/-0.50	
M6PFDA	694338	3.883583	776,979.00	3.883583	89	50 - 150	0.0000	+/-0.50	
M3PFBS	133389.1	2.071467	144,252.00	2.071467	92	50 - 150	0.0000	+/-0.50	
M7PFUnA	805639.1	4.033967	877,121.00	4.033967	92	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	57344.46	3.5336	106,083.00	3.5336	54	50 - 150	0.0000	+/-0.50	
M5PFPeA	376437.8	1.874233	402,391.00	1.874233	94	50 - 150	0.0000	+/-0.50	
M5PFHxA	640364.4	2.788133	678,326.00	2.788133	94	50 - 150	0.0000	+/-0.50	
M3PFHxS	111557.8	3.316417	121,527.00	3.316417	92	50 - 150	0.0000	+/-0.50	
M4PFHpA	735085.8	3.2853	764,612.00	3.2853	96	50 - 150	0.0000	+/-0.50	
M8PFOA	662051.2	3.542133	683,426.00	3.542133	97	50 - 150	0.0000	+/-0.50	
M8PFOS	146100.5	3.724233	166,286.00	3.724233	88	50 - 150	0.0000	+/-0.50	
M9PFNA	628332	3.725233	722,381.00	3.725233	87	50 - 150	0.0000	+/-0.50	
MPFDoA	658305.3	4.169267	782,381.00	4.169267	84	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	185386.8	4.041433	234,800.00	4.041433	79	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	221733	3.961867	283,150.00	3.961867	78	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B329868-BLK1) Lab File ID: B329868-BLK1.d Analyzed: 02/09/23 19:45									
M8FOSA	583646.8	4.0765	399,771.00	4.076517	146	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	199423.4	2.678933	129,501.00	2.670733	154	50 - 150	0.0082	+/-0.50	*
M2PFTA	1399603	4.394667	664,714.00	4.394683	211	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	263789.8	3.875067	162,195.00	3.875083	163	50 - 150	0.0000	+/-0.50	*
MPFBA	854169.2	1.141567	429,361.00	1.141567	199	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	179564.1	2.97845	80,004.00	2.97845	224	50 - 150	0.0000	+/-0.50	*
M6PFDA	1275771	3.867333	763,336.00	3.8756	167	50 - 150	-0.0083	+/-0.50	*
M3PFBS	227051.9	2.054933	121,233.00	2.044217	187	50 - 150	0.0107	+/-0.50	*
M7PFUnA	1522868	4.017983	834,627.00	4.017983	182	50 - 150	0.0000	+/-0.50	*
M2-6:2FTS	151571.3	3.5256	88,031.00	3.525617	172	50 - 150	0.0000	+/-0.50	*
M5PFPeA	713483.7	1.857667	362,310.00	1.857667	197	50 - 150	0.0000	+/-0.50	*
M5PFHxA	1209988	2.7636	595,773.00	2.7636	203	50 - 150	0.0000	+/-0.50	*
M3PFHxS	201101.7	3.308383	92,849.00	3.308383	217	50 - 150	0.0000	+/-0.50	*
M4PFHpA	1316950	3.27725	642,320.00	3.27725	205	50 - 150	0.0000	+/-0.50	*
M8PFOA	1271772	3.534133	571,958.00	3.534133	222	50 - 150	0.0000	+/-0.50	*
M8PFOS	252376.4	3.716267	145,593.00	3.716267	173	50 - 150	0.0000	+/-0.50	*
M9PFNA	1238883	3.71725	609,791.00	3.717267	203	50 - 150	0.0000	+/-0.50	*
MPFDoA	1542281	4.153133	635,284.00	4.153133	243	50 - 150	0.0000	+/-0.50	*
D5-NEtFOSAA	375657.7	4.02545	178,134.00	4.02545	211	50 - 150	0.0000	+/-0.50	*
D3-NMeFOSAA	457988.2	3.945867	214,804.00	3.945883	213	50 - 150	0.0000	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B329868-BS1)		Lab File ID: B329868-BS1.d				Analyzed: 02/09/23 19:31			
M8FOSA	501554	4.0765	399,771.00	4.076517	125	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	184349.6	2.678933	129,501.00	2.670733	142	50 - 150	0.0082	+/-0.50	
M2PFTA	880413.6	4.394667	664,714.00	4.394683	132	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	242058.1	3.875067	162,195.00	3.875083	149	50 - 150	0.0000	+/-0.50	
MPFBA	808600.9	1.149867	429,361.00	1.141567	188	50 - 150	0.0083	+/-0.50	*
M3HFPO-DA	189326	2.97845	80,004.00	2.97845	237	50 - 150	0.0000	+/-0.50	*
M6PFDA	1195183	3.8756	763,336.00	3.8756	157	50 - 150	0.0000	+/-0.50	*
M3PFBS	206068.4	2.054933	121,233.00	2.044217	170	50 - 150	0.0107	+/-0.50	*
M7PFUnA	1227206	4.017983	834,627.00	4.017983	147	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	122940.4	3.5256	88,031.00	3.525617	140	50 - 150	0.0000	+/-0.50	
M5PFPeA	675434.8	1.857667	362,310.00	1.857667	186	50 - 150	0.0000	+/-0.50	*
M5PFHxA	1146456	2.7636	595,773.00	2.7636	192	50 - 150	0.0000	+/-0.50	*
M3PFHxS	190602.6	3.308383	92,849.00	3.308383	205	50 - 150	0.0000	+/-0.50	*
M4PFHpA	1211823	3.27725	642,320.00	3.27725	189	50 - 150	0.0000	+/-0.50	*
M8PFOA	1133653	3.534133	571,958.00	3.534133	198	50 - 150	0.0000	+/-0.50	*
M8PFOS	204291.6	3.716267	145,593.00	3.716267	140	50 - 150	0.0000	+/-0.50	
M9PFNA	1081449	3.717267	609,791.00	3.717267	177	50 - 150	0.0000	+/-0.50	*
MPFDoA	1070408	4.153133	635,284.00	4.153133	168	50 - 150	0.0000	+/-0.50	*
D5-NEtFOSAA	303236.6	4.02545	178,134.00	4.02545	170	50 - 150	0.0000	+/-0.50	*
D3-NMeFOSAA	398266.1	3.953867	214,804.00	3.945883	185	50 - 150	0.0080	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS Dup (B329868-BSD1)			Lab File ID: B329868-BSD1.d			Analyzed: 02/09/23 19:38			
M8FOSA	422214	4.0765	399,771.00	4.076517	106	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	181491.6	2.678933	129,501.00	2.670733	140	50 - 150	0.0082	+/-0.50	
M2PFTA	1259329	4.394667	664,714.00	4.394683	189	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	219922.5	3.875083	162,195.00	3.875083	136	50 - 150	0.0000	+/-0.50	
MPFBA	810794.6	1.141567	429,361.00	1.141567	189	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	202190.1	2.97845	80,004.00	2.97845	253	50 - 150	0.0000	+/-0.50	*
M6PFDA	1164434	3.8756	763,336.00	3.8756	153	50 - 150	0.0000	+/-0.50	*
M3PFBS	202308.6	2.054933	121,233.00	2.044217	167	50 - 150	0.0107	+/-0.50	*
M7PFUnA	1278773	4.017983	834,627.00	4.017983	153	50 - 150	0.0000	+/-0.50	*
M2-6:2FTS	127261.9	3.525617	88,031.00	3.525617	145	50 - 150	0.0000	+/-0.50	
M5PFPeA	674496.8	1.857667	362,310.00	1.857667	186	50 - 150	0.0000	+/-0.50	*
M5PFHxA	1132485	2.7636	595,773.00	2.7636	190	50 - 150	0.0000	+/-0.50	*
M3PFHxS	188220.4	3.308383	92,849.00	3.308383	203	50 - 150	0.0000	+/-0.50	*
M4PFHpA	1227726	3.27725	642,320.00	3.27725	191	50 - 150	0.0000	+/-0.50	*
M8PFOA	1118316	3.534133	571,958.00	3.534133	196	50 - 150	0.0000	+/-0.50	*
M8PFOS	219820.3	3.716267	145,593.00	3.716267	151	50 - 150	0.0000	+/-0.50	*
M9PFNA	1097007	3.717267	609,791.00	3.717267	180	50 - 150	0.0000	+/-0.50	*
MPFDoA	1211418	4.153133	635,284.00	4.153133	191	50 - 150	0.0000	+/-0.50	*
D5-NEtFOSAA	328796.2	4.02545	178,134.00	4.02545	185	50 - 150	0.0000	+/-0.50	*
D3-NMeFOSAA	390869.3	3.945883	214,804.00	3.945883	182	50 - 150	0.0000	+/-0.50	*

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Major)	NH-P
9Cl-PF3ONS (F53B Minor)	NH-P
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA (NEtFOSAA)	NH-P
N-MeFOSAA (NMeFOSAA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P
Perfluorodecanesulfonic acid (PFDS)	NH-P
Perfluorooctanesulfonamide (FOSA)	NH-P
Perfluorononanesulfonic acid (PFNS)	NH-P
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P
Perfluoro-1-butanedisulfonamide (FBSA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P
Perfluoropentanesulfonic acid (PFPeS)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
Perfluorononanoic acid (PFNA)	NH-P

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023

23A1283

http://www.contestlabs.com

Doc # 381 Rev 2_06262019

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 3



Barnstable County

3195 Main St. PO Box 427

BFTA

Barnstable, MA

6206

Roger Thibault

Con-Test Quote Name/Number:

Pricilla Ellis - pettis@barnstablecounty.org

Sampled By: Matt Alger

ANALYSIS REQUESTED

Requested Turnaround Time: Dissolved Metals Samples

7-Day ☐ 10-Day ☐ Field Filtered ☐ Lab to Filter ☐PRAS 15-Day (std) ☒ Due Date: ☐Rush Approval Required ☐

Orthophosphate Samples

1-Day ☐ 3-Day ☐ Field Filtered ☐ Lab to Filter ☐2-Day ☐ 4-Day ☐ Field Filtered ☐ Lab to Filter ☐

Data Delivery

Format: PDF ☒ EXCEL ☒Other: ☐CLP Like Data Pkg Required: ☐

Email To: RTHIBAUT@BCTA-INC.COM, LDBRY@BCTA-INC.COM

Fax To #: ☐SOXHLET ☐NON SOXHLET ☐

PCB ONLY

VIALS ☐GLASS ☐PLASTIC ☐BACTERIA ☐ENCORE ☐

Matrix Code

Conc Code

Grab

U

U

U

U

U

U

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U

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U

Total Number Of:

VIALS

GLASS

PLASTIC 42

BACTERIA

ENCORE

Glassware in the fridge?

YN

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)

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

NEAC and AIHA-LAP, LLC required

Other

Chromatogram

AIHA-LAP, LLC

MWRA

School

MBTA

WRTA

Municipality

21 J

Brownfield

Government

Federal

City

Project Entity

PWSID #

Grab

MA

GW-1

Relinquished by: (signature)

Date/Time: 1-17-23 11:00

Received by: (signature)

Date/Time: 1-17-23 11:00

Relinquished by: (signature)

Date/Time: 1-17-23 16:30

Received by: (signature)

Date/Time: 1-17-23 17:35

Relinquished by: (signature)

Date/Time: 1-17-23 19:00

Received by: (signature)

Date/Time: 1-17-23 19:00

Relinquished by: (signature)

Date/Time: 1-17-23 19:00

Received by: (signature)

Date/Time: 1-17-23 19:00

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Date/Time: 1-17-23 19:00

Relinquished by: (signature)

Date/Time: 1-17-23 19:00

Received by: (signature)

Date/Time: 1-17-23 19:00

Lab Comments:

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

23A1283

con-test[®]
ANALYTICAL LABORATORY

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

Company Name: Barnstable County
Address: 3195 Main St. PO Box 427
Phone: BFTA
Project Location: Barnstable, MA
Project Number: 6206
Project Manager: Roger Thibault
Con-Test Quote Name/Number: Priscilla Ellis - pellis@barnstablecounty.org
Invoice Recipient:
Sampled By: Matt Alger

Requested Turnaround Time

7-Day ☐ 10-Day ☐
PFAS 15-Day (std) ☒ Due Date:
Rush Approval (Required)
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐
Lab to Filter

Discontinued Samples

Field Filtered ☐
Lab to Filter ☐
Orthophosphate Sample
Field Filtered ☐
Lab to Filter ☐

PCB ONLY

SOXHLET ☐
NON SOXHLET ☐

Format: PDF ☒ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To:
Fax To #:

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
11	GWS-175	1-10-23 10:00	1-10-23 10:00	GRAB	GW	U					
12	GWS-170	1-10-23 10:30	1-10-23 10:30	GRAB	GW	U					
13	GWS-185	1-10-23 11:30	1-10-23 11:30	GRAB	GW	U					
14	GWS-180	1-10-23 12:00	1-10-23 12:00	GRAB	GW	U					
15	GWS-195	1-10-23 1:00pm	1-10-23 1:00pm	GRAB	GW	U					
16	GWS-190	1-10-23 1:30pm	1-10-23 1:30pm	GRAB	GW	U					
17	GWS-205	1-10-23 2:30pm	1-10-23 2:30pm	GRAB	GW	U					
18	GWS-200	1-10-23 3:00pm	1-10-23 3:00pm	GRAB	GW	U					
19	GWS-EB	1-9-23 3:00pm	1-9-23 3:00pm	GRAB	GW	U					
20	GWS-Equip Blank - 2	1-10-23 2:00pm	1-10-23 2:00pm	GRAB	GW	U					

Client Comments: MS/MSD Samples submitted at the request of the Pace. Use sample time and date listed on chain custody if any typographical errors are found on labels. Samples may contain low to moderate amounts of sediment, centrifugation may be required as detailed in Appendix G of 454 SOP.

Relinquished by: (signature)
Date/Time: 1-12-23 3:00
Received by: (signature)
Date/Time: 1-10-23 11:00
Relinquished by: (signature)
Date/Time: 1-12-23 16:30
Received by: (signature)
Date/Time: 1-12-23 17:35
Relinquished by: (signature)
Date/Time: 1-12-23 19:00
Received by: (signature)
Date/Time: 1-12-23 19:00
Relinquished by: (signature)
Date/Time: 1-12-23 19:00
Received by: (signature)
Date/Time: 1-12-23 19:00

Detection Limit Requirements

MA ☒ GW-1 ☐
MA MCP Required ☐
MCP Certification Form Required ☐
CT RCP Required ☐
RCP Certification Form Required ☐
MA State DW Required ☐
PWSID #

Special Requirements

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

Project Entity

Government ☐ Municipality ☒ WRTA ☐
Federal ☐ School ☐
City ☐ Brownfield ☐ MBTA ☐

Other

Chromatogram ☐
AIHA-LAP, LLC ☐

Lab Comments:

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

[illegible]

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.pacelabs.com

 **Pace**
PEOPLE ADVANCING SCIENCE
Doc# 277 Rev 6 July 2022

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 Burgstable Court

Received By LA Date 1/12/23 Time 700

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

Direct From Sample F Ambient Melted Ice

Were samples within Temperature? Within 2-6°C T By Gun # 5 Actual Temp -
By Blank # Actual Temp -

Was Custody Seal In tact? N/A Were Samples Tamed with? F

Was COC Relinquished? T Does Chain Agree With Samples?

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 Client? F Analysis? Sampler Name?

pertinent Information? Project? ID's? Collection Dates/Times?

Are Sample labels filled out and legible? RT

Are there Lab to Filters? F Who was notified?

Are there Rushes? F Who was notified?

Are there Short Holds? F Who was notified?

Samples are received within holding time? T Is there enough Volume? T

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

Proper Media/Containers Used? T splitting samples required?

Were trip blanks receive 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	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	

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:

* NO Original received signature or temp.
limited Volume on MSD Sample.

Appendix C - Bathymetric Survey

Mary Dunn Pond



GENERAL NOTES

1. THIS HYDROGRAPHIC SURVEY REPRESENTS CONDITIONS EXISTING ON 01/10/23 AND MAY NOT BE REPRESENTATIVE OF CONDITIONS ON ANOTHER DATE.
2. THIS HYDROGRAPHIC SURVEY IS INTENDED FOR USE ON THIS PROJECT ONLY, AND IS NOT INTENDED FOR ANY OTHER PROJECT OR PURPOSE.
3. SINGLE BEAM BATHYMETRIC DATA COLLECTED USING A TELEDYNE ECHOTRAC E20, 200 KHZ SONAR, TRIMBLE SP5855 RTK GPS POSITIONING SYSTEM WITH SMARTNET VRS GPS CORRECTIONS, AND HYPACK 2019 FOR DATA ACQUISITION AND PROCESSING. SUPPLEMENTAL ROVER TOPO COLLECTED ALONG SHORELINE USING TRIMBLE SP5855 RTK GPS ROVER WITH TSC3 DATA COLLECTOR.
4. SOUNDINGS ARE IN FEET AND TENTHS ABOVE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAV88). CONTOURS GENERATED USING 10' SORTED DATA. THE COORDINATE SYSTEM IS MA-MAINLAND STATE PLANE COORDINATE SYSTEM, DATUM:NAD83, UNITS: US SURVEY FEET.
6. BACKGROUND SATELLITE IMAGERY FOR VISUAL REFERENCE; APPROXIMATE LOCATION ONLY.

SINGLE BEAM
BATHYMETRIC SURVEY

MARY DUNN POND
BARNSTABLE, MA

PREPARED FOR:
BETA GROUP, INC.
315 NORWOOD PARK S 2ND FLOOR
NORWOOD, MA 02062

STEELE ASSOCIATES MARINE
CONSULTANTS, LLC.

94 Gifford Street
Falmouth, MA 02540
Phone: 508 540-0001
Fax: 508 374-0405
info@steeleassociates.net

REVISIONS:

NO:	DATE:	REVISION:

Date:	01/10/23	Scale:	1"=50'-0"
Drawn By:	CA	Chk'd By:	ES
Project:	MARY_DUNN_POND_2023		
Sheet Number:	1 of 1		

Appendix D - Laboratory Reports - Phase II CSA Groundwater Sampling

March 20, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: Barnstable, MA
Client Job Number:
Project Number: 6206
Laboratory Work Order Number: 23B1571

Enclosed are results of analyses for samples as received by the laboratory on February 14, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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Barnstable County Regional Government of Cape C
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 3/20/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23B1571

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

PROJECT LOCATION: Barnstable, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-304	23B1571-01	Ground Water		SOP-454 PFAS	
MW-301	23B1571-02	Ground Water		SOP-454 PFAS	
MW-310	23B1571-03	Ground Water		SOP-454 PFAS	
EB	23B1571-04	Ground Water		SOP-454 PFAS	
MW-302	23B1571-05	Ground Water		SOP-454 PFAS	
MW-306	23B1571-06	Ground Water		SOP-454 PFAS	
MW-305	23B1571-07	Ground Water		SOP-454 PFAS	
MW-303	23B1571-08	Ground Water		SOP-454 PFAS	
MW-311	23B1571-09	Ground Water		SOP-454 PFAS	

CASE NARRATIVE SUMMARY

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

SOP-454 PFAS**Qualifications:****B**

Analyte is found in the associated laboratory blank as well as in the sample.

Analyte & Samples(s) Qualified:**6:2 Fluorotelomersulfonic acid (6:2FTS A)**

23B1571-04RE1[EB], B332915-BLK1, B332915-BS1

D-01

Sample extracted/prepared at a dilution due to sample matrix interference.

Analyte & Samples(s) Qualified:

23B1571-01RE2[MW-304], 23B1571-02RE2[MW-301], 23B1571-03RE2[MW-310], 23B1571-05RE2[MW-302], 23B1571-06RE2[MW-306], 23B1571-07RE2[MW-305], 23B1571-08RE2[MW-303], 23B1571-09RE2[MW-311], B333470-MS2, B333470-MSD2

L-03

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

Analyte & Samples(s) Qualified:**Perfluorodecanoic acid (PFDA)**

23B1571-01RE2[MW-304], 23B1571-02RE2[MW-301], 23B1571-03RE2[MW-310], 23B1571-05RE2[MW-302], 23B1571-06RE2[MW-306], 23B1571-07RE2[MW-305], 23B1571-08RE2[MW-303], 23B1571-09RE2[MW-311], B333470-BS1

MS-09

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

Analyte & Samples(s) Qualified:**Perfluorooctanesulfonic acid (PFOS)**

23B1571-06RE2[MW-306], B333470-MS2, B333470-MSD2

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 (PFDS)**

B333470-MS2

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:**Perfluorohexanesulfonic acid (PFHxS)**

23B1571-06RE2[MW-306], B333470-MSD2

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:**M2-8:2FTS**

B332915-BLK1

PF-18

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:**M2-4:2FTS**

23B1571-05RE2[MW-302], 23B1571-06RE2[MW-306], B333470-MSD2

M2-6:2FTS

23B1571-05RE2[MW-302]

M2-8:2FTS

23B1571-06RE2[MW-306]

PF-19

Sample re-analyzed at a dilution that was re-fortified with internal standard.

Analyte & Samples(s) Qualified:**Perfluorohexanesulfonic acid (PFHxS)**

23B1571-07RE3[MW-305]

Perfluorooctanesulfonic acid (PFOS)

23B1571-05RE3[MW-302], 23B1571-07RE3[MW-305], 23B1571-09RE3[MW-311]

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:**6:2 Fluorotelomersulfonic acid (6:2FTS A)**

B333470-MSD2

Perfluorooctanesulfonic acid (PFOS)

23B1571-06RE2[MW-306], B333470-MSD2

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:**M2-4:2FTS**

23B1571-02RE2[MW-301]

M2-6:2FTS

23B1571-02RE2[MW-301]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B1571

Date Received: 2/14/2023

Field Sample #: MW-304

Sampled: 2/13/2023 15:00

Sample ID: 23B1571-01

Sample Matrix: Ground Water

Sample Flags: D-01

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	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluoropentanoic acid (PFPeA)	23	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorohexanoic acid (PFHxA)	17	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	20	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1	L-03	SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluoro-1-butanesulfonamide (FBSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorohexanesulfonic acid (PFHxS)	47	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	16	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluoroheptanoic acid (PFHpA)	24	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorooctanoic acid (PFOA)	23	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorooctanesulfonic acid (PFOS)	70	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:23	RRB

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B1571

Date Received: 2/14/2023

Field Sample #: MW-301

Sampled: 2/13/2023 13:00

Sample ID: 23B1571-02

Sample Matrix: Ground Water

Sample Flags: D-01

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	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1	L-03	SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluoro-1-butanesulfonamide (FBSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorohexanesulfonic acid (PFHxS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorooctanesulfonic acid (PFOS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:30	RRB

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B1571

Date Received: 2/14/2023

Field Sample #: MW-310

Sampled: 2/13/2023 14:00

Sample ID: 23B1571-03

Sample Matrix: Ground Water

Sample Flags: D-01

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	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1	L-03	SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluoro-1-butanesulfonamide (FBSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorohexanesulfonic acid (PFHxS)	48	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorooctanesulfonic acid (PFOS)	62	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:37	RRB

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B1571

Date Received: 2/14/2023

Field Sample #: EB

Sampled: 2/13/2023 12:30

Sample ID: 23B1571-04

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)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.8	1.9	ng/L	1	B	SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/2/23	3/7/23 0:26	RRB

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B1571

Date Received: 2/14/2023

Field Sample #: MW-302

Sampled: 2/13/2023 11:00

Sample ID: 23B1571-05

Sample Matrix: Ground Water

Sample Flags: D-01

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	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorobutanesulfonic acid (PFBS)	16	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluoropentanoic acid (PFPeA)	10	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorohexanoic acid (PFHxA)	17	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1	L-03	SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluoro-1-butanesulfonamide (FBSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorohexanesulfonic acid (PFHxS)	340	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluoropentanesulfonic acid (PFPeS)	22	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorooctanoic acid (PFOA)	12	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB
Perfluorooctanesulfonic acid (PFOS)	1400	100	ng/L	10	PF-19	SOP-454 PFAS	3/8/23	3/16/23 10:36	RRB
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:44	RRB

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B1571

Date Received: 2/14/2023

Field Sample #: MW-306

Sampled: 2/13/2023 12:00

Sample ID: 23B1571-06

Sample Matrix: Ground Water

Sample Flags: D-01

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	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1	L-03	SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluoro-1-butanesulfonamide (FBSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorohexanesulfonic acid (PFHxS)	33	10	ng/L	1	MS-23	SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorooctanesulfonic acid (PFOS)	62	10	ng/L	1	MS-09, R-06	SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:52	RRB

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B1571

Date Received: 2/14/2023

Field Sample #: MW-305

Sampled: 2/13/2023 09:00

Sample ID: 23B1571-07

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	180	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorobutanesulfonic acid (PFBS)	40	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluoropentanoic acid (PFPeA)	720	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorohexanoic acid (PFHxA)	450	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1	L-03	SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluoroheptanesulfonic acid (PFHpS)	43	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	280	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluoro-1-butanesulfonamide (FBSA)	78	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorohexanesulfonic acid (PFHxS)	960	100	ng/L	10	PF-19	SOP-454 PFAS	3/8/23	3/16/23 10:43	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	70	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluoropentanesulfonic acid (PFPeS)	88	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluoroheptanoic acid (PFHpA)	250	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorooctanoic acid (PFOA)	250	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB
Perfluorooctanesulfonic acid (PFOS)	1400	100	ng/L	10	PF-19	SOP-454 PFAS	3/8/23	3/16/23 10:43	RRB
Perfluorononanoic acid (PFNA)	95	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 13:59	RRB

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B1571

Date Received: 2/14/2023

Field Sample #: MW-303

Sampled: 2/13/2023 10:00

Sample ID: 23B1571-08

Sample Matrix: Ground Water

Sample Flags: D-01

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	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1	L-03	SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluoro-1-butanesulfonamide (FBSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorohexanesulfonic acid (PFHxS)	45	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorooctanesulfonic acid (PFOS)	200	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB
Perfluorononanoic acid (PFNA)	13	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:21	RRB

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B1571

Date Received: 2/14/2023

Field Sample #: MW-311

Sampled: 2/13/2023 08:30

Sample ID: 23B1571-09

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	83	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorobutanesulfonic acid (PFBS)	33	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluoropentanoic acid (PFPeA)	230	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorohexanoic acid (PFHxA)	190	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	170	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1	L-03	SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluoroheptanesulfonic acid (PFHpS)	41	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorononanesulfonic acid (PFNS)	15	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluoro-1-hexanesulfonamide (FHxSA)	380	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluoro-1-butanefulfonamide (FBFA)	32	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorohexanesulfonic acid (PFHxS)	840	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	180	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluoropentanesulfonic acid (PFPeS)	51	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluoroundecanoic acid (PFUnA)	35	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluoroheptanoic acid (PFHpA)	170	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorooctanoic acid (PFOA)	160	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB
Perfluorooctanesulfonic acid (PFOS)	2400	200	ng/L	20	PF-19	SOP-454 PFAS	3/8/23	3/16/23 10:50	RRB
Perfluorononanoic acid (PFNA)	54	10	ng/L	1		SOP-454 PFAS	3/8/23	3/13/23 14:28	RRB

Sample Extraction Data

Prep Method: SOP 454-PFAAS Analytical Method: SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23B1571-04RE1 [EB]	B332915	270	1.00	03/02/23

Prep Method: SOP 454-PFAAS Analytical Method: SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23B1571-01RE2 [MW-304]	B333470	48.4	1.00	03/08/23
23B1571-02RE2 [MW-301]	B333470	48.0	1.00	03/08/23
23B1571-03RE2 [MW-310]	B333470	48.6	1.00	03/08/23
23B1571-05RE2 [MW-302]	B333470	48.8	1.00	03/08/23
23B1571-05RE3 [MW-302]	B333470	48.8	1.00	03/08/23
23B1571-06RE2 [MW-306]	B333470	48.2	1.00	03/08/23
23B1571-07RE2 [MW-305]	B333470	48.0	1.00	03/08/23
23B1571-07RE3 [MW-305]	B333470	48.0	1.00	03/08/23
23B1571-08RE2 [MW-303]	B333470	48.6	1.00	03/08/23
23B1571-09RE2 [MW-311]	B333470	49.0	1.00	03/08/23
23B1571-09RE3 [MW-311]	B333470	49.0	1.00	03/08/23

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 B332915 - SOP 454-PFAAS
Blank (B332915-BLK1)

Prepared: 03/02/23 Analyzed: 03/06/23

Perfluorobutanoic acid (PFBA)	ND	1.8	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	5.5	1.8	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L

B

LCS (B332915-BS1)

Prepared: 03/02/23 Analyzed: 03/06/23

Perfluorobutanoic acid (PFBA)	9.38	1.9	ng/L	9.35	100	73-129
Perfluorobutanesulfonic acid (PFBS)	8.07	1.9	ng/L	8.27	97.5	72-130
Perfluoropentanoic acid (PFPeA)	9.27	1.9	ng/L	9.35	99.2	72-129
Perfluorohexanoic acid (PFHxA)	9.44	1.9	ng/L	9.35	101	72-129
11Cl-PF3OUdS (F53B Major)	7.91	1.9	ng/L	8.81	89.9	55.1-141
9Cl-PF3ONS (F53B Minor)	8.14	1.9	ng/L	8.71	93.4	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.14	1.9	ng/L	8.81	104	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.64	1.9	ng/L	9.35	92.5	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.3	1.9	ng/L	8.97	114	67-138
Perfluorodecanoic acid (PFDA)	9.19	1.9	ng/L	9.35	98.3	71-129
Perfluorododecanoic acid (PFDoA)	9.06	1.9	ng/L	9.35	96.9	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	9.31	1.9	ng/L	8.32	112	49.4-154

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 B332915 - SOP 454-PFAAS
LCS (B332915-BS1)

Prepared: 03/02/23 Analyzed: 03/06/23

Perfluoroheptanesulfonic acid (PFHpS)	9.27	1.9	ng/L	8.93		104	69-134			
N-EtFOSAA (NEtFOSAA)	10.8	1.9	ng/L	9.35		115	61-135			
N-MeFOSAA (NMeFOSAA)	11.1	1.9	ng/L	9.35		119	65-136			
Perfluorotetradecanoic acid (PFTA)	9.55	1.9	ng/L	9.35		102	71-132			
Perfluorotridecanoic acid (PFTrDA)	9.28	1.9	ng/L	9.35		99.3	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.41	1.9	ng/L	8.74		96.3	63-143			
Perfluorodecanesulfonic acid (PFDS)	8.36	1.9	ng/L	9.02		92.7	53-142			
Perfluorooctanesulfonamide (FOSA)	9.20	1.9	ng/L	9.35		98.4	67-137			
Perfluorononanesulfonic acid (PFNS)	7.78	1.9	ng/L	8.97		86.7	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	10.9	1.9	ng/L	9.35		116	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	10.4	1.9	ng/L	9.35		112	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	8.15	1.9	ng/L	8.55		95.3	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	9.89	1.9	ng/L	9.35		106	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	10.5	1.9	ng/L	9.35		112	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	12.4	1.9	ng/L	8.88		140	64-140			B
Perfluoropentanesulfonic acid (PFPeS)	8.29	1.9	ng/L	8.79		94.4	71-127			
Perfluoroundecanoic acid (PFUnA)	9.83	1.9	ng/L	9.35		105	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.6	1.9	ng/L	9.35		113	58.5-143			
Perfluoroheptanoic acid (PFHpA)	9.46	1.9	ng/L	9.35		101	72-130			
Perfluorooctanoic acid (PFOA)	8.66	1.9	ng/L	9.35		92.6	71-133			
Perfluorooctanesulfonic acid (PFOS)	8.80	1.9	ng/L	8.65		102	65-140			
Perfluorononanoic acid (PFNA)	9.53	1.9	ng/L	9.35		102	69-130			

Batch B333470 - SOP 454-PFAAS
Blank (B333470-BLK1)

Prepared: 03/08/23 Analyzed: 03/13/23

Perfluorobutanoic acid (PFBA)	ND	1.8	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L							
Perfluoro-1-butanefulfonamide (FBSA)	ND	1.8	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L							

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 B333470 - SOP 454-PFAAS
Blank (B333470-BLK1)

Prepared: 03/08/23 Analyzed: 03/13/23

Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L

LCS (B333470-BS1)

Prepared: 03/08/23 Analyzed: 03/13/23

Perfluorobutanoic acid (PFBA)	7.15	1.8	ng/L	9.11	78.5	73-129
Perfluorobutanesulfonic acid (PFBS)	5.96	1.8	ng/L	8.07	73.9	72-130
Perfluoropentanoic acid (PFPeA)	6.85	1.8	ng/L	9.11	75.2	72-129
Perfluorohexanoic acid (PFHxA)	6.80	1.8	ng/L	9.11	74.6	72-129
11Cl-PF3OUdS (F53B Major)	5.54	1.8	ng/L	8.59	64.5	55.1-141
9Cl-PF3ONS (F53B Minor)	7.55	1.8	ng/L	8.49	88.9	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.64	1.8	ng/L	8.59	77.3	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.25	1.8	ng/L	9.11	90.6	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	6.61	1.8	ng/L	8.75	75.5	67-138
Perfluorodecanoic acid (PFDA)	6.34	1.8	ng/L	9.11	69.5	* 71-129
Perfluorododecanoic acid (PFDoA)	7.32	1.8	ng/L	9.11	80.3	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	6.63	1.8	ng/L	8.11	81.8	49.4-154
Perfluoroheptanesulfonic acid (PFHpS)	6.93	1.8	ng/L	8.70	79.6	69-134
N-EtFOSAA (NEtFOSAA)	7.23	1.8	ng/L	9.11	79.3	61-135
N-MeFOSAA (NMeFOSAA)	7.30	1.8	ng/L	9.11	80.1	65-136
Perfluorotetradecanoic acid (PFTA)	7.49	1.8	ng/L	9.11	82.2	71-132
Perfluorotridecanoic acid (PFTrDA)	7.09	1.8	ng/L	9.11	77.8	65-144
4:2 Fluorotelomersulfonic acid (4:2FTS A)	6.65	1.8	ng/L	8.52	78.0	63-143
Perfluorodecanesulfonic acid (PFDS)	5.40	1.8	ng/L	8.80	61.4	53-142
Perfluorooctanesulfonamide (FOSA)	7.20	1.8	ng/L	9.11	78.9	67-137
Perfluorononanesulfonic acid (PFNS)	6.61	1.8	ng/L	8.75	75.5	69-127
Perfluoro-1-hexanesulfonamide (FHxSA)	7.13	1.8	ng/L	9.11	78.2	61.7-156
Perfluoro-1-butanesulfonamide (FBSA)	7.67	1.8	ng/L	9.11	84.1	61.3-145
Perfluorohexanesulfonic acid (PFHxS)	6.57	1.8	ng/L	8.34	78.7	68-131
Perfluoro-4-oxapentanoic acid (PFMPA)	6.71	1.8	ng/L	9.11	73.6	59.8-147
Perfluoro-5-oxahexanoic acid (PFMBA)	7.33	1.8	ng/L	9.11	80.4	59.5-146
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6.73	1.8	ng/L	8.66	77.7	64-140
Perfluoropentanesulfonic acid (PFPeS)	6.35	1.8	ng/L	8.57	74.1	71-127
Perfluoroundecanoic acid (PFUnA)	6.64	1.8	ng/L	9.11	72.9	69-133
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.67	1.8	ng/L	9.11	73.1	58.5-143
Perfluoroheptanoic acid (PFHpA)	6.99	1.8	ng/L	9.11	76.7	72-130
Perfluorooctanoic acid (PFOA)	7.17	1.8	ng/L	9.11	78.6	71-133
Perfluorooctanesulfonic acid (PFOS)	6.47	1.8	ng/L	8.43	76.8	65-140
Perfluorononanoic acid (PFNA)	6.85	1.8	ng/L	9.11	75.1	69-130

L-03

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 B333470 - SOP 454-PFAAS

Matrix Spike (B333470-MS2)		Source: 23B1571-06RE2		Prepared: 03/08/23 Analyzed: 03/13/23		D-01				
Perfluorobutanoic acid (PFBA)	41.0	10	ng/L	51.5	ND	79.6	73-129			
Perfluorobutanesulfonic acid (PFBS)	36.7	10	ng/L	45.5	ND	80.6	72-130			
Perfluoropentanoic acid (PFPeA)	41.1	10	ng/L	51.5	ND	79.8	72-129			
Perfluorohexanoic acid (PFHxA)	41.4	10	ng/L	51.5	ND	80.5	72-129			
11Cl-PF3OUdS (F53B Major)	31.4	10	ng/L	48.5	ND	64.7	58.3-140			
9Cl-PF3ONS (F53B Minor)	40.8	10	ng/L	48.0	ND	85.1	61.4-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.5	10	ng/L	48.5	ND	77.4	62.4-128			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	40.0	10	ng/L	51.5	ND	77.6	36.7-171			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	36.4	10	ng/L	49.4	ND	73.6	67-138			
Perfluorodecanoic acid (PFDA)	37.5	10	ng/L	51.5	ND	72.8	71-129			
Perfluorododecanoic acid (PFDoA)	43.3	10	ng/L	51.5	ND	84.1	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	37.6	10	ng/L	45.8	ND	82.0	54.3-149			
Perfluoroheptanesulfonic acid (PFHpS)	38.9	10	ng/L	49.1	ND	79.2	69-134			
N-EtFOSAA (NEtFOSAA)	43.7	10	ng/L	51.5	ND	84.9	61-135			
N-MeFOSAA (NMeFOSAA)	44.4	10	ng/L	51.5	ND	86.2	65-136			
Perfluorotetradecanoic acid (PFTA)	41.9	10	ng/L	51.5	ND	81.5	71-132			
Perfluorotridecanoic acid (PFTrDA)	44.5	10	ng/L	51.5	ND	86.4	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	36.9	10	ng/L	48.1	ND	76.7	63-143			
Perfluorodecanesulfonic acid (PFDS)	26.3	10	ng/L	49.7	ND	52.9	* 53-142			MS-22
Perfluorooctanesulfonamide (FOSA)	41.1	10	ng/L	51.5	ND	79.8	67-137			
Perfluorononanesulfonic acid (PFNS)	36.3	10	ng/L	49.4	ND	73.5	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	39.2	10	ng/L	51.5	ND	76.1	64.2-154			
Perfluoro-1-butanedisulfonamide (FBSA)	43.4	10	ng/L	51.5	ND	84.2	65.9-140			
Perfluorohexanesulfonic acid (PFHxS)	67.9	10	ng/L	47.1	33.4	73.3	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	37.7	10	ng/L	51.5	ND	73.3	61.9-143			
Perfluoro-5-oxahexanoic acid (PFMBA)	39.7	10	ng/L	51.5	ND	77.2	61.4-142			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	32.5	10	ng/L	48.9	ND	66.4	64-140			
Perfluoropentanesulfonic acid (PFPeS)	37.6	10	ng/L	48.4	ND	77.7	71-127			
Perfluoroundecanoic acid (PFUnA)	37.6	10	ng/L	51.5	ND	73.0	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	37.5	10	ng/L	51.5	ND	72.9	62-138			
Perfluoroheptanoic acid (PFHpA)	41.7	10	ng/L	51.5	ND	81.0	72-130			
Perfluorooctanoic acid (PFOA)	39.6	10	ng/L	51.5	ND	77.0	71-133			
Perfluorooctanesulfonic acid (PFOS)	77.6	10	ng/L	47.6	61.8	33.3	* 65-140			MS-09
Perfluorononanoic acid (PFNA)	39.3	10	ng/L	51.5	ND	76.4	69-130			

Matrix Spike Dup (B333470-MSD2)		Source: 23B1571-06RE2		Prepared: 03/08/23 Analyzed: 03/13/23		D-01				
Perfluorobutanoic acid (PFBA)	42.3	10	ng/L	50.7	ND	83.4	73-129	3.16	30	
Perfluorobutanesulfonic acid (PFBS)	35.7	10	ng/L	44.9	ND	79.5	72-130	2.73	30	
Perfluoropentanoic acid (PFPeA)	42.5	10	ng/L	50.7	ND	83.7	72-129	3.36	30	
Perfluorohexanoic acid (PFHxA)	42.1	10	ng/L	50.7	ND	83.0	72-129	1.68	30	
11Cl-PF3OUdS (F53B Major)	35.3	10	ng/L	47.8	ND	73.9	58.3-140	11.9	30	
9Cl-PF3ONS (F53B Minor)	42.0	10	ng/L	47.3	ND	88.7	61.4-144	2.79	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	39.3	10	ng/L	47.8	ND	82.2	62.4-128	4.67	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	46.8	10	ng/L	50.7	ND	92.3	36.7-171	15.8	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	41.4	10	ng/L	48.7	ND	84.9	67-138	12.9	30	
Perfluorodecanoic acid (PFDA)	39.7	10	ng/L	50.7	ND	78.2	71-129	5.67	30	
Perfluorododecanoic acid (PFDoA)	37.7	10	ng/L	50.7	ND	74.2	72-134	13.8	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	40.0	10	ng/L	45.2	ND	88.5	54.3-149	6.17	30	

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 B333470 - SOP 454-PFAAS										
Matrix Spike Dup (B333470-MSD2)	Source: 23B1571-06RE2			Prepared: 03/08/23 Analyzed: 03/13/23		D-01				
Perfluoroheptanesulfonic acid (PFHpS)	37.3	10	ng/L	48.5	ND	77.1	69-134	4.12	30	
N-EtFOSAA (NEtFOSAA)	46.4	10	ng/L	50.7	ND	91.4	61-135	5.99	30	
N-MeFOSAA (NMeFOSAA)	41.2	10	ng/L	50.7	ND	81.1	65-136	7.51	30	
Perfluorotetradecanoic acid (PFTA)	45.7	10	ng/L	50.7	ND	90.0	71-132	8.54	30	
Perfluorotridecanoic acid (PFTrDA)	41.2	10	ng/L	50.7	ND	81.2	65-144	7.70	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	39.5	10	ng/L	47.4	ND	83.4	63-143	6.98	30	
Perfluorodecanesulfonic acid (PFDS)	34.6	10	ng/L	49.0	ND	70.6	53-142	27.3	30	
Perfluorooctanesulfonamide (FOSA)	41.8	10	ng/L	50.7	ND	82.3	67-137	1.66	30	
Perfluorononanesulfonic acid (PFNS)	44.5	10	ng/L	48.7	ND	91.4	69-127	20.3	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	44.9	10	ng/L	50.7	ND	88.4	64.2-154	13.6	30	
Perfluoro-1-butanefulfonamide (FBSA)	46.8	10	ng/L	50.7	ND	92.2	65.9-140	7.64	30	
Perfluorohexanesulfonic acid (PFHxS)	40.3	10	ng/L	46.4	33.4	14.8	* 68-131	51.0	* 30	MS-23
Perfluoro-4-oxapentanoic acid (PFMPA)	39.5	10	ng/L	50.7	ND	77.9	61.9-143	4.65	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	42.2	10	ng/L	50.7	ND	83.1	61.4-142	5.99	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	44.1	10	ng/L	48.2	ND	91.4	64-140	30.3	* 30	R-06
Perfluoropentanesulfonic acid (PFPeS)	38.3	10	ng/L	47.7	ND	80.3	71-127	1.80	30	
Perfluoroundecanoic acid (PFUnA)	38.7	10	ng/L	50.7	ND	76.2	69-133	2.90	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	39.8	10	ng/L	50.7	ND	78.4	62-138	5.86	30	
Perfluoroheptanoic acid (PFHpA)	41.9	10	ng/L	50.7	ND	82.6	72-130	0.625	30	
Perfluorooctanoic acid (PFOA)	38.4	10	ng/L	50.7	ND	75.8	71-133	3.06	30	
Perfluorooctanesulfonic acid (PFOS)	40.7	10	ng/L	46.9	61.8	-44.9	* 65-140	62.4	* 30	MS-09, R-06
Perfluorononanoic acid (PFNA)	42.3	10	ng/L	50.7	ND	83.3	69-130	7.25	30	

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.
B	Analyte is found in the associated laboratory blank as well as in the sample.
D-01	Sample extracted/prepared at a dilution due to sample matrix interference.
L-03	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the low side.
MS-09	Matrix spike recovery and/or matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a low 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.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
PF-19	Sample re-analyzed at a dilution that was re-fortified with internal standard.
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-29	Extracted Internal Standard is outside of control limits.

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-304 (23B1571-01RE2) Lab File ID: 23B1571-01RE2.d Analyzed: 03/13/23 13:23									
M8FOSA	200161.1	4.00455	202,124.00	4.00455	99	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	44442.06	2.603583	70,921.00	2.6118	63	50 - 150	-0.0082	+/-0.50	
M2PFTA	463181.6	4.3378	484,398.00	4.345917	96	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	51280.13	3.810767	58,951.00	3.818733	87	50 - 150	-0.0080	+/-0.50	
MPFBA	248127.8	1.0917	234,256.00	1.0834	106	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	69172.8	2.91295	71,810.00	2.91295	96	50 - 150	0.0000	+/-0.50	
M6PFDA	415456.3	3.811283	342,979.00	3.81925	121	50 - 150	-0.0080	+/-0.50	
M3PFBS	87370.59	1.978033	75,822.00	1.978033	115	50 - 150	0.0000	+/-0.50	
M7PFUnA	467834.5	3.962017	409,442.00	3.962017	114	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	40320.45	3.4614	54,277.00	3.4614	74	50 - 150	0.0000	+/-0.50	
M5PFPeA	275835.6	1.79965	238,015.00	1.79965	116	50 - 150	0.0000	+/-0.50	
M5PFHxA	411193.9	2.696967	338,364.00	2.696967	122	50 - 150	0.0000	+/-0.50	
M3PFHxS	64867.18	3.242583	55,970.00	3.242583	116	50 - 150	0.0000	+/-0.50	
M4PFHpA	430440.6	3.21145	370,206.00	3.21145	116	50 - 150	0.0000	+/-0.50	
M8PFOA	485894	3.469917	407,582.00	3.4779	119	50 - 150	-0.0080	+/-0.50	
M8PFOS	67055.05	3.65215	60,566.00	3.660133	111	50 - 150	-0.0080	+/-0.50	
M9PFNA	442085	3.653183	421,439.00	3.661183	105	50 - 150	-0.0080	+/-0.50	
MPFDoA	398833.3	4.096633	365,521.00	4.104633	109	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	122190.7	3.969483	119,169.00	3.969483	103	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	152705.1	3.889733	138,888.00	3.889733	110	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-301 (23B1571-02RE2) Lab File ID: 23B1571-02RE2.d Analyzed: 03/13/23 13:30									
M8FOSA	159260.2	4.00455	202,124.00	4.00455	79	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	26928.19	2.603583	70,921.00	2.6118	38	50 - 150	-0.0082	+/-0.50	*
M2PFTA	371838.8	4.3378	484,398.00	4.345917	77	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	32496.2	3.810767	58,951.00	3.818733	55	50 - 150	-0.0080	+/-0.50	
MPFBA	192808.8	1.0917	234,256.00	1.0834	82	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	65512.4	2.91295	71,810.00	2.91295	91	50 - 150	0.0000	+/-0.50	
M6PFDA	308824.3	3.811283	342,979.00	3.81925	90	50 - 150	-0.0080	+/-0.50	
M3PFBS	65200.25	1.978033	75,822.00	1.978033	86	50 - 150	0.0000	+/-0.50	
M7PFUnA	332168.5	3.962017	409,442.00	3.962017	81	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	26186.13	3.4614	54,277.00	3.4614	48	50 - 150	0.0000	+/-0.50	*
M5PFPeA	204950.3	1.79965	238,015.00	1.79965	86	50 - 150	0.0000	+/-0.50	
M5PFHxA	301578.3	2.696967	338,364.00	2.696967	89	50 - 150	0.0000	+/-0.50	
M3PFHxS	47558.51	3.242583	55,970.00	3.242583	85	50 - 150	0.0000	+/-0.50	
M4PFHpA	322233.2	3.21145	370,206.00	3.21145	87	50 - 150	0.0000	+/-0.50	
M8PFOA	352688.1	3.469917	407,582.00	3.4779	87	50 - 150	-0.0080	+/-0.50	
M8PFOS	49910.5	3.65215	60,566.00	3.660133	82	50 - 150	-0.0080	+/-0.50	
M9PFNA	339937.6	3.653183	421,439.00	3.661183	81	50 - 150	-0.0080	+/-0.50	
MPFDoA	280293.7	4.096633	365,521.00	4.104633	77	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	85828.83	3.969483	119,169.00	3.969483	72	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	113061.7	3.889733	138,888.00	3.889733	81	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-310 (23B1571-03RE2) Lab File ID: 23B1571-03RE2.d Analyzed: 03/13/23 13:37									
M8FOSA	178486.6	4.00455	202,124.00	4.00455	88	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	38072.08	2.603583	70,921.00	2.6118	54	50 - 150	-0.0082	+/-0.50	
M2PFTA	471974.4	4.3378	484,398.00	4.345917	97	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	41595.33	3.810767	58,951.00	3.818733	71	50 - 150	-0.0080	+/-0.50	
MPFBA	231914.7	1.0917	234,256.00	1.0834	99	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	59936.72	2.91295	71,810.00	2.91295	83	50 - 150	0.0000	+/-0.50	
M6PFDA	357961.5	3.811283	342,979.00	3.81925	104	50 - 150	-0.0080	+/-0.50	
M3PFBS	78821.97	1.978033	75,822.00	1.978033	104	50 - 150	0.0000	+/-0.50	
M7PFUnA	394288.7	3.962017	409,442.00	3.962017	96	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	34985.44	3.4614	54,277.00	3.4614	64	50 - 150	0.0000	+/-0.50	
M5PFPeA	246576.5	1.791367	238,015.00	1.79965	104	50 - 150	-0.0083	+/-0.50	
M5PFHxA	359145.8	2.696967	338,364.00	2.696967	106	50 - 150	0.0000	+/-0.50	
M3PFHxS	59699.14	3.242583	55,970.00	3.242583	107	50 - 150	0.0000	+/-0.50	
M4PFHpA	388518	3.21145	370,206.00	3.21145	105	50 - 150	0.0000	+/-0.50	
M8PFOA	434096.2	3.469917	407,582.00	3.4779	107	50 - 150	-0.0080	+/-0.50	
M8PFOS	60667.91	3.65215	60,566.00	3.660133	100	50 - 150	-0.0080	+/-0.50	
M9PFNA	423195.8	3.653183	421,439.00	3.661183	100	50 - 150	-0.0080	+/-0.50	
MPFDoA	355179.4	4.096633	365,521.00	4.104633	97	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	110047.6	3.969483	119,169.00	3.969483	92	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	132848.9	3.889733	138,888.00	3.889733	96	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
EB (23B1571-04RE1)			Lab File ID: 23B1571-04RE1.d			Analyzed: 03/07/23 00:26			
M8FOSA	350873.5	4.00455	293,047.00	4.00455	120	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	113687.9	2.562517	94,360.00	2.562517	120	50 - 150	0.0000	+/-0.50	
M2PFTA	814661.7	4.32155	668,110.00	4.32155	122	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	94838.2	3.794817	64,638.00	3.794833	147	50 - 150	0.0000	+/-0.50	
MPFBA	521114.7	1.066783	359,507.00	1.066783	145	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	141735	2.880217	117,715.00	2.880217	120	50 - 150	0.0000	+/-0.50	
M6PFDA	726674.8	3.79535	524,174.00	3.79535	139	50 - 150	0.0000	+/-0.50	
M3PFBS	157682	1.944683	114,399.00	1.944683	138	50 - 150	0.0000	+/-0.50	
M7PFUnA	757807	3.938033	565,816.00	3.938033	134	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	88311.68	3.445283	64,592.00	3.445283	137	50 - 150	0.0000	+/-0.50	
M5PFPeA	500757.5	1.757717	360,526.00	1.757717	139	50 - 150	0.0000	+/-0.50	
M5PFHxA	701174.2	2.655	514,795.00	2.646767	136	50 - 150	0.0082	+/-0.50	
M3PFHxS	117921.4	3.218333	87,064.00	3.218333	135	50 - 150	0.0000	+/-0.50	
M4PFHpA	761353.4	3.186933	532,836.00	3.186933	143	50 - 150	0.0000	+/-0.50	
M8PFOA	837227.9	3.453817	603,820.00	3.453817	139	50 - 150	0.0000	+/-0.50	
M8PFOS	121486.9	3.636183	88,915.00	3.636183	137	50 - 150	0.0000	+/-0.50	
M9PFNA	785079	3.637217	577,370.00	3.637217	136	50 - 150	0.0000	+/-0.50	
MPFDoA	703193.6	4.08065	538,649.00	4.08065	131	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	227566.9	3.9455	175,242.00	3.945517	130	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	265156	3.865617	191,478.00	3.873767	138	50 - 150	-0.0082	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-302 (23B1571-05RE2) Lab File ID: 23B1571-05RE2.d Analyzed: 03/13/23 13:44									
M8FOSA	171251.6	4.00455	202,124.00	4.00455	85	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	26629.93	2.603583	70,921.00	2.6118	38	50 - 150	-0.0082	+/-0.50	*
M2PFTA	408157.1	4.3378	484,398.00	4.345917	84	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	30014.74	3.810767	58,951.00	3.818733	51	50 - 150	-0.0080	+/-0.50	
MPFBA	225306.5	1.0917	234,256.00	1.0834	96	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	57357.43	2.91295	71,810.00	2.91295	80	50 - 150	0.0000	+/-0.50	
M6PFDA	329023.3	3.811283	342,979.00	3.81925	96	50 - 150	-0.0080	+/-0.50	
M3PFBS	70814.94	1.978033	75,822.00	1.978033	93	50 - 150	0.0000	+/-0.50	
M7PFUnA	371448	3.962017	409,442.00	3.962017	91	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	24781.86	3.4614	54,277.00	3.4614	46	50 - 150	0.0000	+/-0.50	*
M5PFPeA	239996.1	1.791367	238,015.00	1.79965	101	50 - 150	-0.0083	+/-0.50	
M5PFHxA	349048.8	2.696967	338,364.00	2.696967	103	50 - 150	0.0000	+/-0.50	
M3PFHxS	51184.09	3.242583	55,970.00	3.242583	91	50 - 150	0.0000	+/-0.50	
M4PFHpA	360823.6	3.21145	370,206.00	3.21145	97	50 - 150	0.0000	+/-0.50	
M8PFOA	393062	3.469917	407,582.00	3.4779	96	50 - 150	-0.0080	+/-0.50	
M8PFOS	53200.3	3.65215	60,566.00	3.660133	88	50 - 150	-0.0080	+/-0.50	
M9PFNA	366770.7	3.653183	421,439.00	3.661183	87	50 - 150	-0.0080	+/-0.50	
MPFDoA	304166.9	4.096633	365,521.00	4.104633	83	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	89949.39	3.969483	119,169.00	3.969483	75	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	114888	3.889733	138,888.00	3.889733	83	50 - 150	0.0000	+/-0.50	
MW-302 (23B1571-05RE3) Lab File ID: 23B1571-05RE3.d Analyzed: 03/16/23 10:36									
M8PFOS	69458.15	3.660133	69,262.00	3.660133	100	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-306 (23B1571-06RE2) Lab File ID: 23B1571-06RE2.d Analyzed: 03/13/23 13:52									
M8FOSA	159676.3	4.00455	202,124.00	4.00455	79	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	32197.63	2.603583	70,921.00	2.6118	45	50 - 150	-0.0082	+/-0.50	*
M2PFTA	358092	4.3378	484,398.00	4.345917	74	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	28790.78	3.810767	58,951.00	3.818733	49	50 - 150	-0.0080	+/-0.50	*
MPFBA	221552.4	1.0917	234,256.00	1.0834	95	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	69240.64	2.91295	71,810.00	2.91295	96	50 - 150	0.0000	+/-0.50	
M6PFDA	292495.8	3.811283	342,979.00	3.81925	85	50 - 150	-0.0080	+/-0.50	
M3PFBS	77121.65	1.978033	75,822.00	1.978033	102	50 - 150	0.0000	+/-0.50	
M7PFUnA	282068.1	3.962017	409,442.00	3.962017	69	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	31874.72	3.4614	54,277.00	3.4614	59	50 - 150	0.0000	+/-0.50	
M5PFPeA	239895.3	1.791367	238,015.00	1.79965	101	50 - 150	-0.0083	+/-0.50	
M5PFHxA	349373.6	2.68875	338,364.00	2.696967	103	50 - 150	-0.0082	+/-0.50	
M3PFHxS	57995.63	3.242583	55,970.00	3.242583	104	50 - 150	0.0000	+/-0.50	
M4PFHpA	377631.4	3.21145	370,206.00	3.21145	102	50 - 150	0.0000	+/-0.50	
M8PFOA	402121.6	3.469917	407,582.00	3.4779	99	50 - 150	-0.0080	+/-0.50	
M8PFOS	50942.76	3.65215	60,566.00	3.660133	84	50 - 150	-0.0080	+/-0.50	
M9PFNA	374114.8	3.653183	421,439.00	3.661183	89	50 - 150	-0.0080	+/-0.50	
MPFDoA	245533.5	4.096633	365,521.00	4.104633	67	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	69736.38	3.969483	119,169.00	3.969483	59	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	84811.95	3.889733	138,888.00	3.889733	61	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-305 (23B1571-07RE2) Lab File ID: 23B1571-07RE2.d Analyzed: 03/13/23 13:59									
M8FOSA	178179.9	4.00455	202,124.00	4.00455	88	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	37696.58	2.603583	70,921.00	2.6118	53	50 - 150	-0.0082	+/-0.50	
M2PFTA	431529.1	4.3378	484,398.00	4.345917	89	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	42341.42	3.810767	58,951.00	3.818733	72	50 - 150	-0.0080	+/-0.50	
MPFBA	147825.6	1.0917	234,256.00	1.0834	63	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	56322.73	2.91295	71,810.00	2.91295	78	50 - 150	0.0000	+/-0.50	
M6PFDA	358926.1	3.811283	342,979.00	3.81925	105	50 - 150	-0.0080	+/-0.50	
M3PFBS	75391.37	1.978033	75,822.00	1.978033	99	50 - 150	0.0000	+/-0.50	
M7PFUnA	358978	3.962017	409,442.00	3.962017	88	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	32940.38	3.461417	54,277.00	3.4614	61	50 - 150	0.0000	+/-0.50	
M5PFPeA	235103.2	1.791367	238,015.00	1.79965	99	50 - 150	-0.0083	+/-0.50	
M5PFHxA	342900.8	2.68875	338,364.00	2.696967	101	50 - 150	-0.0082	+/-0.50	
M3PFHxS	54006.38	3.242583	55,970.00	3.242583	96	50 - 150	0.0000	+/-0.50	
M4PFHpA	371041.9	3.21145	370,206.00	3.21145	100	50 - 150	0.0000	+/-0.50	
M8PFOA	422878.9	3.469917	407,582.00	3.4779	104	50 - 150	-0.0080	+/-0.50	
M8PFOS	52260.14	3.65215	60,566.00	3.660133	86	50 - 150	-0.0080	+/-0.50	
M9PFNA	352741.1	3.6532	421,439.00	3.661183	84	50 - 150	-0.0080	+/-0.50	
MPFDoA	331317.4	4.096633	365,521.00	4.104633	91	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	96336.99	3.9695	119,169.00	3.969483	81	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	116137.1	3.889733	138,888.00	3.889733	84	50 - 150	0.0000	+/-0.50	
MW-305 (23B1571-07RE3) Lab File ID: 23B1571-07RE3.d Analyzed: 03/16/23 10:43									
M3PFHxS	68752.03	3.242583	68,522.00	3.242583	100	50 - 150	0.0000	+/-0.50	
M8PFOS	70822.21	3.660133	69,262.00	3.660133	102	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-303 (23B1571-08RE2)		Lab File ID: 23B1571-08RE2.d				Analyzed: 03/13/23 14:21			
M8FOSA	195080.3	4.00455	202,124.00	4.00455	97	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	44472.84	2.603583	70,921.00	2.603583	63	50 - 150	0.0000	+/-0.50	
M2PFTA	465715.7	4.3378	484,398.00	4.3378	96	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	49911.36	3.810767	58,951.00	3.810767	85	50 - 150	0.0000	+/-0.50	
MPFBA	222342.5	1.0917	234,256.00	1.0834	95	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	69755.09	2.91295	71,810.00	2.91295	97	50 - 150	0.0000	+/-0.50	
M6PFDA	384165.1	3.811283	342,979.00	3.811283	112	50 - 150	0.0000	+/-0.50	
M3PFBS	77353.9	1.978033	75,822.00	1.978033	102	50 - 150	0.0000	+/-0.50	
M7PFUnA	417143.6	3.962017	409,442.00	3.962017	102	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	41257.27	3.4614	54,277.00	3.4614	76	50 - 150	0.0000	+/-0.50	
M5PFPeA	246821.4	1.791367	238,015.00	1.791367	104	50 - 150	0.0000	+/-0.50	
M5PFHxA	358220.2	2.696967	338,364.00	2.696967	106	50 - 150	0.0000	+/-0.50	
M3PFHxS	56612.3	3.242583	55,970.00	3.242583	101	50 - 150	0.0000	+/-0.50	
M4PFHpA	395692.8	3.21145	370,206.00	3.21145	107	50 - 150	0.0000	+/-0.50	
M8PFOA	432303.2	3.469917	407,582.00	3.469917	106	50 - 150	0.0000	+/-0.50	
M8PFOS	61050.36	3.65215	60,566.00	3.65215	101	50 - 150	0.0000	+/-0.50	
M9PFNA	418484.2	3.653183	421,439.00	3.653183	99	50 - 150	0.0000	+/-0.50	
MPFDoA	346602.9	4.096633	365,521.00	4.096633	95	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	110649	3.969483	119,169.00	3.969483	93	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	144038	3.889733	138,888.00	3.889733	104	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-311 (23B1571-09RE2) Lab File ID: 23B1571-09RE2.d Analyzed: 03/13/23 14:28									
M8FOSA	193642.6	4.00455	202,124.00	4.00455	96	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	48887.32	2.603583	70,921.00	2.603583	69	50 - 150	0.0000	+/-0.50	
M2PFTA	415177.9	4.3378	484,398.00	4.3378	86	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	58546.11	3.810767	58,951.00	3.810767	99	50 - 150	0.0000	+/-0.50	
MPFBA	206170.8	1.0917	234,256.00	1.0834	88	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	67145.63	2.91295	71,810.00	2.91295	94	50 - 150	0.0000	+/-0.50	
M6PFDA	377470.8	3.811283	342,979.00	3.811283	110	50 - 150	0.0000	+/-0.50	
M3PFBS	77017.38	1.978033	75,822.00	1.978033	102	50 - 150	0.0000	+/-0.50	
M7PFUnA	376040.1	3.962017	409,442.00	3.962017	92	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	45594.56	3.4614	54,277.00	3.4614	84	50 - 150	0.0000	+/-0.50	
M5PFPeA	245536.5	1.791367	238,015.00	1.791367	103	50 - 150	0.0000	+/-0.50	
M5PFHxA	363520.8	2.68875	338,364.00	2.696967	107	50 - 150	-0.0082	+/-0.50	
M3PFHxS	54131.5	3.242583	55,970.00	3.242583	97	50 - 150	0.0000	+/-0.50	
M4PFHpA	382077.6	3.21145	370,206.00	3.21145	103	50 - 150	0.0000	+/-0.50	
M8PFOA	424199.6	3.469917	407,582.00	3.469917	104	50 - 150	0.0000	+/-0.50	
M8PFOS	52495.84	3.65215	60,566.00	3.65215	87	50 - 150	0.0000	+/-0.50	
M9PFNA	355322.3	3.653183	421,439.00	3.653183	84	50 - 150	0.0000	+/-0.50	
MPFDoA	310441.6	4.096633	365,521.00	4.096633	85	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	111198.1	3.969483	119,169.00	3.969483	93	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	143501.6	3.889733	138,888.00	3.889733	103	50 - 150	0.0000	+/-0.50	
MW-311 (23B1571-09RE3) Lab File ID: 23B1571-09RE3.d Analyzed: 03/16/23 10:50									
M8PFOS	71577.48	3.660133	69,262.00	3.660133	103	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B332915-BLK1)			Lab File ID: B332915-BLK1.d			Analyzed: 03/06/23 22:37			
M8FOSA	333157.5	4.00455	293,047.00	4.00455	114	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	115088.4	2.562517	94,360.00	2.562517	122	50 - 150	0.0000	+/-0.50	
M2PFTA	780947.8	4.32155	668,110.00	4.32155	117	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	107063	3.794833	64,638.00	3.794817	166	50 - 150	0.0000	+/-0.50	*
MPFBA	465412.9	1.066783	359,507.00	1.066783	129	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	131716.4	2.880217	117,715.00	2.880217	112	50 - 150	0.0000	+/-0.50	
M6PFDA	684267.1	3.79535	524,174.00	3.79535	131	50 - 150	0.0000	+/-0.50	
M3PFBS	148923	1.944683	114,399.00	1.944683	130	50 - 150	0.0000	+/-0.50	
M7PFUnA	689815.1	3.938033	565,816.00	3.946033	122	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	85113.68	3.445283	64,592.00	3.445283	132	50 - 150	0.0000	+/-0.50	
M5PFPeA	479190.8	1.766017	360,526.00	1.757717	133	50 - 150	0.0083	+/-0.50	
M5PFHxA	677128.9	2.655	514,795.00	2.655	132	50 - 150	0.0000	+/-0.50	
M3PFHxS	112368.3	3.218333	87,064.00	3.218333	129	50 - 150	0.0000	+/-0.50	
M4PFHpA	710743.3	3.195017	532,836.00	3.186933	133	50 - 150	0.0081	+/-0.50	
M8PFOA	816049.6	3.453817	603,820.00	3.453817	135	50 - 150	0.0000	+/-0.50	
M8PFOS	109999.9	3.636183	88,915.00	3.636183	124	50 - 150	0.0000	+/-0.50	
M9PFNA	737795.6	3.637217	577,370.00	3.637217	128	50 - 150	0.0000	+/-0.50	
MPFDoA	596014.1	4.08065	538,649.00	4.08065	111	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	190095.9	3.945517	175,242.00	3.9535	108	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	244860.3	3.873767	191,478.00	3.873767	128	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B332915-BS1)			Lab File ID: B332915-BS1.d			Analyzed: 03/06/23 22:30			
M8FOSA	282276.3	4.00455	293,047.00	4.00455	96	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	97593.63	2.562517	94,360.00	2.562517	103	50 - 150	0.0000	+/-0.50	
M2PFTA	642745.6	4.32155	668,110.00	4.32155	96	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	86787.97	3.794833	64,638.00	3.794817	134	50 - 150	0.0000	+/-0.50	
MPFBA	381100.7	1.066783	359,507.00	1.066783	106	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	139588.5	2.880217	117,715.00	2.880217	119	50 - 150	0.0000	+/-0.50	
M6PFDA	564570.2	3.79535	524,174.00	3.79535	108	50 - 150	0.0000	+/-0.50	
M3PFBS	121482.9	1.944683	114,399.00	1.944683	106	50 - 150	0.0000	+/-0.50	
M7PFUnA	568861.6	3.946033	565,816.00	3.946033	101	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	75635.55	3.445283	64,592.00	3.445283	117	50 - 150	0.0000	+/-0.50	
M5PFPeA	393987	1.757717	360,526.00	1.757717	109	50 - 150	0.0000	+/-0.50	
M5PFHxA	554732.6	2.655	514,795.00	2.655	108	50 - 150	0.0000	+/-0.50	
M3PFHxS	93334.2	3.218333	87,064.00	3.218333	107	50 - 150	0.0000	+/-0.50	
M4PFHpA	595569.4	3.186933	532,836.00	3.186933	112	50 - 150	0.0000	+/-0.50	
M8PFOA	653395.3	3.453817	603,820.00	3.453817	108	50 - 150	0.0000	+/-0.50	
M8PFOS	91171.73	3.636183	88,915.00	3.636183	103	50 - 150	0.0000	+/-0.50	
M9PFNA	613901.8	3.637217	577,370.00	3.637217	106	50 - 150	0.0000	+/-0.50	
MPFDoA	492572	4.08065	538,649.00	4.08065	91	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	158174	3.945517	175,242.00	3.9535	90	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	195638.1	3.873767	191,478.00	3.873767	102	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B333470-BLK1)			Lab File ID: B333470-BLK1.d			Analyzed: 03/13/23 12:18			
M8FOSA	169931.8	3.996567	202,124.00	4.00455	84	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	58126.42	2.603583	70,921.00	2.6118	82	50 - 150	-0.0082	+/-0.50	
M2PFTA	413605.8	4.3378	484,398.00	4.345917	85	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	52717.14	3.810767	58,951.00	3.818733	89	50 - 150	-0.0080	+/-0.50	
MPFBA	216887	1.0917	234,256.00	1.0834	93	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	56774.25	2.91295	71,810.00	2.91295	79	50 - 150	0.0000	+/-0.50	
M6PFDA	340076.1	3.811283	342,979.00	3.81925	99	50 - 150	-0.0080	+/-0.50	
M3PFBS	72655.39	1.978033	75,822.00	1.978033	96	50 - 150	0.0000	+/-0.50	
M7PFUnA	365091.6	3.962017	409,442.00	3.962017	89	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	53507.49	3.4614	54,277.00	3.4614	99	50 - 150	0.0000	+/-0.50	
M5PFPeA	226877.4	1.79965	238,015.00	1.79965	95	50 - 150	0.0000	+/-0.50	
M5PFHxA	328954.2	2.696967	338,364.00	2.696967	97	50 - 150	0.0000	+/-0.50	
M3PFHxS	53402.04	3.242583	55,970.00	3.242583	95	50 - 150	0.0000	+/-0.50	
M4PFHpA	351076.3	3.21145	370,206.00	3.21145	95	50 - 150	0.0000	+/-0.50	
M8PFOA	392436.2	3.469917	407,582.00	3.4779	96	50 - 150	-0.0080	+/-0.50	
M8PFOS	53649.57	3.65215	60,566.00	3.660133	89	50 - 150	-0.0080	+/-0.50	
M9PFNA	385261.3	3.653183	421,439.00	3.661183	91	50 - 150	-0.0080	+/-0.50	
MPFDoA	305829.6	4.096633	365,521.00	4.104633	84	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	108213.3	3.969483	119,169.00	3.969483	91	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	126645.9	3.889733	138,888.00	3.889733	91	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B333470-BS1)		Lab File ID: B333470-BS1.d				Analyzed: 03/13/23 12:11			
M8FOSA	175314.3	3.996567	202,124.00	4.00455	87	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	64137.9	2.6118	70,921.00	2.6118	90	50 - 150	0.0000	+/-0.50	
M2PFTA	445898.1	4.3378	484,398.00	4.345917	92	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	63618.3	3.810767	58,951.00	3.818733	108	50 - 150	-0.0080	+/-0.50	
MPFBA	236064.3	1.0917	234,256.00	1.0834	101	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	54254.18	2.91295	71,810.00	2.91295	76	50 - 150	0.0000	+/-0.50	
M6PFDA	389509	3.811283	342,979.00	3.81925	114	50 - 150	-0.0080	+/-0.50	
M3PFBS	79430.81	1.986217	75,822.00	1.978033	105	50 - 150	0.0082	+/-0.50	
M7PFUnA	382523.3	3.962017	409,442.00	3.962017	93	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	56786.98	3.4614	54,277.00	3.4614	105	50 - 150	0.0000	+/-0.50	
M5PFPeA	250852.2	1.79965	238,015.00	1.79965	105	50 - 150	0.0000	+/-0.50	
M5PFHxA	365242.8	2.696967	338,364.00	2.696967	108	50 - 150	0.0000	+/-0.50	
M3PFHxS	56654.4	3.242583	55,970.00	3.242583	101	50 - 150	0.0000	+/-0.50	
M4PFHpA	394817.1	3.21145	370,206.00	3.21145	107	50 - 150	0.0000	+/-0.50	
M8PFOA	430782.1	3.469917	407,582.00	3.4779	106	50 - 150	-0.0080	+/-0.50	
M8PFOS	58083.58	3.65215	60,566.00	3.660133	96	50 - 150	-0.0080	+/-0.50	
M9PFNA	440133.2	3.653183	421,439.00	3.661183	104	50 - 150	-0.0080	+/-0.50	
MPFDoA	324711.9	4.104633	365,521.00	4.104633	89	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	108425.6	3.969483	119,169.00	3.969483	91	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	136417.3	3.889733	138,888.00	3.889733	98	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B333470-MS2)		Lab File ID: B333470-MS2.d				Analyzed: 03/13/23 12:33			
M8FOSA	167915.5	4.00455	202,124.00	4.00455	83	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	38766.3	2.603583	70,921.00	2.6118	55	50 - 150	-0.0082	+/-0.50	
M2PFTA	339249	4.3378	484,398.00	4.345917	70	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	37904.67	3.810767	58,951.00	3.818733	64	50 - 150	-0.0080	+/-0.50	
MPFBA	211330	1.0917	234,256.00	1.0834	90	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	59275.36	2.91295	71,810.00	2.91295	83	50 - 150	0.0000	+/-0.50	
M6PFDA	309576.5	3.811283	342,979.00	3.81925	90	50 - 150	-0.0080	+/-0.50	
M3PFBS	74263.23	1.978033	75,822.00	1.978033	98	50 - 150	0.0000	+/-0.50	
M7PFUnA	307977.7	3.962017	409,442.00	3.962017	75	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	36509.47	3.4614	54,277.00	3.4614	67	50 - 150	0.0000	+/-0.50	
M5PFPeA	230747.6	1.799667	238,015.00	1.79965	97	50 - 150	0.0000	+/-0.50	
M5PFHxA	331484.6	2.696967	338,364.00	2.696967	98	50 - 150	0.0000	+/-0.50	
M3PFHxS	53982.76	3.242583	55,970.00	3.242583	96	50 - 150	0.0000	+/-0.50	
M4PFHpA	357449.5	3.21145	370,206.00	3.21145	97	50 - 150	0.0000	+/-0.50	
M8PFOA	393796.2	3.469917	407,582.00	3.4779	97	50 - 150	-0.0080	+/-0.50	
M8PFOS	52612.82	3.65215	60,566.00	3.660133	87	50 - 150	-0.0080	+/-0.50	
M9PFNA	388917.2	3.661183	421,439.00	3.661183	92	50 - 150	0.0000	+/-0.50	
MPFDoA	274947.8	4.096633	365,521.00	4.104633	75	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	83474.69	3.969483	119,169.00	3.969483	70	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	101509.3	3.889733	138,888.00	3.889733	73	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B333470-MSD2)		Lab File ID: B333470-MSD2.d				Analyzed: 03/13/23 12:47			
M8FOSA	183402.9	4.00455	202,124.00	4.00455	91	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	34601.48	2.603583	70,921.00	2.6118	49	50 - 150	-0.0082	+/-0.50	*
M2PFTA	436118	4.345933	484,398.00	4.345917	90	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	38619.22	3.810767	58,951.00	3.818733	66	50 - 150	-0.0080	+/-0.50	
MPFBA	220679.3	1.0917	234,256.00	1.0834	94	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	62419.6	2.91295	71,810.00	2.91295	87	50 - 150	0.0000	+/-0.50	
M6PFDA	340466.5	3.811283	342,979.00	3.81925	99	50 - 150	-0.0080	+/-0.50	
M3PFBS	76676.95	1.978033	75,822.00	1.978033	101	50 - 150	0.0000	+/-0.50	
M7PFUnA	373210.7	3.962017	409,442.00	3.962017	91	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	32137.19	3.4614	54,277.00	3.4614	59	50 - 150	0.0000	+/-0.50	
M5PFPeA	237745.7	1.79965	238,015.00	1.79965	100	50 - 150	0.0000	+/-0.50	
M5PFHxA	348629.2	2.696967	338,364.00	2.696967	103	50 - 150	0.0000	+/-0.50	
M3PFHxS	56150.5	3.242583	55,970.00	3.242583	100	50 - 150	0.0000	+/-0.50	
M4PFHpA	373542.1	3.21145	370,206.00	3.21145	101	50 - 150	0.0000	+/-0.50	
M8PFOA	397963.1	3.469917	407,582.00	3.4779	98	50 - 150	-0.0080	+/-0.50	
M8PFOS	59787.76	3.65215	60,566.00	3.660133	99	50 - 150	-0.0080	+/-0.50	
M9PFNA	403347.5	3.653183	421,439.00	3.661183	96	50 - 150	-0.0080	+/-0.50	
MPFDoA	343101.6	4.104633	365,521.00	4.104633	94	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	104294.2	3.969483	119,169.00	3.969483	88	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	136868.5	3.889733	138,888.00	3.889733	99	50 - 150	0.0000	+/-0.50	

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Major)	NH-P
9Cl-PF3ONS (F53B Minor)	NH-P
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA (NEtFOSAA)	NH-P
N-MeFOSAA (NMeFOSAA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P
Perfluorodecanesulfonic acid (PFDS)	NH-P
Perfluorooctanesulfonamide (FOSA)	NH-P
Perfluorononanesulfonic acid (PFNS)	NH-P
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P
Perfluoro-1-butanedisulfonamide (FBSA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P
Perfluoropentanesulfonic acid (PFPeS)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
Perfluorononanoic acid (PFNA)	NH-P

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023



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

Barnstable County
3195 Main St. PO Box 427

BFTA
Barnstable, MA
6206

Roger Thibault

Con-Test Quote Name/Number:

Invoice Recipient: Priscilla Ellis - pellis@barnstablecounty.org

Sampled By: Matt Alger

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

ANALYSIS REQUESTED

Requested Turnaround Time: ☐ 7-Day ☐ 10-Day ☐ Due Date: ☐ PFAS 15-Day (std) ☐ Lab to Filter

Rush-Approval Required: ☐ 1-Day ☐ 3-Day ☐ 4-Day ☐ Lab to Filter

Format: ☒ PDF ☒ EXCEL ☒ Other: ☐ SOX-HLET ☐ NON SOX-HLET

CLP Like Data Pkg Required: ☐ Email To: ☐ Fax To #:

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

Conc Code

Matrix Code

COMP/GRAB

Ending Date/Time

Beginning Date/Time

Conc Code

Matrix Code

COMP/GRAB

Ending Date/Time

Beginning Date/Time

Conc Code

Matrix Code

COMP/GRAB

Ending Date/Time

Relinquished by (signature)

Date/Time: 2-14-23

Relinquished by (signature)

Date/Time: 2-14-23 8:37

Relinquished by (signature)

Date/Time: 2-14-23 12:30

Relinquished by (signature)

Date/Time: 2-14-23 15:50

Relinquished by (signature)

Date/Time: 2-14-23 15:50

Relinquished by (signature)

Date/Time: 2-14-23 15:50

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Date/Time: 2-14-23 15:50

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Relinquished by (signature)

Date/Time: 2-14-23 15:50

Relinquished by (signature)

Date/Time: 2-14-23 15:50

Relinquished by (signature)

Date/Time: 2-14-23 15:50

Lab Comments:

Client Comments: *Lab requested MS/MSD. Sample confirmation and report to Rthibault@BETA-Inc.com & Lboulley@BETA-Inc.com

Matrix Codes:

GW = Ground Water

WW = Waste Water

DW = Drinking Water

A = Air

S = Soil

SL = Sludge

SOL = Solid

O = Other (please define)

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)

Preservation Code

Container Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

Glassware in the fridge?

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

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SOL = Solid

O = Other (please define)

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Preservation Code

Container Only

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X = Sodium Hydroxide

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GW = Ground Water

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39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.pacelabs.com

ENV-FRM-ELON-0009V02__ Sample Receiving Checklist 1-12-2023

Log In Back-Sheet

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



Client Barnstable County
Project BETA
MCP/RCP Required No
Deliverable Package Req. No
Location Barnstable, MA
PWSID# (When Applicable) NA
Arrival Method:
Courier ☒ Fed Ex ☐ Walk In ☐ Other ☐
Received By / Date / Time AK 2/14/23 1550
Back-Sheet By / Date / Time AK 2/14/23 2149
Temperature Method gun # 5
Temp ☒ < 6° C Actual Temperature 4.8
Rush Samples: Yes / ☒ No Notify
Short Hold: Yes / ☒ No Notify

Notes regarding Samples/COC outside of SOP:

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☒	☐
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☒	IDs ☒	Collection Date/Time ☒
All Samples Proper pH:	<u>N/A</u> ☐	☐

Container (Circle when applicable)	UnP	HCl	HNO3	H2SO4	NaOH	Trizma	NaS2O3	Other Preservative
1L Amber Plastic								
500 mL Amber Plastic								
250 mL Amber Plastic	20							
Other Amber Clear Plastic								
16oz Amber Clear								
8oz Amber Clear								
4oz Amber Clear								
2oz Amber Clear								
Col/Bacteria								
Flashpoint								
Plastic Bag								
SOC Kit								
Perchlorate								
Encore								
Frozen								
Proper Headspace	UnP	HCl	MeOH	Bisulfate	DI	Thiosulfate	Sulfuric	Other
Vials								

June 29, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: Barnstable, MA
Client Job Number:
Project Number: 6206
Laboratory Work Order Number: 23F1938

Enclosed are results of analyses for samples as received by the laboratory on June 14, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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

Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 6/29/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23F1938

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

PROJECT LOCATION: Barnstable, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
System #1 Influent	23F1938-01	Ground Water		SOP-454 PFAS	
System #1 Mid Point	23F1938-02	Ground Water		SOP-454 PFAS	
System #1 Effluent	23F1938-03	Ground Water		SOP-454 PFAS	
System #2 Mid Point	23F1938-04	Ground Water		SOP-454 PFAS	
System #2 Effluent	23F1938-05	Ground Water		SOP-454 PFAS	
HW-S(S)	23F1938-06	Ground Water		SOP-454 PFAS	
HW-S(M)	23F1938-07	Ground Water		SOP-454 PFAS	

CASE NARRATIVE SUMMARY

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

SOP-454 PFAS**Qualifications:****PF-19**

Sample re-analyzed at a dilution that was re-fortified with internal standard.

Analyte & Samples(s) Qualified:**6:2 Fluorotelomersulfonic acid (6:2FTS A)**

23F1938-06RE1[HW-S(S)], 23F1938-07RE1[HW-S(M)]

Perfluorooctanesulfonic acid (PFOS)

23F1938-01RE1[System #1 Influent], 23F1938-06RE1[HW-S(S)], 23F1938-07RE1[HW-S(M)]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:**M2-6:2FTS**

23F1938-01[System #1 Influent]

M2-8:2FTS

23F1938-07[HW-S(M)], S089414-CCV3

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F1938

Date Received: 6/14/2023

Field Sample #: System #1 Influent

Sampled: 6/9/2023 09:00

Sample ID: 23F1938-01

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)	8.6	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluoropentanoic acid (PFPeA)	22	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorohexanoic acid (PFHxA)	21	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorodecanoic acid (PFDA)	5.3	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluoroheptanesulfonic acid (PFHpS)	8.5	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorodecanesulfonic acid (PFDS)	3.2	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorooctanesulfonamide (FOSA)	59	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorononanesulfonic acid (PFNS)	7.4	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	86	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluoro-1-butanesulfonamide (FBSA)	14	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorohexanesulfonic acid (PFHxS)	31	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	5.9	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluoropentanesulfonic acid (PFPeS)	2.4	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluoroundecanoic acid (PFUnA)	7.6	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluoroheptanoic acid (PFHpA)	13	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorooctanoic acid (PFOA)	14	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW
Perfluorooctanesulfonic acid (PFOS)	700	18	ng/L	10	PF-19	SOP-454 PFAS	6/19/23	6/20/23 16:30	QNW
Perfluorononanoic acid (PFNA)	47	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:17	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F1938

Date Received: 6/14/2023

Field Sample #: System #1 Mid Point

Sampled: 6/9/2023 09:10

Sample ID: 23F1938-02

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)	8.5	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluoropentanoic acid (PFPeA)	8.2	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorohexanoic acid (PFHxA)	6.0	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorohexanesulfonic acid (PFHxS)	2.9	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	3.5	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluoroheptanoic acid (PFHpA)	2.0	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorooctanesulfonic acid (PFOS)	5.3	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:24	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F1938

Date Received: 6/14/2023

Field Sample #: System #1 Effluent

Sampled: 6/9/2023 09:20

Sample ID: 23F1938-03

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)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/26/23	6/27/23 16:16	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F1938

Date Received: 6/14/2023

Field Sample #: System #2 Mid Point

Sampled: 6/9/2023 09:30

Sample ID: 23F1938-04

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)	2.0	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:39	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F1938

Date Received: 6/14/2023

Field Sample #: System #2 Effluent

Sampled: 6/9/2023 09:50

Sample ID: 23F1938-05

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)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 13:46	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F1938

Date Received: 6/14/2023

Field Sample #: HW-S(S)

Sampled: 6/9/2023 10:00

Sample ID: 23F1938-06

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)	42	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorobutanesulfonic acid (PFBS)	2.5	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluoropentanoic acid (PFPeA)	150	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorohexanoic acid (PFHxA)	90	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluoroheptanesulfonic acid (PFHpS)	7.2	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	16	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorohexanesulfonic acid (PFHxS)	40	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1400	19	ng/L	10	PF-19	SOP-454 PFAS	6/19/23	6/20/23 16:37	QNW
Perfluoropentanesulfonic acid (PFPeS)	3.4	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluoroheptanoic acid (PFHpA)	61	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorooctanoic acid (PFOA)	67	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW
Perfluorooctanesulfonic acid (PFOS)	300	19	ng/L	10	PF-19	SOP-454 PFAS	6/19/23	6/20/23 16:37	QNW
Perfluorononanoic acid (PFNA)	60	1.9	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:08	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F1938

Date Received: 6/14/2023

Field Sample #: HW-S(M)

Sampled: 6/9/2023 12:30

Sample ID: 23F1938-07

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)	13	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluoropentanoic acid (PFPeA)	41	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorohexanoic acid (PFHxA)	27	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	4.2	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluoroheptanesulfonic acid (PFHpS)	3.4	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	7.7	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorohexanesulfonic acid (PFHxS)	25	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	250	18	ng/L	10	PF-19	SOP-454 PFAS	6/19/23	6/20/23 16:44	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluoroheptanoic acid (PFHpA)	31	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorooctanoic acid (PFOA)	35	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW
Perfluorooctanesulfonic acid (PFOS)	310	18	ng/L	10	PF-19	SOP-454 PFAS	6/19/23	6/20/23 16:44	QNW
Perfluorononanoic acid (PFNA)	30	1.8	ng/L	1		SOP-454 PFAS	6/19/23	6/20/23 14:15	QNW

Sample Extraction Data

Prep Method:SOP 454-PFAAS **Analytical Method:**SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23F1938-01 [System #1 Influent]	B343428	278	1.00	06/19/23
23F1938-01RE1 [System #1 Influent]	B343428	278	1.00	06/19/23
23F1938-02 [System #1 Mid Point]	B343428	258	1.00	06/19/23
23F1938-04 [System #2 Mid Point]	B343428	275	1.00	06/19/23
23F1938-05 [System #2 Effluent]	B343428	284	1.00	06/19/23
23F1938-06 [HW-S(S)]	B343428	268	1.00	06/19/23
23F1938-06RE1 [HW-S(S)]	B343428	268	1.00	06/19/23
23F1938-07 [HW-S(M)]	B343428	279	1.00	06/19/23
23F1938-07RE1 [HW-S(M)]	B343428	279	1.00	06/19/23

Prep Method:SOP 454-PFAAS **Analytical Method:**SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23F1938-03RE1 [System #1 Effluent]	B343978	285	1.00	06/26/23

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 B343428 - SOP 454-PFAAS
Blank (B343428-BLK1)

Prepared: 06/19/23 Analyzed: 06/20/23

Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.9	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L

LCS (B343428-BS1)

Prepared: 06/19/23 Analyzed: 06/20/23

Perfluorobutanoic acid (PFBA)	8.61	1.9	ng/L	9.49	90.7	73-129
Perfluorobutanesulfonic acid (PFBS)	7.68	1.9	ng/L	8.40	91.4	72-130
Perfluoropentanoic acid (PFPeA)	8.30	1.9	ng/L	9.49	87.4	72-129
Perfluorohexanoic acid (PFHxA)	8.45	1.9	ng/L	9.49	89.0	72-129
11Cl-PF3OUdS (F53B Major)	8.34	1.9	ng/L	8.94	93.2	55.1-141
9Cl-PF3ONS (F53B Minor)	7.92	1.9	ng/L	8.85	89.5	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.17	1.9	ng/L	8.94	91.4	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.36	1.9	ng/L	9.49	88.1	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.46	1.9	ng/L	9.11	92.8	67-138
Perfluorodecanoic acid (PFDA)	9.15	1.9	ng/L	9.49	96.4	71-129
Perfluorododecanoic acid (PFDoA)	9.65	1.9	ng/L	9.49	102	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	7.75	1.9	ng/L	8.45	91.8	49.4-154

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 B343428 - SOP 454-PFAAS
LCS (B343428-BS1)

Prepared: 06/19/23 Analyzed: 06/20/23

Perfluoroheptanesulfonic acid (PFHpS)	8.19	1.9	ng/L	9.07		90.4	69-134			
N-EtFOSAA (NEtFOSAA)	9.70	1.9	ng/L	9.49		102	61-135			
N-MeFOSAA (NMeFOSAA)	10.1	1.9	ng/L	9.49		107	65-136			
Perfluorotetradecanoic acid (PFTA)	9.14	1.9	ng/L	9.49		96.3	71-132			
Perfluorotridecanoic acid (PFTTrDA)	9.30	1.9	ng/L	9.49		98.0	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.03	1.9	ng/L	8.88		90.5	63-143			
Perfluorodecanesulfonic acid (PFDS)	6.61	1.9	ng/L	9.16		72.2	53-142			
Perfluorooctanesulfonamide (FOSA)	8.93	1.9	ng/L	9.49		94.1	67-137			
Perfluorononanesulfonic acid (PFNS)	8.31	1.9	ng/L	9.11		91.2	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.79	1.9	ng/L	9.49		92.6	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	9.06	1.9	ng/L	9.49		95.4	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	7.45	1.9	ng/L	8.69		85.7	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	9.35	1.9	ng/L	9.49		98.5	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.25	1.9	ng/L	9.49		97.5	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6.61	1.9	ng/L	9.02		73.3	64-140			
Perfluoropentanesulfonic acid (PFPeS)	8.01	1.9	ng/L	8.92		89.7	71-127			
Perfluoroundecanoic acid (PFUnA)	9.10	1.9	ng/L	9.49		95.9	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.1	1.9	ng/L	9.49		106	58.5-143			
Perfluoroheptanoic acid (PFHpA)	9.06	1.9	ng/L	9.49		95.4	72-130			
Perfluorooctanoic acid (PFOA)	9.02	1.9	ng/L	9.49		95.0	71-133			
Perfluorooctanesulfonic acid (PFOS)	8.02	1.9	ng/L	8.78		91.3	65-140			
Perfluorononanoic acid (PFNA)	8.36	1.9	ng/L	9.49		88.1	69-130			

LCS Dup (B343428-BSD1)

Prepared: 06/19/23 Analyzed: 06/20/23

Perfluorobutanoic acid (PFBA)	9.02	1.9	ng/L	9.40		95.9	73-129	4.60	30	
Perfluorobutanesulfonic acid (PFBS)	8.03	1.9	ng/L	8.32		96.4	72-130	4.44	30	
Perfluoropentanoic acid (PFPeA)	8.51	1.9	ng/L	9.40		90.5	72-129	2.50	30	
Perfluorohexanoic acid (PFHxA)	8.96	1.9	ng/L	9.40		95.2	72-129	5.78	30	
11Cl-PF3OUdS (F53B Major)	8.44	1.9	ng/L	8.86		95.3	55.1-141	1.26	30	
9Cl-PF3ONS (F53B Minor)	8.19	1.9	ng/L	8.77		93.5	59.6-146	3.37	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.08	1.9	ng/L	8.86		102	60.3-131	10.5	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.94	1.9	ng/L	9.40		84.5	37.6-167	5.15	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.18	1.9	ng/L	9.03		90.6	67-138	3.38	30	
Perfluorodecanoic acid (PFDA)	9.47	1.9	ng/L	9.40		101	71-129	3.39	30	
Perfluorododecanoic acid (PFDoA)	9.69	1.9	ng/L	9.40		103	72-134	0.445	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.15	1.9	ng/L	8.37		97.4	49.4-154	5.02	30	
Perfluoroheptanesulfonic acid (PFHpS)	9.51	1.9	ng/L	8.98		106	69-134	14.8	30	
N-EtFOSAA (NEtFOSAA)	8.99	1.9	ng/L	9.40		95.6	61-135	7.61	30	
N-MeFOSAA (NMeFOSAA)	11.1	1.9	ng/L	9.40		118	65-136	8.68	30	
Perfluorotetradecanoic acid (PFTA)	9.21	1.9	ng/L	9.40		98.0	71-132	0.766	30	
Perfluorotridecanoic acid (PFTTrDA)	9.68	1.9	ng/L	9.40		103	65-144	4.03	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.25	1.9	ng/L	8.79		93.8	63-143	2.63	30	
Perfluorodecanesulfonic acid (PFDS)	6.97	1.9	ng/L	9.08		76.8	53-142	5.28	30	
Perfluorooctanesulfonamide (FOSA)	9.33	1.9	ng/L	9.40		99.3	67-137	4.41	30	
Perfluorononanesulfonic acid (PFNS)	8.27	1.9	ng/L	9.03		91.5	69-127	0.524	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	9.05	1.9	ng/L	9.40		96.3	61.7-156	2.90	30	
Perfluoro-1-butanefulfonamide (FBSA)	9.24	1.9	ng/L	9.40		98.2	61.3-145	1.96	30	
Perfluorohexanesulfonic acid (PFHxS)	8.33	1.9	ng/L	8.61		96.8	68-131	11.2	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	9.84	1.9	ng/L	9.40		105	59.8-147	5.01	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	9.47	1.9	ng/L	9.40		101	59.5-146	2.31	30	

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 B343428 - SOP 454-PFAAS
LCS Dup (B343428-BS1)

Prepared: 06/19/23 Analyzed: 06/20/23

6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.86	1.9	ng/L	8.93		99.2	64-140	29.1	30	
Perfluoropentanesulfonic acid (PFPeS)	8.57	1.9	ng/L	8.84		97.0	71-127	6.83	30	
Perfluoroundecanoic acid (PFUnA)	8.90	1.9	ng/L	9.40		94.6	69-133	2.31	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.7	1.9	ng/L	9.40		113	58.5-143	5.74	30	
Perfluoroheptanoic acid (PFHpA)	9.62	1.9	ng/L	9.40		102	72-130	5.96	30	
Perfluorooctanoic acid (PFOA)	8.91	1.9	ng/L	9.40		94.8	71-133	1.18	30	
Perfluorooctanesulfonic acid (PFOS)	8.21	1.9	ng/L	8.70		94.4	65-140	2.33	30	
Perfluorononanoic acid (PFNA)	9.04	1.9	ng/L	9.40		96.1	69-130	7.84	30	

Batch B343978 - SOP 454-PFAAS
Blank (B343978-BLK1)

Prepared: 06/26/23 Analyzed: 06/27/23

Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.9	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L							
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L							
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L							
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L							

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 B343978 - SOP 454-PFAAS
LCS (B343978-BS1)

Prepared: 06/26/23 Analyzed: 06/27/23

Perfluorobutanoic acid (PFBA)	9.74	1.9	ng/L	9.37		104	73-129			
Perfluorobutanesulfonic acid (PFBS)	8.41	1.9	ng/L	8.29		101	72-130			
Perfluoropentanoic acid (PFPeA)	9.60	1.9	ng/L	9.37		102	72-129			
Perfluorohexanoic acid (PFHxA)	9.56	1.9	ng/L	9.37		102	72-129			
11Cl-PF3OUdS (F53B Major)	9.58	1.9	ng/L	8.83		109	55.1-141			
9Cl-PF3ONS (F53B Minor)	8.88	1.9	ng/L	8.73		102	59.6-146			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.35	1.9	ng/L	8.83		106	60.3-131			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.03	1.9	ng/L	9.37		96.4	37.6-167			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.62	1.9	ng/L	9.00		107	67-138			
Perfluorodecanoic acid (PFDA)	10.2	1.9	ng/L	9.37		108	71-129			
Perfluorododecanoic acid (PFDoA)	10.4	1.9	ng/L	9.37		111	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	8.22	1.9	ng/L	8.34		98.6	49.4-154			
Perfluoroheptanesulfonic acid (PFHpS)	10.5	1.9	ng/L	8.95		117	69-134			
N-EtFOSAA (NEtFOSAA)	11.1	1.9	ng/L	9.37		118	61-135			
N-MeFOSAA (NMeFOSAA)	10.8	1.9	ng/L	9.37		115	65-136			
Perfluorotetradecanoic acid (PFTA)	10.7	1.9	ng/L	9.37		114	71-132			
Perfluorotridecanoic acid (PFTrDA)	11.2	1.9	ng/L	9.37		119	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.89	1.9	ng/L	8.76		113	63-143			
Perfluorodecanesulfonic acid (PFDS)	7.44	1.9	ng/L	9.04		82.3	53-142			
Perfluorooctanesulfonamide (FOSA)	10.8	1.9	ng/L	9.37		116	67-137			
Perfluorononanesulfonic acid (PFNS)	9.42	1.9	ng/L	9.00		105	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.82	1.9	ng/L	9.37		94.1	61.7-156			
Perfluoro-1-butanedisulfonamide (FBSA)	9.36	1.9	ng/L	9.37		99.9	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	9.16	1.9	ng/L	8.57		107	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	10.2	1.9	ng/L	9.37		108	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	10.7	1.9	ng/L	9.37		115	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.10	1.9	ng/L	8.90		91.0	64-140			
Perfluoropentanesulfonic acid (PFPeS)	9.76	1.9	ng/L	8.81		111	71-127			
Perfluoroundecanoic acid (PFUnA)	10.0	1.9	ng/L	9.37		107	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.38	1.9	ng/L	9.37		100	58.5-143			
Perfluoroheptanoic acid (PFHpA)	10.4	1.9	ng/L	9.37		111	72-130			
Perfluorooctanoic acid (PFOA)	9.88	1.9	ng/L	9.37		105	71-133			
Perfluorooctanesulfonic acid (PFOS)	10.1	1.9	ng/L	8.67		116	65-140			
Perfluorononanoic acid (PFNA)	9.80	1.9	ng/L	9.37		105	69-130			

LCS Dup (B343978-BS1)

Prepared: 06/26/23 Analyzed: 06/27/23

Perfluorobutanoic acid (PFBA)	10.1	1.9	ng/L	9.51		106	73-129	3.65	30	
Perfluorobutanesulfonic acid (PFBS)	8.60	1.9	ng/L	8.41		102	72-130	2.19	30	
Perfluoropentanoic acid (PFPeA)	9.95	1.9	ng/L	9.51		105	72-129	3.55	30	
Perfluorohexanoic acid (PFHxA)	9.79	1.9	ng/L	9.51		103	72-129	2.33	30	
11Cl-PF3OUdS (F53B Major)	9.35	1.9	ng/L	8.96		104	55.1-141	2.42	30	
9Cl-PF3ONS (F53B Minor)	9.82	1.9	ng/L	8.86		111	59.6-146	9.97	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.72	1.9	ng/L	8.96		108	60.3-131	3.79	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	10.3	1.9	ng/L	9.51		108	37.6-167	13.1	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.4	1.9	ng/L	9.13		114	67-138	7.89	30	
Perfluorodecanoic acid (PFDA)	10.6	1.9	ng/L	9.51		112	71-129	4.31	30	
Perfluorododecanoic acid (PFDoA)	10.1	1.9	ng/L	9.51		106	72-134	2.62	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	8.55	1.9	ng/L	8.46		101	49.4-154	3.87	30	

QUALITY CONTROL
Semivolatiles 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 B343978 - SOP 454-PFAAS
LCS Dup (B343978-BSD1)

Prepared: 06/26/23 Analyzed: 06/27/23

Perfluoroheptanesulfonic acid (PFHpS)	10.2	1.9	ng/L	9.08		113	69-134	2.49	30	
N-EtFOSAA (NEtFOSAA)	11.1	1.9	ng/L	9.51		116	61-135	0.143	30	
N-MeFOSAA (NMeFOSAA)	11.8	1.9	ng/L	9.51		124	65-136	9.01	30	
Perfluorotetradecanoic acid (PFTA)	11.2	1.9	ng/L	9.51		117	71-132	4.17	30	
Perfluorotridecanoic acid (PFTrDA)	11.5	1.9	ng/L	9.51		121	65-144	2.72	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.59	1.9	ng/L	8.89		108	63-143	3.05	30	
Perfluorodecanesulfonic acid (PFDS)	8.18	1.9	ng/L	9.17		89.2	53-142	9.53	30	
Perfluorooctanesulfonamide (FOSA)	10.8	1.9	ng/L	9.51		114	67-137	0.0525	30	
Perfluorononanesulfonic acid (PFNS)	8.42	1.9	ng/L	9.13		92.3	69-127	11.2	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	9.53	1.9	ng/L	9.51		100	61.7-156	7.69	30	
Perfluoro-1-butanefulfonamide (FBSA)	9.68	1.9	ng/L	9.51		102	61.3-145	3.40	30	
Perfluorohexanesulfonic acid (PFHxS)	9.45	1.9	ng/L	8.70		109	68-131	3.11	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	10.7	1.9	ng/L	9.51		112	59.8-147	5.07	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	11.1	1.9	ng/L	9.51		116	59.5-146	2.96	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.47	1.9	ng/L	9.03		105	64-140	15.6	30	
Perfluoropentanesulfonic acid (PFPeS)	9.63	1.9	ng/L	8.94		108	71-127	1.44	30	
Perfluoroundecanoic acid (PFUnA)	10.5	1.9	ng/L	9.51		110	69-133	4.41	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.89	1.9	ng/L	9.51		104	58.5-143	5.28	30	
Perfluoroheptanoic acid (PFHpA)	10.9	1.9	ng/L	9.51		114	72-130	4.51	30	
Perfluorooctanoic acid (PFOA)	10.2	1.9	ng/L	9.51		108	71-133	3.60	30	
Perfluorooctanesulfonic acid (PFOS)	10.2	1.9	ng/L	8.79		116	65-140	1.18	30	
Perfluorononanoic acid (PFNA)	10.0	1.9	ng/L	9.51		105	69-130	2.01	30	

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.
PF-19	Sample re-analyzed at a dilution that was re-fortified with internal standard.
S-29	Extracted Internal Standard is outside of control limits.

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
System #1 Influent (23F1938-01)			Lab File ID: 23F1938-01.d			Analyzed: 06/20/23 13:17			
M8FOSA	159784.3	4.02055	208,292.00	3.996567	77	50 - 150	0.0240	+/-0.50	
M2-4:2FTS	34215.32	2.6531	28,656.00	2.595367	119	50 - 150	0.0577	+/-0.50	
M2PFTA	319147.1	4.3703	504,360.00	4.35405	63	50 - 150	0.0163	+/-0.50	
M2-8:2FTS	56921.75	3.842983	41,503.00	3.818733	137	50 - 150	0.0242	+/-0.50	
MPFBA	155963.7	1.0917	242,855.00	1.075083	64	50 - 150	0.0166	+/-0.50	
M3HFPO-DA	103022.8	2.9622	112,170.00	2.91295	92	50 - 150	0.0493	+/-0.50	
M6PFDA	423680.7	3.843467	460,928.00	3.819267	92	50 - 150	0.0242	+/-0.50	
M3PFBS	102065.3	2.011067	103,382.00	1.969733	99	50 - 150	0.0413	+/-0.50	
M7PFUnA	393616.8	3.994	454,055.00	3.970017	87	50 - 150	0.0240	+/-0.50	
M2-6:2FTS	53688.67	3.501333	29,483.00	3.4694	182	50 - 150	0.0319	+/-0.50	*
M5PFPeA	235401.1	1.816233	257,949.00	1.7826	91	50 - 150	0.0336	+/-0.50	
M5PFHxA	414867.2	2.747233	434,970.00	2.68875	95	50 - 150	0.0585	+/-0.50	
M3PFHxS	69500.63	3.28425	67,838.00	3.242583	102	50 - 150	0.0417	+/-0.50	
M4PFHpA	425793.6	3.251867	459,215.00	3.219533	93	50 - 150	0.0323	+/-0.50	
M8PFOA	479030.2	3.510167	486,565.00	3.477917	98	50 - 150	0.0322	+/-0.50	
M8PFOS	49878.5	3.692083	73,861.00	3.66015	68	50 - 150	0.0319	+/-0.50	
M9PFNA	309845.8	3.693117	442,675.00	3.661183	70	50 - 150	0.0319	+/-0.50	
MPFDoA	294304.3	4.1288	401,436.00	4.112633	73	50 - 150	0.0162	+/-0.50	
D5-NEtFOSAA	79517.89	4.001467	111,851.00	3.977483	71	50 - 150	0.0240	+/-0.50	
D3-NMeFOSAA	90757.97	3.9219	125,558.00	3.897717	72	50 - 150	0.0242	+/-0.50	
System #1 Influent (23F1938-01RE1)			Lab File ID: 23F1938-01RE1.d			Analyzed: 06/20/23 16:30			
M8PFOS	73137.64	3.636183	73,861.00	3.692083	99	50 - 150	-0.0559	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
System #1 Mid Point (23F1938-02)		Lab File ID: 23F1938-02.d				Analyzed: 06/20/23 13:24			
M8FOSA	173838.8	4.02855	208,292.00	3.996567	83	50 - 150	0.0320	+/-0.50	
M2-4:2FTS	25414.83	2.68715	28,656.00	2.595367	89	50 - 150	0.0918	+/-0.50	
M2PFTA	308266.7	4.3703	504,360.00	4.35405	61	50 - 150	0.0163	+/-0.50	
M2-8:2FTS	49342.96	3.85095	41,503.00	3.818733	119	50 - 150	0.0322	+/-0.50	
MPFBA	227035.3	1.116633	242,855.00	1.075083	93	50 - 150	0.0416	+/-0.50	
M3HFPO-DA	103858.2	2.986567	112,170.00	2.91295	93	50 - 150	0.0736	+/-0.50	
M6PFDA	435416.3	3.851433	460,928.00	3.819267	94	50 - 150	0.0322	+/-0.50	
M3PFBS	96680.31	2.054933	103,382.00	1.969733	94	50 - 150	0.0852	+/-0.50	
M7PFUnA	366629.8	3.994017	454,055.00	3.970017	81	50 - 150	0.0240	+/-0.50	
M2-6:2FTS	33129.76	3.509633	29,483.00	3.4694	112	50 - 150	0.0402	+/-0.50	
M5PFPeA	249035.1	1.857667	257,949.00	1.7826	97	50 - 150	0.0751	+/-0.50	
M5PFHxA	423992.9	2.779967	434,970.00	2.68875	97	50 - 150	0.0912	+/-0.50	
M3PFHxS	72617.95	3.2923	67,838.00	3.242583	107	50 - 150	0.0497	+/-0.50	
M4PFHpA	421209.4	3.268033	459,215.00	3.219533	92	50 - 150	0.0485	+/-0.50	
M8PFOA	475622.8	3.518167	486,565.00	3.477917	98	50 - 150	0.0402	+/-0.50	
M8PFOS	65514.26	3.6921	73,861.00	3.66015	89	50 - 150	0.0320	+/-0.50	
M9PFNA	427604.1	3.701117	442,675.00	3.661183	97	50 - 150	0.0399	+/-0.50	
MPFDoA	306383.9	4.136833	401,436.00	4.112633	76	50 - 150	0.0242	+/-0.50	
D5-NEtFOSAA	83737.41	4.001483	111,851.00	3.977483	75	50 - 150	0.0240	+/-0.50	
D3-NMeFOSAA	96952.75	3.9299	125,558.00	3.897717	77	50 - 150	0.0322	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
System #1 Effluent (23F1938-03RE1)			Lab File ID: 23F1938-03RE1.d			Analyzed: 06/27/23 16:16			
M8FOSA	172473.2	3.972583	184,692.00	3.980583	93	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	26862.81	2.529667	28,725.00	2.5461	94	50 - 150	-0.0164	+/-0.50	
M2PFTA	392706	4.32155	475,121.00	4.329683	83	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	35809.99	3.786867	43,601.00	3.794833	82	50 - 150	-0.0080	+/-0.50	
MPFBA	256449.4	1.050167	237,855.00	1.058467	108	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	96793.18	2.855667	113,844.00	2.872033	85	50 - 150	-0.0164	+/-0.50	
M6PFDA	418256	3.787383	433,493.00	3.79535	96	50 - 150	-0.0080	+/-0.50	
M3PFBS	116053	1.911533	94,783.00	1.928117	122	50 - 150	-0.0166	+/-0.50	
M7PFUnA	399289	3.93805	465,869.00	3.94605	86	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	37754.21	3.429317	30,967.00	3.4453	122	50 - 150	-0.0160	+/-0.50	
M5PFPeA	262242	1.731383	255,163.00	1.749417	103	50 - 150	-0.0180	+/-0.50	
M5PFHxA	475423.6	2.621617	431,214.00	2.638533	110	50 - 150	-0.0169	+/-0.50	
M3PFHxS	71052.3	3.201883	62,457.00	3.218333	114	50 - 150	-0.0164	+/-0.50	
M4PFHpA	485773.6	3.170783	444,956.00	3.18695	109	50 - 150	-0.0162	+/-0.50	
M8PFOA	517077.3	3.437833	476,397.00	3.453817	109	50 - 150	-0.0160	+/-0.50	
M8PFOS	68023.49	3.6282	64,373.00	3.6362	106	50 - 150	-0.0080	+/-0.50	
M9PFNA	485894.5	3.629233	430,665.00	3.637233	113	50 - 150	-0.0080	+/-0.50	
MPFDoA	340155.1	4.08065	399,805.00	4.08865	85	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	86963.7	3.945517	100,493.00	3.953517	87	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	101729.5	3.865617	109,665.00	3.873783	93	50 - 150	-0.0082	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
System #2 Mid Point (23F1938-04)		Lab File ID: 23F1938-04.d				Analyzed: 06/20/23 13:39			
M8FOSA	167534.5	4.02055	208,292.00	3.996567	80	50 - 150	0.0240	+/-0.50	
M2-4:2FTS	25885.71	2.644867	28,656.00	2.595367	90	50 - 150	0.0495	+/-0.50	
M2PFTA	371266.8	4.362184	504,360.00	4.35405	74	50 - 150	0.0081	+/-0.50	
M2-8:2FTS	50407.32	3.835033	41,503.00	3.818733	121	50 - 150	0.0163	+/-0.50	
MPFBA	229805.9	1.108333	242,855.00	1.075083	95	50 - 150	0.0333	+/-0.50	
M3HFPO-DA	112263.6	2.945983	112,170.00	2.91295	100	50 - 150	0.0330	+/-0.50	
M6PFDA	435983.7	3.835517	460,928.00	3.819267	95	50 - 150	0.0162	+/-0.50	
M3PFBS	106033.7	2.019367	103,382.00	1.969733	103	50 - 150	0.0496	+/-0.50	
M7PFUnA	355457.5	3.986017	454,055.00	3.970017	78	50 - 150	0.0160	+/-0.50	
M2-6:2FTS	34099.09	3.49335	29,483.00	3.4694	116	50 - 150	0.0240	+/-0.50	
M5PFPeA	258857.3	1.832817	257,949.00	1.7826	100	50 - 150	0.0502	+/-0.50	
M5PFHxA	458310.3	2.73905	434,970.00	2.68875	105	50 - 150	0.0503	+/-0.50	
M3PFHxS	67637.5	3.276233	67,838.00	3.242583	100	50 - 150	0.0336	+/-0.50	
M4PFHpA	458291.2	3.2438	459,215.00	3.219533	100	50 - 150	0.0243	+/-0.50	
M8PFOA	484559.4	3.501867	486,565.00	3.477917	100	50 - 150	0.0239	+/-0.50	
M8PFOS	64696.3	3.684117	73,861.00	3.66015	88	50 - 150	0.0240	+/-0.50	
M9PFNA	442692.3	3.68515	442,675.00	3.661183	100	50 - 150	0.0240	+/-0.50	
MPFDaA	301670	4.120783	401,436.00	4.112633	75	50 - 150	0.0082	+/-0.50	
D5-NEtFOSAA	79580.85	3.993483	111,851.00	3.977483	71	50 - 150	0.0160	+/-0.50	
D3-NMeFOSAA	93020.46	3.9139	125,558.00	3.897717	74	50 - 150	0.0162	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
System #2 Effluent (23F1938-05)		Lab File ID: 23F1938-05.d				Analyzed: 06/20/23 13:46			
M8FOSA	174446.3	4.036533	208,292.00	3.996567	84	50 - 150	0.0400	+/-0.50	
M2-4:2FTS	27162.83	2.695367	28,656.00	2.595367	95	50 - 150	0.1000	+/-0.50	
M2PFTA	385676.3	4.378417	504,360.00	4.35405	76	50 - 150	0.0244	+/-0.50	
M2-8:2FTS	52300.65	3.8589	41,503.00	3.818733	126	50 - 150	0.0402	+/-0.50	
MPFBA	238013.5	1.116633	242,855.00	1.075083	98	50 - 150	0.0416	+/-0.50	
M3HFPO-DA	106751.8	2.994683	112,170.00	2.91295	95	50 - 150	0.0817	+/-0.50	
M6PFDA	444032.5	3.859383	460,928.00	3.819267	96	50 - 150	0.0401	+/-0.50	
M3PFBS	103074.9	2.054933	103,382.00	1.969733	100	50 - 150	0.0852	+/-0.50	
M7PFUnA	378100.2	4.002	454,055.00	3.970017	83	50 - 150	0.0320	+/-0.50	
M2-6:2FTS	37284.27	3.517617	29,483.00	3.4694	126	50 - 150	0.0482	+/-0.50	
M5PFPeA	262260.1	1.857667	257,949.00	1.7826	102	50 - 150	0.0751	+/-0.50	
M5PFHxA	456053	2.779967	434,970.00	2.68875	105	50 - 150	0.0912	+/-0.50	
M3PFHxS	72537.76	3.308383	67,838.00	3.242583	107	50 - 150	0.0658	+/-0.50	
M4PFHpA	470396.3	3.27725	459,215.00	3.219533	102	50 - 150	0.0577	+/-0.50	
M8PFOA	524803.3	3.52615	486,565.00	3.477917	108	50 - 150	0.0482	+/-0.50	
M8PFOS	64571.02	3.700083	73,861.00	3.66015	87	50 - 150	0.0399	+/-0.50	
M9PFNA	456981.8	3.701117	442,675.00	3.661183	103	50 - 150	0.0399	+/-0.50	
MPFDaA	319559.4	4.136833	401,436.00	4.112633	80	50 - 150	0.0242	+/-0.50	
D5-NEtFOSAA	80637.78	4.009467	111,851.00	3.977483	72	50 - 150	0.0320	+/-0.50	
D3-NMeFOSAA	94486.78	3.929883	125,558.00	3.897717	75	50 - 150	0.0322	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
HW-S(S) (23F1938-06) Lab File ID: 23F1938-06.d Analyzed: 06/20/23 14:08									
M8FOSA	196661.1	4.028533	208,292.00	4.028533	94	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	41297.28	2.670717	28,656.00	2.661333	144	50 - 150	0.0094	+/-0.50	
M2PFTA	405883.7	4.3703	504,360.00	4.370317	80	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	61711.4	3.850933	41,503.00	3.850933	149	50 - 150	0.0000	+/-0.50	
MPFBA	208273.4	1.108317	242,855.00	1.0917	86	50 - 150	0.0166	+/-0.50	
M3HFPO-DA	115644.8	2.97845	112,170.00	2.970317	103	50 - 150	0.0081	+/-0.50	
M6PFDA	536146.1	3.851417	460,928.00	3.851417	116	50 - 150	0.0000	+/-0.50	
M3PFBS	126337.6	2.019367	103,382.00	2.019367	122	50 - 150	0.0000	+/-0.50	
M7PFUnA	474679.4	3.994	454,055.00	3.994	105	50 - 150	0.0000	+/-0.50	
M5PFPeA	283853.2	1.8328	257,949.00	1.824517	110	50 - 150	0.0083	+/-0.50	
M5PFHxA	505020.3	2.7636	434,970.00	2.7554	116	50 - 150	0.0082	+/-0.50	
M3PFHxS	85415.85	3.2923	67,838.00	3.2923	126	50 - 150	0.0000	+/-0.50	
M4PFHpA	516171.4	3.268033	459,215.00	3.268033	112	50 - 150	0.0000	+/-0.50	
M8PFOA	517267.9	3.51815	486,565.00	3.51815	106	50 - 150	0.0000	+/-0.50	
M8PFOS	76601.09	3.692083	73,861.00	3.692083	104	50 - 150	0.0000	+/-0.50	
M9PFNA	446822.1	3.7011	442,675.00	3.7011	101	50 - 150	0.0000	+/-0.50	
MPFDaA	365462.5	4.136817	401,436.00	4.136833	91	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	92064.82	4.001467	111,851.00	4.001467	82	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	104524.2	3.929883	125,558.00	3.929883	83	50 - 150	0.0000	+/-0.50	
HW-S(S) (23F1938-06RE1) Lab File ID: 23F1938-06RE1.d Analyzed: 06/20/23 16:37									
M2-6:2FTS	37669.23	3.4373	29,483.00	3.509617	128	50 - 150	-0.0723	+/-0.50	
M8PFOS	67059.05	3.636183	73,861.00	3.692083	91	50 - 150	-0.0559	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
HW-S(M) (23F1938-07) Lab File ID: 23F1938-07.d Analyzed: 06/20/23 14:15									
M8FOSA	186543.1	4.036533	208,292.00	4.028533	90	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	35433.79	2.713167	28,656.00	2.661333	124	50 - 150	0.0518	+/-0.50	
M2PFTA	351067.3	4.378417	504,360.00	4.370317	70	50 - 150	0.0081	+/-0.50	
M2-8:2FTS	64088.19	3.858883	41,503.00	3.850933	154	50 - 150	0.0080	+/-0.50	*
MPFBA	227282.1	1.141567	242,855.00	1.0917	94	50 - 150	0.0499	+/-0.50	
M3HFPO-DA	114426.5	2.994683	112,170.00	2.970317	102	50 - 150	0.0244	+/-0.50	
M6PFDA	522133.5	3.859383	460,928.00	3.851417	113	50 - 150	0.0080	+/-0.50	
M3PFBS	116937.4	2.079733	103,382.00	2.019367	113	50 - 150	0.0604	+/-0.50	
M7PFUnA	494098.9	4.001983	454,055.00	3.994	109	50 - 150	0.0080	+/-0.50	
M5PFPeA	273304.8	1.890817	257,949.00	1.824517	106	50 - 150	0.0663	+/-0.50	
M5PFHxA	481101.1	2.796317	434,970.00	2.7554	111	50 - 150	0.0409	+/-0.50	
M3PFHxS	76421.52	3.308383	67,838.00	3.2923	113	50 - 150	0.0161	+/-0.50	
M4PFHpA	490460.4	3.27725	459,215.00	3.268033	107	50 - 150	0.0092	+/-0.50	
M8PFOA	526416.1	3.52615	486,565.00	3.51815	108	50 - 150	0.0080	+/-0.50	
M8PFOS	66688.73	3.700067	73,861.00	3.692083	90	50 - 150	0.0080	+/-0.50	
M9PFNA	427842.7	3.709283	442,675.00	3.7011	97	50 - 150	0.0082	+/-0.50	
MPFDaA	374150.1	4.136817	401,436.00	4.136833	93	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	92660.05	4.009467	111,851.00	4.001467	83	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	106315.2	3.937883	125,558.00	3.929883	85	50 - 150	0.0080	+/-0.50	
HW-S(M) (23F1938-07RE1) Lab File ID: 23F1938-07RE1.d Analyzed: 06/20/23 16:44									
M2-6:2FTS	27144.77	3.437317	29,483.00	3.509617	92	50 - 150	-0.0723	+/-0.50	
M8PFOS	70527.97	3.6362	73,861.00	3.692083	95	50 - 150	-0.0559	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B343428-BLK1)			Lab File ID: B343428-BLK1.d			Analyzed: 06/20/23 12:34			
M8FOSA	195113.7	3.996567	208,292.00	3.996567	94	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	31332.77	2.595367	28,656.00	2.595367	109	50 - 150	0.0000	+/-0.50	
M2PFTA	404270.4	4.35405	504,360.00	4.35405	80	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	41634.02	3.818733	41,503.00	3.818733	100	50 - 150	0.0000	+/-0.50	
MPFBA	245147.7	1.075083	242,855.00	1.075083	101	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	105459.3	2.91295	112,170.00	2.91295	94	50 - 150	0.0000	+/-0.50	
M6PFDA	447939.2	3.81925	460,928.00	3.819267	97	50 - 150	0.0000	+/-0.50	
M3PFBS	110028	1.969733	103,382.00	1.969733	106	50 - 150	0.0000	+/-0.50	
M7PFUnA	406860.3	3.970017	454,055.00	3.970017	90	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	34561.73	3.4694	29,483.00	3.4694	117	50 - 150	0.0000	+/-0.50	
M5PFPeA	267950.3	1.7826	257,949.00	1.7826	104	50 - 150	0.0000	+/-0.50	
M5PFHxA	456744.9	2.68875	434,970.00	2.68875	105	50 - 150	0.0000	+/-0.50	
M3PFHxS	70149.01	3.242583	67,838.00	3.242583	103	50 - 150	0.0000	+/-0.50	
M4PFHpA	466762.1	3.21145	459,215.00	3.219533	102	50 - 150	-0.0081	+/-0.50	
M8PFOA	511598.7	3.477917	486,565.00	3.477917	105	50 - 150	0.0000	+/-0.50	
M8PFOS	68084.43	3.66015	73,861.00	3.66015	92	50 - 150	0.0000	+/-0.50	
M9PFNA	468148.3	3.661183	442,675.00	3.661183	106	50 - 150	0.0000	+/-0.50	
MPFDoA	329578.3	4.112633	401,436.00	4.112633	82	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	100614.9	3.977483	111,851.00	3.977483	90	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	109187.8	3.897717	125,558.00	3.897717	87	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B343428-BS1)			Lab File ID: B343428-BS1.d			Analyzed: 06/20/23 12:19			
M8FOSA	187570.2	3.99655	208,292.00	3.996567	90	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	32081.71	2.603583	28,656.00	2.595367	112	50 - 150	0.0082	+/-0.50	
M2PFTA	434271.3	4.35405	504,360.00	4.35405	86	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	44634.23	3.818733	41,503.00	3.818733	108	50 - 150	0.0000	+/-0.50	
MPFBA	249724.8	1.075083	242,855.00	1.075083	103	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	107859.1	2.921133	112,170.00	2.91295	96	50 - 150	0.0082	+/-0.50	
M6PFDA	438303.2	3.81925	460,928.00	3.819267	95	50 - 150	0.0000	+/-0.50	
M3PFBS	110890.1	1.978033	103,382.00	1.969733	107	50 - 150	0.0083	+/-0.50	
M7PFUnA	416983.1	3.97	454,055.00	3.970017	92	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	37465.57	3.469383	29,483.00	3.4694	127	50 - 150	0.0000	+/-0.50	
M5PFPeA	274238.4	1.791367	257,949.00	1.7826	106	50 - 150	0.0088	+/-0.50	
M5PFHxA	461352.8	2.696967	434,970.00	2.68875	106	50 - 150	0.0082	+/-0.50	
M3PFHxS	71841.6	3.250667	67,838.00	3.242583	106	50 - 150	0.0081	+/-0.50	
M4PFHpA	486099.8	3.219533	459,215.00	3.219533	106	50 - 150	0.0000	+/-0.50	
M8PFOA	510753.6	3.4779	486,565.00	3.477917	105	50 - 150	0.0000	+/-0.50	
M8PFOS	70214.04	3.660133	73,861.00	3.66015	95	50 - 150	0.0000	+/-0.50	
M9PFNA	489898.4	3.661167	442,675.00	3.661183	111	50 - 150	0.0000	+/-0.50	
MPFDoA	329503.4	4.112617	401,436.00	4.112633	82	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	100120.9	3.977483	111,851.00	3.977483	90	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	110631	3.897717	125,558.00	3.897717	88	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS Dup (B343428-BSD1)			Lab File ID: B343428-BSD1.d			Analyzed: 06/20/23 12:26			
M8FOSA	187134.2	3.996583	208,292.00	3.996567	90	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	29986.75	2.595383	28,656.00	2.595367	105	50 - 150	0.0000	+/-0.50	
M2PFTA	409155.7	4.354067	504,360.00	4.35405	81	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	43806.65	3.81875	41,503.00	3.818733	106	50 - 150	0.0000	+/-0.50	
MPFBA	236529.3	1.075083	242,855.00	1.075083	97	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	106479.7	2.91295	112,170.00	2.91295	95	50 - 150	0.0000	+/-0.50	
M6PFDA	435558.5	3.819267	460,928.00	3.819267	94	50 - 150	0.0000	+/-0.50	
M3PFBS	106442.3	1.96975	103,382.00	1.969733	103	50 - 150	0.0000	+/-0.50	
M7PFUnA	395814.9	3.970033	454,055.00	3.970017	87	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	32148.59	3.461417	29,483.00	3.4694	109	50 - 150	-0.0080	+/-0.50	
M5PFPeA	263839	1.7826	257,949.00	1.7826	102	50 - 150	0.0000	+/-0.50	
M5PFHxA	440862.3	2.68875	434,970.00	2.68875	101	50 - 150	0.0000	+/-0.50	
M3PFHxS	67726.05	3.242583	67,838.00	3.242583	100	50 - 150	0.0000	+/-0.50	
M4PFHpA	453074.6	3.21145	459,215.00	3.219533	99	50 - 150	-0.0081	+/-0.50	
M8PFOA	502855.9	3.477917	486,565.00	3.477917	103	50 - 150	0.0000	+/-0.50	
M8PFOS	68441.94	3.66015	73,861.00	3.66015	93	50 - 150	0.0000	+/-0.50	
M9PFNA	461870.5	3.661183	442,675.00	3.661183	104	50 - 150	0.0000	+/-0.50	
MPFDaA	331124.1	4.11265	401,436.00	4.112633	82	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	98228.23	3.9775	111,851.00	3.977483	88	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	107999.2	3.897733	125,558.00	3.897717	86	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B343978-BLK1) Lab File ID: B343978-BLK1.d Analyzed: 06/27/23 16:09									
M8FOSA	169684.1	3.9726	184,692.00	3.980583	92	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	28549.19	2.529667	28,725.00	2.5461	99	50 - 150	-0.0164	+/-0.50	
M2PFTA	425401.3	4.321583	475,121.00	4.329683	90	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	38808.89	3.786883	43,601.00	3.794833	89	50 - 150	-0.0080	+/-0.50	
MPFBA	252937	1.050167	237,855.00	1.058467	106	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	92606.89	2.855667	113,844.00	2.872033	81	50 - 150	-0.0164	+/-0.50	
M6PFDA	435522.4	3.7874	433,493.00	3.79535	100	50 - 150	-0.0080	+/-0.50	
M3PFBS	112572.2	1.911533	94,783.00	1.928117	119	50 - 150	-0.0166	+/-0.50	
M7PFUnA	436206.4	3.938067	465,869.00	3.94605	94	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	33763.75	3.429317	30,967.00	3.4453	109	50 - 150	-0.0160	+/-0.50	
M5PFPeA	257704.2	1.731383	255,163.00	1.749417	101	50 - 150	-0.0180	+/-0.50	
M5PFHxA	462102.1	2.621617	431,214.00	2.638533	107	50 - 150	-0.0169	+/-0.50	
M3PFHxS	69027.35	3.201883	62,457.00	3.218333	111	50 - 150	-0.0164	+/-0.50	
M4PFHpA	481019.3	3.170783	444,956.00	3.18695	108	50 - 150	-0.0162	+/-0.50	
M8PFOA	540857.1	3.43785	476,397.00	3.453817	114	50 - 150	-0.0160	+/-0.50	
M8PFOS	69515.05	3.628217	64,373.00	3.6362	108	50 - 150	-0.0080	+/-0.50	
M9PFNA	457828.1	3.62925	430,665.00	3.637233	106	50 - 150	-0.0080	+/-0.50	
MPFDoA	379623.9	4.080667	399,805.00	4.08865	95	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	91784.44	3.945533	100,493.00	3.953517	91	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	104226.5	3.865633	109,665.00	3.873783	95	50 - 150	-0.0082	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B343978-BS1)			Lab File ID: B343978-BS1.d			Analyzed: 06/27/23 15:37			
M8FOSA	187242.9	3.972583	184,692.00	3.980583	101	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	33274.99	2.537883	28,725.00	2.5461	116	50 - 150	-0.0082	+/-0.50	
M2PFTA	456780.1	4.32155	475,121.00	4.329683	96	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	49868.88	3.786867	43,601.00	3.794833	114	50 - 150	-0.0080	+/-0.50	
MPFBA	288497.1	1.050167	237,855.00	1.058467	121	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	99427.73	2.86385	113,844.00	2.872033	87	50 - 150	-0.0082	+/-0.50	
M6PFDA	481415.3	3.787383	433,493.00	3.79535	111	50 - 150	-0.0080	+/-0.50	
M3PFBS	123219.4	1.919817	94,783.00	1.928117	130	50 - 150	-0.0083	+/-0.50	
M7PFUnA	459457.7	3.93805	465,869.00	3.94605	99	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	42971.67	3.429317	30,967.00	3.4453	139	50 - 150	-0.0160	+/-0.50	
M5PFPeA	290531.7	1.731383	255,163.00	1.749417	114	50 - 150	-0.0180	+/-0.50	
M5PFHxA	523165.4	2.621617	431,214.00	2.638533	121	50 - 150	-0.0169	+/-0.50	
M3PFHxS	73002.33	3.21025	62,457.00	3.218333	117	50 - 150	-0.0081	+/-0.50	
M4PFHpA	526935.4	3.178867	444,956.00	3.18695	118	50 - 150	-0.0081	+/-0.50	
M8PFOA	595813	3.445833	476,397.00	3.453817	125	50 - 150	-0.0080	+/-0.50	
M8PFOS	72455.76	3.6282	64,373.00	3.6362	113	50 - 150	-0.0080	+/-0.50	
M9PFNA	507550.6	3.629233	430,665.00	3.637233	118	50 - 150	-0.0080	+/-0.50	
MPFDoA	386082.1	4.08065	399,805.00	4.08865	97	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	97244.2	3.945517	100,493.00	3.953517	97	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	121433.6	3.865617	109,665.00	3.873783	111	50 - 150	-0.0082	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS Dup (B343978-BSD1)			Lab File ID: B343978-BSD1.d			Analyzed: 06/27/23 15:45			
M8FOSA	187842.6	3.9806	184,692.00	3.980583	102	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	32052.92	2.5461	28,725.00	2.5461	112	50 - 150	0.0000	+/-0.50	
M2PFTA	425223.3	4.3297	475,121.00	4.329683	89	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	47632.38	3.79485	43,601.00	3.794833	109	50 - 150	0.0000	+/-0.50	
MPFBA	277212.1	1.050167	237,855.00	1.058467	117	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	96216.84	2.872033	113,844.00	2.872033	85	50 - 150	0.0000	+/-0.50	
M6PFDA	480962.1	3.795367	433,493.00	3.79535	111	50 - 150	0.0000	+/-0.50	
M3PFBS	119829.7	1.919817	94,783.00	1.928117	126	50 - 150	-0.0083	+/-0.50	
M7PFUnA	434567.3	3.94605	465,869.00	3.94605	93	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	38115.67	3.437317	30,967.00	3.4453	123	50 - 150	-0.0080	+/-0.50	
M5PFPeA	282109.2	1.741117	255,163.00	1.749417	111	50 - 150	-0.0083	+/-0.50	
M5PFHxA	504119	2.629833	431,214.00	2.638533	117	50 - 150	-0.0087	+/-0.50	
M3PFHxS	73427.22	3.218333	62,457.00	3.218333	118	50 - 150	0.0000	+/-0.50	
M4PFHpA	509651.3	3.18695	444,956.00	3.18695	115	50 - 150	0.0000	+/-0.50	
M8PFOA	562212.9	3.453833	476,397.00	3.453817	118	50 - 150	0.0000	+/-0.50	
M8PFOS	71237.81	3.6362	64,373.00	3.6362	111	50 - 150	0.0000	+/-0.50	
M9PFNA	509601.6	3.63725	430,665.00	3.637233	118	50 - 150	0.0000	+/-0.50	
MPFDoA	377758.5	4.080683	399,805.00	4.08865	94	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	97552.16	3.953533	100,493.00	3.953517	97	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	112732.7	3.873783	109,665.00	3.873783	103	50 - 150	0.0000	+/-0.50	

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P,PA
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA
Perfluorohexanoic acid (PFHxA)	NH-P,PA
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA
Perfluorododecanoic acid (PFDoA)	NH-P,PA
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanedisulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA
Perfluorooctanoic acid (PFOA)	NH-P,PA
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA
Perfluorononanoic acid (PFNA)	NH-P,PA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024



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

Company Name: Barnstable County
Address: 3195 Main St. PO Box 427
Phone: BFTA
Barnstable, MA
6206
Project Manager: Roger Thibault

Project Name: BFTA
Project Location: Barnstable, MA
Project Number: 6206
Con-Test Quote Name/Number: Pricilla Ellis - pellis@barnstablecounty.org
Invoice Recipient: Laura Bouley
Sampled By:

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD
39 Spruce Street
East Longmeadow, MA 01028

Requested Turnaround Time: 7-Day ☐ 10-Day ☐ Due Date: ☐

Field Filtered Lab to Filter ☐
Field Filtered Lab to Filter ☐

Orthophosphate Samples
Field Filtered Lab to Filter ☐
Field Filtered Lab to Filter ☐

Format: PDF ☒ EXCEL ☒
Other: ☐

CLP Like Data Pkg Required: ☐
Email To: Rthibault@BETA-Inc.com; Lbouley@BETA-Inc.com

Fax To #: ☐

PCB ONLY
SOXHLET ☐
NON SOXHLET ☐

Ending Date/Time: 6-9-23 9:00
Beginning Date/Time: 6-9-23 9:00

Client Sample ID / Description: System #1 Influent
MS/MSD System #1 MidPoint

System #1 MidPoint
System #1 Effluent

System #2 MidPoint
System #2 Effluent

HW-S(s)
HW-S(m)

6-9-23 9:00
6-9-23 9:10
6-9-23 9:20
6-9-23 9:30
6-9-23 9:50
6-9-23 10:00
6-9-23 12:30

Matrix Code: GW
GW
GW
GW
GW
GW
GW

Conc Code: H
M-L
M-L
L
M-L
M-H
M-H

COMP GRAB: GRAB
GRAB
GRAB
GRAB
GRAB
Grab
Grab

VIALS: ☐
GLASS: ☐
PLASTIC: ☐
BACTERIA: ☐
ENCORE: ☐

PFAS: ☒
☒
☒
☒
☒
☒
☒

Client Comments: *Lab requested MS/MSD. Sample confirmation and report to Rthibault@BETA-Inc.com & Lbouley@BETA-Inc.com

Detection Limits Requirements: MA ☒ GW-1 ☒
CT ☐
Other: ☐

Special Requirements: MA MCP Required ☒
MCP Certification Form Required ☐
CT RCP Required ☐
RCP Certification Form Required ☐
MA State DW Required ☐

PWSID # ☐

Project Entity: Government ☐ Federal ☐ City ☐
Municipality: 21 J ☐ Brownfield ☐

MWRA ☐ School ☐ MBTA ☐
WRTA ☐

Other: ☐
☐ Chromatogram
☐ AIHA-LAP, LLC

Lab Comments: ☐

Received by: (signature) ☐
Relinquished by: (signature) ☐

Received by: (signature) ☐
Relinquished by: (signature) ☐

Received by: (signature) ☐
Relinquished by: (signature) ☐

Received by: (signature) ☐
Relinquished by: (signature) ☐

ANALYSIS REQUESTED

Preservation L

Counter 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

Matrix Codes:

GW = Ground Water

WW = Waste Water

DW = Drinking Water

A = Air

S = Soil

SL = Sludge

SOL = Solid

O = Other (please define)

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) Non-preserved

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

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.pacelabs.com

ENV-FRM-ELON-0001 V05__Sample Receiving Checklist

Log In Back-Sheet

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



Client Dorchester County
Project BFTK
MCP/RCP Required MA MEP
Deliverable Package Requirement GW-1
Location Barnstable, MA
PWSID# (When Applicable) _____
Arrival Method:
Courier ☒ Fed Ex ☐ Walk In ☐ Other ☐
Received By / Date / Time ER 6-14-23 17:40
Back-Sheet By / Date / Time CT 6-14-23 10:37
Temperature Method Bun # 4
Temp ☒ < 6° C Actual Temperature 2.2
Rush Samples: Yes ☐ No ☒ Notify _____
Short Hold: Yes ☐ No ☒ Notify _____

Notes regarding Samples/COC outside of SOP:

Sample 2 only has double
the volume for MS/MSD.

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☒	☐
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☒	IDs ☒	Collection Date/Time ☒
All Samples Proper pH:	<u>N/A</u> ☐	☐

Additional Container Notes

[illegible]

Appendix E - Laboratory Report - Sediment and Pond Sampling

July 18, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: Barnstable, MA
Client Job Number:
Project Number: 6206
Laboratory Work Order Number: 23F3413

Enclosed are results of analyses for samples as received by the laboratory on June 26, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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Barnstable County Regional Government of Cape Cod
 3195 Main St, PO Box 427
 Barnstable, MA 02630
 ATTN: Laura Bouley

REPORT DATE: 7/18/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23F3413

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

PROJECT LOCATION: Barnstable, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MDP-101	23F3413-01	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-102	23F3413-02	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-103	23F3413-03	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-104	23F3413-04	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-105	23F3413-05	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-106	23F3413-06	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-107	23F3413-07	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-108	23F3413-08	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-109	23F3413-09	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-110	23F3413-10	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-111	23F3413-11	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-112	23F3413-12	Sediment		SOP-466 PFAS	
MDP-113	23F3413-13	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-114	23F3413-14	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-115	23F3413-15	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-116	23F3413-16	Soil		SM 2540G	
				SOP-466 PFAS	
MDP-SW1	23F3413-17	Surface Water		SOP-454 PFAS	
MDP-SW2	23F3413-18	Surface Water		SOP-454 PFAS	
MDP-SW3	23F3413-19	Surface Water		SOP-454 PFAS	
MDP-Dup	23F3413-20	Soil		SM 2540G	
				SOP-466 PFAS	
Equipment Blank	23F3413-21	Equipment Blank Water		SOP-454 PFAS	

CASE NARRATIVE SUMMARY

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

SOP-454 PFAS

Qualifications:

MS-07A

Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery.

Possibility of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.

Analyte & Samples(s) Qualified:

Perfluorooctanesulfonic acid (PFOS)

23F3413-19[MDP-SW3], B344574-MS1, B344574-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:

Perfluoro-4-oxapentanoic acid (PFMPA)

B344574-MS1, B344574-MSD1

Perfluorotridecanoic acid (PFTrDA)

23F3413-19[MDP-SW3], B344574-MS1, B344574-MSD1

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and

bias is on the high side.

Analyte & Samples(s) Qualified:

M2-4:2FTS

23F3413-17[MDP-SW1], 23F3413-18[MDP-SW2]

M2-6:2FTS

23F3413-17[MDP-SW1], 23F3413-18[MDP-SW2]

PF-18

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:

D3-NMeFOSAA

23F3413-19[MDP-SW3]

D5-NEtFOSAA

23F3413-19[MDP-SW3]

M2-4:2FTS

23F3413-19[MDP-SW3], B344574-MS1, B344574-MSD1

M2-6:2FTS

23F3413-19[MDP-SW3], B344574-MS1, B344574-MSD1

M2-8:2FTS

23F3413-19[MDP-SW3]

M2PFTA

23F3413-19[MDP-SW3], B344574-MS1, B344574-MSD1

M5PFPeA

B344574-MS1

M8FOSA

23F3413-19[MDP-SW3]

MPFDoA

23F3413-19[MDP-SW3]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

M2PFTA

23F3413-18[MDP-SW2]

MPFBA

23F3413-17[MDP-SW1]

SOP-466 PFAS

Qualifications:

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:

Perfluorooctanesulfonic acid (PFOS)

23F3413-03RE1[MDP-103], B345629-MS1

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:

M2-6:2FTS

23F3413-16[MDP-116]

M2-8:2FTS

23F3413-06[MDP-106], 23F3413-07[MDP-107], 23F3413-08[MDP-108], 23F3413-09[MDP-109], 23F3413-10[MDP-110], 23F3413-11[MDP-111], 23F3413-12[MDP-112], 23F3413-13[MDP-113], 23F3413-14[MDP-114], 23F3413-15[MDP-115], 23F3413-16[MDP-116], 23F3413-20[MDP-Dup]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

M2-4:2FTS

23F3413-01[MDP-101]

M2-8:2FTS

S090027-CCV2, S090027-CCV3, S090027-CCV4, S090543-CCV3

M3HFPO-DA

23F3413-01[MDP-101], S090543-CCV2

M5PFHxA

23F3413-03RE1[MDP-103]

M5PFPeA

23F3413-03RE1[MDP-103]

MPFBA

23F3413-01[MDP-101], 23F3413-03RE1[MDP-103]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 11:00

Field Sample #: MDP-101

Sample ID: 23F3413-01

Sample Matrix: Soil

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	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluoropentanoic acid (PFPeA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorohexanoic acid (PFHxA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
11Cl-PF3OUdS (F53B Major)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
9Cl-PF3ONS (F53B Minor)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorodecanoic acid (PFDA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorododecanoic acid (PFDoA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
N-EtFOSAA (NEtFOSAA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
N-MeFOSAA (NMeFOSAA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorotetradecanoic acid (PFTA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorooctanesulfonamide (FOSA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorononanesulfonic acid (PFNS)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluoroundecanoic acid (PFUnA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluoroheptanoic acid (PFHpA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorooctanoic acid (PFOA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorooctanesulfonic acid (PFOS)	16	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW
Perfluorononanoic acid (PFNA)	ND	2.0	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:27	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 11:00

Field Sample #: MDP-101

Sample ID: 23F3413-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	21.3		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 11:15

Field Sample #: MDP-102

Sample ID: 23F3413-02

Sample Matrix: Soil

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	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorodecanoic acid (PFDA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorooctanoic acid (PFOA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorooctanesulfonic acid (PFOS)	1.8	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW
Perfluorononanoic acid (PFNA)	ND	0.61	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:34	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 11:15

Field Sample #: MDP-102

Sample ID: 23F3413-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	69.8		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 11:30

Field Sample #: MDP-103

Sample ID: 23F3413-03

Sample Matrix: Soil

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	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorodecanoic acid (PFDA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorooctanoic acid (PFOA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorooctanesulfonic acid (PFOS)	7.7	1.7	µg/kg dry	1	MS-22	SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW
Perfluorononanoic acid (PFNA)	ND	1.7	µg/kg dry	1		SOP-466 PFAS	7/12/23	7/14/23 10:25	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 11:30

Field Sample #: MDP-103

Sample ID: 23F3413-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	25.0		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 11:45

Field Sample #: MDP-104

Sample ID: 23F3413-04

Sample Matrix: Soil

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	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluoropentanoic acid (PFPeA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorohexanoic acid (PFHxA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
11Cl-PF3OUdS (F53B Major)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
9Cl-PF3ONS (F53B Minor)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorodecanoic acid (PFDA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorododecanoic acid (PFDoA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
N-EtFOSAA (NEtFOSAA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
N-MeFOSAA (NMeFOSAA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorotetradecanoic acid (PFTA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorooctanesulfonamide (FOSA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorononanesulfonic acid (PFNS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluoroundecanoic acid (PFUnA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluoroheptanoic acid (PFHpA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorooctanoic acid (PFOA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorooctanesulfonic acid (PFOS)	11	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW
Perfluorononanoic acid (PFNA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:48	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 11:45

Field Sample #: MDP-104

Sample ID: 23F3413-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	11.2		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 12:00

Field Sample #: MDP-105

Sample ID: 23F3413-05

Sample Matrix: Soil

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	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluoropentanoic acid (PFPeA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorohexanoic acid (PFHxA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorodecanoic acid (PFDA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluoroheptanoic acid (PFHpA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorooctanoic acid (PFOA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorooctanesulfonic acid (PFOS)	20	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW
Perfluorononanoic acid (PFNA)	ND	4.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 10:56	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 12:00

Field Sample #: MDP-105

Sample ID: 23F3413-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	9.78		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 13:00

Field Sample #: MDP-106

Sample ID: 23F3413-06

Sample Matrix: Soil

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	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluoropentanoic acid (PFPeA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorohexanoic acid (PFHxA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
11Cl-PF3OUdS (F53B Major)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
9Cl-PF3ONS (F53B Minor)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorodecanoic acid (PFDA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorododecanoic acid (PFDoA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
N-EtFOSAA (NEtFOSAA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
N-MeFOSAA (NMeFOSAA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorotetradecanoic acid (PFTA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorooctanesulfonamide (FOSA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorononanesulfonic acid (PFNS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluoroundecanoic acid (PFUnA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluoroheptanoic acid (PFHpA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorooctanoic acid (PFOA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorooctanesulfonic acid (PFOS)	20	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW
Perfluorononanoic acid (PFNA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:03	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 13:00

Field Sample #: MDP-106

Sample ID: 23F3413-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	11.0		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 13:15

Field Sample #: MDP-107

Sample ID: 23F3413-07

Sample Matrix: Soil

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	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluoropentanoic acid (PFPeA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorohexanoic acid (PFHxA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
11Cl-PF3OUdS (F53B Major)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
9Cl-PF3ONS (F53B Minor)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorodecanoic acid (PFDA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorododecanoic acid (PFDoA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
N-EtFOSAA (NEtFOSAA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
N-MeFOSAA (NMeFOSAA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorotetradecanoic acid (PFTA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorooctanesulfonamide (FOSA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorononanesulfonic acid (PFNS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluoroundecanoic acid (PFUnA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluoroheptanoic acid (PFHpA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorooctanoic acid (PFOA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorooctanesulfonic acid (PFOS)	15	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW
Perfluorononanoic acid (PFNA)	ND	3.8	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:10	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Field Sample #: MDP-107

Sampled: 6/21/2023 13:15

Sample ID: 23F3413-07

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	11.0		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 13:30

Field Sample #: MDP-108

Sample ID: 23F3413-08

Sample Matrix: Soil

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	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluoropentanoic acid (PFPeA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorohexanoic acid (PFHxA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
11Cl-PF3OUdS (F53B Major)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
9Cl-PF3ONS (F53B Minor)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorodecanoic acid (PFDA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorododecanoic acid (PFDoA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
N-EtFOSAA (NEtFOSAA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
N-MeFOSAA (NMeFOSAA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorotetradecanoic acid (PFTA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorooctanesulfonamide (FOSA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorononanesulfonic acid (PFNS)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluoro-1-butanedisulfonamide (FBSA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluoroundecanoic acid (PFUnA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluoroheptanoic acid (PFHpA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorooctanoic acid (PFOA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorooctanesulfonic acid (PFOS)	9.9	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW
Perfluorononanoic acid (PFNA)	ND	3.9	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:17	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 13:30

Field Sample #: MDP-108

Sample ID: 23F3413-08

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	11.1		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 13:45

Field Sample #: MDP-109

Sample ID: 23F3413-09

Sample Matrix: Soil

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	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluoropentanoic acid (PFPeA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorohexanoic acid (PFHxA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorodecanoic acid (PFDA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluoroheptanoic acid (PFHpA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorooctanoic acid (PFOA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorooctanesulfonic acid (PFOS)	12	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW
Perfluorononanoic acid (PFNA)	ND	4.1	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:25	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 13:45

Field Sample #: MDP-109

Sample ID: 23F3413-09

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	10.2		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 14:00

Field Sample #: MDP-110

Sample ID: 23F3413-10

Sample Matrix: Soil

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	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluoropentanoic acid (PFPeA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorohexanoic acid (PFHxA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorodecanoic acid (PFDA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluoroheptanoic acid (PFHpA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorooctanoic acid (PFOA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorooctanesulfonic acid (PFOS)	12	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW
Perfluorononanoic acid (PFNA)	ND	4.4	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:32	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 14:00

Field Sample #: MDP-110

Sample ID: 23F3413-10

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	9.59		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 14:50

Field Sample #: MDP-111

Sample ID: 23F3413-11

Sample Matrix: Soil

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	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluoropentanoic acid (PFPeA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorohexanoic acid (PFHxA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
11Cl-PF3OUdS (F53B Major)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
9Cl-PF3ONS (F53B Minor)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorodecanoic acid (PFDA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorododecanoic acid (PFDoA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
N-EtFOSAA (NEtFOSAA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
N-MeFOSAA (NMeFOSAA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorotetradecanoic acid (PFTA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorooctanesulfonamide (FOSA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorononanesulfonic acid (PFNS)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluoroundecanoic acid (PFUnA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluoroheptanoic acid (PFHpA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorooctanoic acid (PFOA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorooctanesulfonic acid (PFOS)	6.1	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW
Perfluorononanoic acid (PFNA)	ND	3.6	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 11:54	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 14:50

Field Sample #: MDP-111

Sample ID: 23F3413-11

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	12.2		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 14:30

Field Sample #: MDP-112

Sample ID: 23F3413-12

Sample Matrix: Sediment

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	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorodecanoic acid (PFDA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorooctanoic acid (PFOA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorooctanesulfonic acid (PFOS)	1.5	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW
Perfluorononanoic acid (PFNA)	ND	0.44	µg/kg wet	1		SOP-466 PFAS	7/3/23	7/5/23 12:01	QNW

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 14:50

Field Sample #: MDP-113

Sample ID: 23F3413-13

Sample Matrix: Soil

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	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluoropentanoic acid (PFPeA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorohexanoic acid (PFHxA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
11Cl-PF3OUdS (F53B Major)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
9Cl-PF3ONS (F53B Minor)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorodecanoic acid (PFDA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorododecanoic acid (PFDoA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
N-EtFOSAA (NEtFOSAA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
N-MeFOSAA (NMeFOSAA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorotetradecanoic acid (PFTA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorooctanesulfonamide (FOSA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorononanesulfonic acid (PFNS)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluoroundecanoic acid (PFUnA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluoroheptanoic acid (PFHpA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorooctanoic acid (PFOA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorooctanesulfonic acid (PFOS)	20	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW
Perfluorononanoic acid (PFNA)	ND	5.2	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:08	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 14:50

Field Sample #: MDP-113

Sample ID: 23F3413-13

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	7.90		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 14:55

Field Sample #: MDP-114

Sample ID: 23F3413-14

Sample Matrix: Soil

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	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluoropentanoic acid (PFPeA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorohexanoic acid (PFHxA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
11Cl-PF3OUdS (F53B Major)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
9Cl-PF3ONS (F53B Minor)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorodecanoic acid (PFDA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorododecanoic acid (PFDoA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
N-EtFOSAA (NEtFOSAA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
N-MeFOSAA (NMeFOSAA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorotetradecanoic acid (PFTA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorooctanesulfonamide (FOSA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorononanesulfonic acid (PFNS)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluoroundecanoic acid (PFUnA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluoroheptanoic acid (PFHpA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorooctanoic acid (PFOA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorooctanesulfonic acid (PFOS)	4.4	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW
Perfluorononanoic acid (PFNA)	ND	2.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 13:33	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 14:55

Field Sample #: MDP-114

Sample ID: 23F3413-14

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	17.5		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 15:00

Field Sample #: MDP-I15

Sample ID: 23F3413-15

Sample Matrix: Soil

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	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluoropentanoic acid (PFPeA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorohexanoic acid (PFHxA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
11Cl-PF3OUdS (F53B Major)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
9Cl-PF3ONS (F53B Minor)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorodecanoic acid (PFDA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorododecanoic acid (PFDoA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
N-EtFOSAA (NEtFOSAA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
N-MeFOSAA (NMeFOSAA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorotetradecanoic acid (PFTA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorooctanesulfonamide (FOSA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorononanesulfonic acid (PFNS)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluoroundecanoic acid (PFUnA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluoroheptanoic acid (PFHpA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorooctanoic acid (PFOA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorooctanesulfonic acid (PFOS)	6.9	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW
Perfluorononanoic acid (PFNA)	ND	2.3	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:33	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 15:00

Field Sample #: MDP-115

Sample ID: 23F3413-15

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	19.1		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 15:15

Field Sample #: MDP-116

Sample ID: 23F3413-16

Sample Matrix: Soil

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	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorodecanoic acid (PFDA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorooctanoic acid (PFOA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW
Perfluorononanoic acid (PFNA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:40	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 15:15

Field Sample #: MDP-116

Sample ID: 23F3413-16

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	86.5		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 11:45

Field Sample #: MDP-SW1

Sample ID: 23F3413-17

Sample Matrix: Surface 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)	2.3	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluoropentanoic acid (PFPeA)	3.5	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorohexanoic acid (PFHxA)	3.9	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorohexanesulfonic acid (PFHxS)	10	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluoroheptanoic acid (PFHpA)	4.0	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorooctanoic acid (PFOA)	2.5	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorooctanesulfonic acid (PFOS)	16	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW
Perfluorononanoic acid (PFNA)	2.6	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:38	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 11:50

Field Sample #: MDP-SW2

Sample ID: 23F3413-18

Sample Matrix: Surface 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	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluoropentanoic acid (PFPeA)	7.8	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorohexanoic acid (PFHxA)	3.3	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorohexanesulfonic acid (PFHxS)	8.4	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluoroheptanoic acid (PFHpA)	3.4	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorooctanoic acid (PFOA)	2.3	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorooctanesulfonic acid (PFOS)	13	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW
Perfluorononanoic acid (PFNA)	2.1	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:45	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Field Sample #: MDP-SW3

Sampled: 6/21/2023 11:55

Sample ID: 23F3413-19

Sample Matrix: Surface 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	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluoropentanoic acid (PFPeA)	3.6	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorohexanoic acid (PFHxA)	4.0	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1	MS-12	SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorohexanesulfonic acid (PFHxS)	9.3	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluoroheptanoic acid (PFHpA)	4.0	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorooctanoic acid (PFOA)	2.7	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorooctanesulfonic acid (PFOS)	25	1.9	ng/L	1	MS-07A	SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW
Perfluorononanoic acid (PFNA)	3.1	1.9	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:52	QNW

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Field Sample #: MDP-Dup

Sampled: 6/21/2023 14:40

Sample ID: 23F3413-20

Sample Matrix: Soil

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	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluoropentanoic acid (PFPeA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorohexanoic acid (PFHxA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
11Cl-PF3OUdS (F53B Major)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
9Cl-PF3ONS (F53B Minor)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorodecanoic acid (PFDA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorododecanoic acid (PFDoA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
N-EtFOSAA (NEtFOSAA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
N-MeFOSAA (NMeFOSAA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorotetradecanoic acid (PFTA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorooctanesulfonamide (FOSA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorononanesulfonic acid (PFNS)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluoroundecanoic acid (PFUnA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluoroheptanoic acid (PFHpA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorooctanoic acid (PFOA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorooctanesulfonic acid (PFOS)	12	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW
Perfluorononanoic acid (PFNA)	ND	3.5	µg/kg dry	1		SOP-466 PFAS	7/3/23	7/5/23 12:47	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Sampled: 6/21/2023 14:40

Field Sample #: MDP-Dup

Sample ID: 23F3413-20

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	12.7		% Wt	1		SM 2540G	7/3/23	7/3/23 14:57	BMV

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F3413

Date Received: 6/26/2023

Field Sample #: Equipment Blank

Sampled: 6/26/2023 00:00

Sample ID: 23F3413-21

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	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 15:59	QNW

Sample Extraction Data**Prep Method:**% Solids **Analytical Method:**SM 2540G

Lab Number [Field ID]	Batch	Date
23F3413-01 [MDP-101]	B344967	07/03/23
23F3413-02 [MDP-102]	B344967	07/03/23
23F3413-03 [MDP-103]	B344967	07/03/23
23F3413-04 [MDP-104]	B344967	07/03/23
23F3413-05 [MDP-105]	B344967	07/03/23
23F3413-06 [MDP-106]	B344967	07/03/23
23F3413-07 [MDP-107]	B344967	07/03/23
23F3413-08 [MDP-108]	B344967	07/03/23
23F3413-09 [MDP-109]	B344967	07/03/23
23F3413-10 [MDP-110]	B344967	07/03/23
23F3413-11 [MDP-111]	B344967	07/03/23
23F3413-13 [MDP-113]	B344967	07/03/23
23F3413-14 [MDP-114]	B344967	07/03/23
23F3413-15 [MDP-115]	B344967	07/03/23
23F3413-16 [MDP-116]	B344967	07/03/23
23F3413-20 [MDP-Dup]	B344967	07/03/23

Prep Method:SOP 454-PFAAS **Analytical Method:**SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23F3413-17 [MDP-SW1]	B344574	277	1.00	06/29/23
23F3413-18 [MDP-SW2]	B344574	282	1.00	06/29/23
23F3413-19 [MDP-SW3]	B344574	260	1.00	06/29/23
23F3413-21 [Equipment Blank]	B344574	280	1.00	06/29/23

Prep Method:SOP 466-PFAAS **Analytical Method:**SOP-466 PFAS

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23F3413-01 [MDP-101]	B344573	5.75	5.00	07/03/23
23F3413-02 [MDP-102]	B344573	5.78	5.00	07/03/23
23F3413-04 [MDP-104]	B344573	5.90	5.00	07/03/23
23F3413-05 [MDP-105]	B344573	5.85	5.00	07/03/23
23F3413-06 [MDP-106]	B344573	5.88	5.00	07/03/23
23F3413-07 [MDP-107]	B344573	5.84	5.00	07/03/23
23F3413-08 [MDP-108]	B344573	5.73	5.00	07/03/23
23F3413-09 [MDP-109]	B344573	5.90	5.00	07/03/23
23F3413-10 [MDP-110]	B344573	5.90	5.00	07/03/23
23F3413-11 [MDP-111]	B344573	5.64	5.00	07/03/23
23F3413-12 [MDP-112]	B344573	5.68	5.00	07/03/23
23F3413-13 [MDP-113]	B344573	5.99	5.00	07/03/23
23F3413-14 [MDP-114]	B344573	5.69	5.00	07/03/23
23F3413-15 [MDP-115]	B344573	5.65	5.00	07/03/23
23F3413-16 [MDP-116]	B344573	5.65	5.00	07/03/23
23F3413-20 [MDP-Dup]	B344573	5.64	5.00	07/03/23

Prep Method:SOP 466-PFAAS **Analytical Method:**SOP-466 PFAS

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23F3413-03RE1 [MDP-103]	B345629	5.75	5.00	07/12/23

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 B344573 - SOP 466-PFAAS
Blank (B344573-BLK1)

Prepared: 07/03/23 Analyzed: 07/05/23

Perfluorobutanoic acid (PFBA)	ND	0.43	µg/kg wet
Perfluorobutanesulfonic acid (PFBS)	ND	0.43	µg/kg wet
Perfluoropentanoic acid (PFPeA)	ND	0.43	µg/kg wet
Perfluorohexanoic acid (PFHxA)	ND	0.43	µg/kg wet
11Cl-PF3OUdS (F53B Major)	ND	0.43	µg/kg wet
9Cl-PF3ONS (F53B Minor)	ND	0.43	µg/kg wet
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.43	µg/kg wet
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.43	µg/kg wet
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.43	µg/kg wet
Perfluorodecanoic acid (PFDA)	ND	0.43	µg/kg wet
Perfluorododecanoic acid (PFDoA)	ND	0.43	µg/kg wet
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.43	µg/kg wet
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.43	µg/kg wet
N-EtFOSAA (NEtFOSAA)	ND	0.43	µg/kg wet
N-MeFOSAA (NMeFOSAA)	ND	0.43	µg/kg wet
Perfluorotetradecanoic acid (PFTA)	ND	0.43	µg/kg wet
Perfluorotridecanoic acid (PFTrDA)	ND	0.43	µg/kg wet
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.43	µg/kg wet
Perfluorodecanesulfonic acid (PFDS)	ND	0.43	µg/kg wet
Perfluorooctanesulfonamide (FOSA)	ND	0.43	µg/kg wet
Perfluorononanesulfonic acid (PFNS)	ND	0.43	µg/kg wet
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.43	µg/kg wet
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.43	µg/kg wet
Perfluorohexanesulfonic acid (PFHxS)	ND	0.43	µg/kg wet
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.43	µg/kg wet
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.43	µg/kg wet
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.43	µg/kg wet
Perfluoropentanesulfonic acid (PFPeS)	ND	0.43	µg/kg wet
Perfluoroundecanoic acid (PFUnA)	ND	0.43	µg/kg wet
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.43	µg/kg wet
Perfluoroheptanoic acid (PFHpA)	ND	0.43	µg/kg wet
Perfluorooctanoic acid (PFOA)	ND	0.43	µg/kg wet
Perfluorooctanesulfonic acid (PFOS)	ND	0.43	µg/kg wet
Perfluorononanoic acid (PFNA)	ND	0.43	µg/kg wet

LCS (B344573-BS1)

Prepared: 07/03/23 Analyzed: 07/05/23

Perfluorobutanoic acid (PFBA)	1.99	0.43	µg/kg wet	2.16	92.0	71-135
Perfluorobutanesulfonic acid (PFBS)	1.68	0.43	µg/kg wet	1.91	87.9	72-128
Perfluoropentanoic acid (PFPeA)	1.94	0.43	µg/kg wet	2.16	89.7	69-132
Perfluorohexanoic acid (PFHxA)	1.94	0.43	µg/kg wet	2.16	89.7	70-132
11Cl-PF3OUdS (F53B Major)	1.89	0.43	µg/kg wet	2.03	93.2	41.8-128
9Cl-PF3ONS (F53B Minor)	1.91	0.43	µg/kg wet	2.01	94.7	51.1-141
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.78	0.43	µg/kg wet	2.03	87.7	55.2-122
Hexafluoropropylene oxide dimer acid (HFPO-DA)	2.18	0.43	µg/kg wet	2.16	101	27.6-137
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.09	0.43	µg/kg wet	2.07	101	65-137
Perfluorodecanoic acid (PFDA)	1.95	0.43	µg/kg wet	2.16	90.5	69-133
Perfluorododecanoic acid (PFDoA)	2.04	0.43	µg/kg wet	2.16	94.4	69-135
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	1.65	0.43	µg/kg wet	1.92	85.8	56.7-133

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 B344573 - SOP 466-PFAAS
LCS (B344573-BS1)

Prepared: 07/03/23 Analyzed: 07/05/23

Perfluoroheptanesulfonic acid (PFHpS)	2.01	0.43	µg/kg wet	2.06		97.6	70-132			
N-EtFOSAA (NEtFOSAA)	2.08	0.43	µg/kg wet	2.16		96.3	61-139			
N-MeFOSAA (NMeFOSAA)	2.37	0.43	µg/kg wet	2.16		110	63-144			
Perfluorotetradecanoic acid (PFTA)	2.10	0.43	µg/kg wet	2.16		97.3	69-133			
Perfluorotridecanoic acid (PFTTrDA)	2.19	0.43	µg/kg wet	2.16		102	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	1.87	0.43	µg/kg wet	2.02		92.4	62-145			
Perfluorodecanesulfonic acid (PFDS)	1.59	0.43	µg/kg wet	2.08		76.3	59-134			
Perfluorooctanesulfonamide (FOSA)	2.09	0.43	µg/kg wet	2.16		96.8	67-137			
Perfluorononanesulfonic acid (PFNS)	1.95	0.43	µg/kg wet	2.07		94.1	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	1.76	0.43	µg/kg wet	2.16		81.5	51.4-142			
Perfluoro-1-butanefulfonamide (FBSA)	1.81	0.43	µg/kg wet	2.16		83.7	53.5-129			
Perfluorohexanesulfonic acid (PFHxS)	1.75	0.43	µg/kg wet	1.98		88.5	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	1.94	0.43	µg/kg wet	2.16		89.8	57.8-127			
Perfluoro-5-oxahexanoic acid (PFMBA)	2.10	0.43	µg/kg wet	2.16		97.2	56.5-132			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1.72	0.43	µg/kg wet	2.05		83.9	64-140			
Perfluoropentanesulfonic acid (PFPeS)	1.95	0.43	µg/kg wet	2.03		96.3	73-123			
Perfluoroundecanoic acid (PFUnA)	2.08	0.43	µg/kg wet	2.16		96.5	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.79	0.43	µg/kg wet	2.16		82.7	54.5-128			
Perfluoroheptanoic acid (PFHpA)	2.18	0.43	µg/kg wet	2.16		101	71-131			
Perfluorooctanoic acid (PFOA)	2.16	0.43	µg/kg wet	2.16		99.9	69-133			
Perfluorooctanesulfonic acid (PFOS)	1.92	0.43	µg/kg wet	1.99		96.1	68-136			
Perfluorononanoic acid (PFNA)	2.07	0.43	µg/kg wet	2.16		96.0	72-129			

Matrix Spike (B344573-MS1)
Source: 23F3413-02

Prepared: 07/03/23 Analyzed: 07/05/23

Perfluorobutanoic acid (PFBA)	3.13	0.62	µg/kg dry	3.15	ND	99.6	71-135			
Perfluorobutanesulfonic acid (PFBS)	2.67	0.62	µg/kg dry	2.78	ND	95.9	72-128			
Perfluoropentanoic acid (PFPeA)	3.08	0.62	µg/kg dry	3.15	ND	97.9	69-132			
Perfluorohexanoic acid (PFHxA)	3.09	0.62	µg/kg dry	3.15	ND	98.3	70-132			
11Cl-PF3OUdS (F53B Major)	3.09	0.62	µg/kg dry	2.96	ND	104	4.02-158			
9Cl-PF3ONS (F53B Minor)	2.90	0.62	µg/kg dry	2.93	ND	98.8	52.5-150			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.78	0.62	µg/kg dry	2.96	ND	93.7	50.7-124			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	3.26	0.62	µg/kg dry	3.15	ND	104	29.2-146			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	3.16	0.62	µg/kg dry	3.02	ND	105	65-137			
Perfluorodecanoic acid (PFDA)	3.17	0.62	µg/kg dry	3.15	ND	101	69-133			
Perfluorododecanoic acid (PFDoA)	3.15	0.62	µg/kg dry	3.15	ND	100	69-135			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	2.60	0.62	µg/kg dry	2.80	ND	93.0	60.7-135			
Perfluoroheptanesulfonic acid (PFHpS)	2.54	0.62	µg/kg dry	3.01	ND	84.3	70-132			
N-EtFOSAA (NEtFOSAA)	3.11	0.62	µg/kg dry	3.15	ND	98.8	61-139			
N-MeFOSAA (NMeFOSAA)	3.40	0.62	µg/kg dry	3.15	ND	108	63-144			
Perfluorotetradecanoic acid (PFTA)	3.35	0.62	µg/kg dry	3.15	ND	107	69-133			
Perfluorotridecanoic acid (PFTTrDA)	3.58	0.62	µg/kg dry	3.15	ND	114	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	2.95	0.62	µg/kg dry	2.94	ND	100	62-145			
Perfluorodecanesulfonic acid (PFDS)	2.67	0.62	µg/kg dry	3.03	ND	87.9	59-134			
Perfluorooctanesulfonamide (FOSA)	3.24	0.62	µg/kg dry	3.15	ND	103	67-137			
Perfluorononanesulfonic acid (PFNS)	2.96	0.62	µg/kg dry	3.02	ND	97.9	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	2.62	0.62	µg/kg dry	3.15	ND	83.2	18.9-162			
Perfluoro-1-butanefulfonamide (FBSA)	2.92	0.62	µg/kg dry	3.15	ND	92.9	49.8-135			
Perfluorohexanesulfonic acid (PFHxS)	3.17	0.62	µg/kg dry	2.88	ND	110	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	3.12	0.62	µg/kg dry	3.15	ND	99.3	62-155			
Perfluoro-5-oxahexanoic acid (PFMBA)	3.31	0.62	µg/kg dry	3.15	ND	105	52.1-148			

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 B344573 - SOP 466-PFAAS

Matrix Spike (B344573-MS1)		Source: 23F3413-02		Prepared: 07/03/23		Analyzed: 07/05/23				
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.99	0.62	µg/kg dry	2.99	ND	100	64-140			
Perfluoropentanesulfonic acid (PFPeS)	3.03	0.62	µg/kg dry	2.96	ND	103	73-123			
Perfluoroundecanoic acid (PFUnA)	3.28	0.62	µg/kg dry	3.15	ND	104	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.81	0.62	µg/kg dry	3.15	ND	89.2	54.6-133			
Perfluoroheptanoic acid (PFHpA)	3.50	0.62	µg/kg dry	3.15	ND	111	71-131			
Perfluorooctanoic acid (PFOA)	3.41	0.62	µg/kg dry	3.15	ND	108	69-133			
Perfluorooctanesulfonic acid (PFOS)	4.10	0.62	µg/kg dry	2.91	1.80	79.0	68-136			
Perfluorononanoic acid (PFNA)	3.20	0.62	µg/kg dry	3.15	ND	102	72-129			

Matrix Spike Dup (B344573-MSD1)		Source: 23F3413-02		Prepared: 07/03/23		Analyzed: 07/05/23				
Perfluorobutanoic acid (PFBA)	3.14	0.63	µg/kg dry	3.16	ND	99.3	71-135	0.230	30	
Perfluorobutanesulfonic acid (PFBS)	2.70	0.63	µg/kg dry	2.80	ND	96.7	72-128	1.42	30	
Perfluoropentanoic acid (PFPeA)	3.09	0.63	µg/kg dry	3.16	ND	97.8	69-132	0.483	30	
Perfluorohexanoic acid (PFHxA)	3.06	0.63	µg/kg dry	3.16	ND	96.6	70-132	1.17	30	
11Cl-PF3OUdS (F53B Major)	2.98	0.63	µg/kg dry	2.98	ND	99.8	4.02-158	3.65	30	
9Cl-PF3ONS (F53B Minor)	2.87	0.63	µg/kg dry	2.95	ND	97.2	52.5-150	1.05	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.75	0.63	µg/kg dry	2.98	ND	92.4	50.7-124	0.852	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	3.02	0.63	µg/kg dry	3.16	ND	95.4	29.2-146	7.82	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.94	0.63	µg/kg dry	3.04	ND	96.7	65-137	7.39	30	
Perfluorodecanoic acid (PFDA)	3.12	0.63	µg/kg dry	3.16	ND	98.6	69-133	1.61	30	
Perfluorododecanoic acid (PFDoA)	3.25	0.63	µg/kg dry	3.16	ND	103	69-135	3.28	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	2.63	0.63	µg/kg dry	2.82	ND	93.2	60.7-135	0.809	30	
Perfluoroheptanesulfonic acid (PFHpS)	2.87	0.63	µg/kg dry	3.02	ND	95.0	70-132	12.5	30	
N-EtFOSAA (NEtFOSAA)	3.33	0.63	µg/kg dry	3.16	ND	105	61-139	6.79	30	
N-MeFOSAA (NMeFOSAA)	3.39	0.63	µg/kg dry	3.16	ND	107	63-144	0.227	30	
Perfluorotetradecanoic acid (PFTA)	3.30	0.63	µg/kg dry	3.16	ND	104	69-133	1.43	30	
Perfluorotridecanoic acid (PFTrDA)	3.76	0.63	µg/kg dry	3.16	ND	119	66-139	5.01	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	3.20	0.63	µg/kg dry	2.96	ND	108	62-145	8.30	30	
Perfluorodecanesulfonic acid (PFDS)	2.55	0.63	µg/kg dry	3.05	ND	83.6	59-134	4.48	30	
Perfluorooctanesulfonamide (FOSA)	3.24	0.63	µg/kg dry	3.16	ND	102	67-137	0.0483	30	
Perfluorononanesulfonic acid (PFNS)	3.25	0.63	µg/kg dry	3.04	ND	107	69-125	9.48	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	2.77	0.63	µg/kg dry	3.16	ND	87.6	18.9-162	5.77	30	
Perfluoro-1-butanedisulfonamide (FBSA)	2.87	0.63	µg/kg dry	3.16	ND	90.9	49.8-135	1.64	30	
Perfluorohexanesulfonic acid (PFHxS)	2.95	0.63	µg/kg dry	2.90	ND	102	67-130	7.12	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	3.14	0.63	µg/kg dry	3.16	ND	99.2	62-155	0.478	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	3.32	0.63	µg/kg dry	3.16	ND	105	52.1-148	0.182	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.79	0.63	µg/kg dry	3.01	ND	92.8	64-140	7.08	30	
Perfluoropentanesulfonic acid (PFPeS)	3.06	0.63	µg/kg dry	2.97	ND	103	73-123	1.00	30	
Perfluoroundecanoic acid (PFUnA)	3.03	0.63	µg/kg dry	3.16	ND	95.9	64-136	7.68	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.78	0.63	µg/kg dry	3.16	ND	87.9	54.6-133	0.913	30	
Perfluoroheptanoic acid (PFHpA)	3.36	0.63	µg/kg dry	3.16	ND	106	71-131	4.18	30	
Perfluorooctanoic acid (PFOA)	3.38	0.63	µg/kg dry	3.16	ND	107	69-133	0.749	30	
Perfluorooctanesulfonic acid (PFOS)	4.78	0.63	µg/kg dry	2.92	1.80	102	68-136	15.4	30	
Perfluorononanoic acid (PFNA)	3.47	0.63	µg/kg dry	3.16	ND	110	72-129	8.15	30	

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 B344574 - SOP 454-PFAAS
Blank (B344574-BLK1)

Prepared: 06/29/23 Analyzed: 06/30/23

Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L
11Cl-PF3OUdS (F53B Major)	ND	2.0	ng/L
9Cl-PF3ONS (F53B Minor)	ND	2.0	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	2.0	ng/L
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	2.0	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L
N-EtFOSAA (NEtFOSAA)	ND	2.0	ng/L
N-MeFOSAA (NMeFOSAA)	ND	2.0	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	2.0	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	2.0	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	2.0	ng/L
Perfluoro-1-butanesulfonamide (FBSA)	ND	2.0	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	2.0	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	2.0	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	2.0	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	2.0	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L

LCS (B344574-BS1)

Prepared: 06/29/23 Analyzed: 06/30/23

Perfluorobutanoic acid (PFBA)	9.79	2.0	ng/L	9.81	99.8	73-129
Perfluorobutanesulfonic acid (PFBS)	8.37	2.0	ng/L	8.68	96.4	72-130
Perfluoropentanoic acid (PFPeA)	9.75	2.0	ng/L	9.81	99.3	72-129
Perfluorohexanoic acid (PFHxA)	9.80	2.0	ng/L	9.81	99.9	72-129
11Cl-PF3OUdS (F53B Major)	10.0	2.0	ng/L	9.24	109	55.1-141
9Cl-PF3ONS (F53B Minor)	10.6	2.0	ng/L	9.15	116	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.47	2.0	ng/L	9.24	102	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.50	2.0	ng/L	9.81	66.2	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.5	2.0	ng/L	9.42	112	67-138
Perfluorodecanoic acid (PFDA)	11.3	2.0	ng/L	9.81	116	71-129
Perfluorododecanoic acid (PFDoA)	10.3	2.0	ng/L	9.81	105	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	8.44	2.0	ng/L	8.73	96.6	49.4-154

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 B344574 - SOP 454-PFAAS
LCS (B344574-BS1)

Prepared: 06/29/23 Analyzed: 06/30/23

Perfluoroheptanesulfonic acid (PFHpS)	11.1	2.0	ng/L	9.37		118	69-134			
N-EtFOSAA (NEtFOSAA)	11.9	2.0	ng/L	9.81		121	61-135			
N-MeFOSAA (NMeFOSAA)	11.0	2.0	ng/L	9.81		112	65-136			
Perfluorotetradecanoic acid (PFTA)	11.5	2.0	ng/L	9.81		117	71-132			
Perfluorotridecanoic acid (PFTTrDA)	11.7	2.0	ng/L	9.81		119	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.66	2.0	ng/L	9.18		105	63-143			
Perfluorodecanesulfonic acid (PFDS)	7.40	2.0	ng/L	9.47		78.1	53-142			
Perfluorooctanesulfonamide (FOSA)	10.9	2.0	ng/L	9.81		112	67-137			
Perfluorononanesulfonic acid (PFNS)	10.5	2.0	ng/L	9.42		111	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.46	2.0	ng/L	9.81		86.2	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	9.58	2.0	ng/L	9.81		97.7	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	9.51	2.0	ng/L	8.98		106	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	10.7	2.0	ng/L	9.81		109	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	11.0	2.0	ng/L	9.81		112	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.33	2.0	ng/L	9.32		100	64-140			
Perfluoropentanesulfonic acid (PFPeS)	9.71	2.0	ng/L	9.22		105	71-127			
Perfluoroundecanoic acid (PFUnA)	10.6	2.0	ng/L	9.81		108	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.68	2.0	ng/L	9.81		88.5	58.5-143			
Perfluoroheptanoic acid (PFHpA)	10.5	2.0	ng/L	9.81		107	72-130			
Perfluorooctanoic acid (PFOA)	10.8	2.0	ng/L	9.81		110	71-133			
Perfluorooctanesulfonic acid (PFOS)	10.9	2.0	ng/L	9.08		121	65-140			
Perfluorononanoic acid (PFNA)	10.3	2.0	ng/L	9.81		105	69-130			

Matrix Spike (B344574-MS1)

Source: 23F3413-19

Prepared: 06/29/23 Analyzed: 06/30/23

Perfluorobutanoic acid (PFBA)	11.2	1.9	ng/L	9.37	2.13	96.8	73-129			
Perfluorobutanesulfonic acid (PFBS)	9.07	1.9	ng/L	8.29	0.840	99.3	72-130			
Perfluoropentanoic acid (PFPeA)	13.3	1.9	ng/L	9.37	3.57	104	72-129			
Perfluorohexanoic acid (PFHxA)	13.7	1.9	ng/L	9.37	3.98	104	72-129			
11Cl-PF3OUdS (F53B Major)	7.89	1.9	ng/L	8.82	ND	89.4	58.3-140			
9Cl-PF3ONS (F53B Minor)	9.09	1.9	ng/L	8.73	ND	104	61.4-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.27	1.9	ng/L	8.82	ND	93.7	62.4-128			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.52	1.9	ng/L	9.37	ND	69.5	36.7-171			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.88	1.9	ng/L	8.99	ND	110	67-138			
Perfluorodecanoic acid (PFDA)	10.3	1.9	ng/L	9.37	ND	110	71-129			
Perfluorododecanoic acid (PFDoA)	10.7	1.9	ng/L	9.37	ND	114	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	8.43	1.9	ng/L	8.34	ND	101	54.3-149			
Perfluoroheptanesulfonic acid (PFHpS)	10.8	1.9	ng/L	8.95	ND	121	69-134			
N-EtFOSAA (NEtFOSAA)	10.7	1.9	ng/L	9.37	ND	114	61-135			
N-MeFOSAA (NMeFOSAA)	11.1	1.9	ng/L	9.37	ND	118	65-136			
Perfluorotetradecanoic acid (PFTA)	10.6	1.9	ng/L	9.37	ND	113	71-132			
Perfluorotridecanoic acid (PFTTrDA)	15.1	1.9	ng/L	9.37	ND	161	* 65-144			MS-12
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.67	1.9	ng/L	8.76	ND	110	63-143			
Perfluorodecanesulfonic acid (PFDS)	5.58	1.9	ng/L	9.04	ND	61.7	53-142			
Perfluorooctanesulfonamide (FOSA)	9.95	1.9	ng/L	9.37	ND	106	67-137			
Perfluorononanesulfonic acid (PFNS)	9.42	1.9	ng/L	8.99	ND	105	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	7.54	1.9	ng/L	9.37	ND	80.5	64.2-154			
Perfluoro-1-butanefulfonamide (FBSA)	8.70	1.9	ng/L	9.37	ND	92.8	65.9-140			
Perfluorohexanesulfonic acid (PFHxS)	17.9	1.9	ng/L	8.57	9.29	101	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	15.1	1.9	ng/L	9.37	ND	161	* 61.9-143			MS-12
Perfluoro-5-oxahexanoic acid (PFMBA)	11.1	1.9	ng/L	9.37	ND	118	61.4-142			

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 B344574 - SOP 454-PFAAS

Matrix Spike (B344574-MS1)		Source: 23F3413-19			Prepared: 06/29/23 Analyzed: 06/30/23					
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.69	1.9	ng/L	8.90	1.34	93.8	64-140			
Perfluoropentanesulfonic acid (PFPeS)	10.4	1.9	ng/L	8.81	1.09	106	71-127			
Perfluoroundecanoic acid (PFUnA)	9.72	1.9	ng/L	9.37	ND	104	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.05	1.9	ng/L	9.37	ND	85.9	62-138			
Perfluoroheptanoic acid (PFHpA)	13.8	1.9	ng/L	9.37	4.03	105	72-130			
Perfluorooctanoic acid (PFOA)	12.9	1.9	ng/L	9.37	2.70	109	71-133			
Perfluorooctanesulfonic acid (PFOS)	25.0	1.9	ng/L	8.67	24.9	1.04 *	65-140			MS-07A
Perfluorononanoic acid (PFNA)	12.0	1.9	ng/L	9.37	3.06	95.6	69-130			

Matrix Spike Dup (B344574-MSD1)		Source: 23F3413-19			Prepared: 06/29/23 Analyzed: 06/30/23					
Perfluorobutanoic acid (PFBA)	10.8	1.7	ng/L	8.74	2.13	99.1	73-129	3.66	30	
Perfluorobutanesulfonic acid (PFBS)	9.08	1.7	ng/L	7.74	0.840	106	72-130	0.0774	30	
Perfluoropentanoic acid (PFPeA)	14.0	1.7	ng/L	8.74	3.57	119	72-129	4.95	30	
Perfluorohexanoic acid (PFHxA)	14.2	1.7	ng/L	8.74	3.98	117	72-129	3.67	30	
11Cl-PF3OUdS (F53B Major)	8.09	1.7	ng/L	8.24	ND	98.2	58.3-140	2.51	30	
9Cl-PF3ONS (F53B Minor)	9.06	1.7	ng/L	8.15	ND	111	61.4-144	0.257	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.80	1.7	ng/L	8.24	ND	107	62.4-128	6.18	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.74	1.7	ng/L	8.74	ND	77.1	36.7-171	3.45	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.93	1.7	ng/L	8.39	ND	118	67-138	0.552	30	
Perfluorodecanoic acid (PFDA)	10.8	1.7	ng/L	8.74	ND	124	71-129	4.62	30	
Perfluorododecanoic acid (PFDoA)	9.98	1.7	ng/L	8.74	ND	114	72-134	6.60	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	8.50	1.7	ng/L	7.78	ND	109	54.3-149	0.819	30	
Perfluoroheptanesulfonic acid (PFHpS)	10.0	1.7	ng/L	8.35	ND	120	69-134	7.76	30	
N-EtFOSAA (NEtFOSAA)	11.1	1.7	ng/L	8.74	ND	127	61-135	4.24	30	
N-MeFOSAA (NMeFOSAA)	11.1	1.7	ng/L	8.74	ND	127	65-136	0.000988	30	
Perfluorotetradecanoic acid (PFTA)	10.6	1.7	ng/L	8.74	ND	121	71-132	0.198	30	
Perfluorotridecanoic acid (PFTTrDA)	14.9	1.7	ng/L	8.74	ND	170 *	65-144	1.66	30	MS-12
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.77	1.7	ng/L	8.18	ND	119	63-143	1.07	30	
Perfluorodecanesulfonic acid (PFDS)	6.49	1.7	ng/L	8.44	ND	76.9	53-142	15.1	30	
Perfluorooctanesulfonamide (FOSA)	10.1	1.7	ng/L	8.74	ND	116	67-137	1.87	30	
Perfluorononanesulfonic acid (PFNS)	9.34	1.7	ng/L	8.39	ND	111	69-127	0.857	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	7.50	1.7	ng/L	8.74	ND	85.7	64.2-154	0.584	30	
Perfluoro-1-butanedisulfonamide (FBSA)	8.63	1.7	ng/L	8.74	ND	98.7	65.9-140	0.754	30	
Perfluorohexanesulfonic acid (PFHxS)	18.3	1.7	ng/L	8.00	9.29	113	68-131	2.23	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	15.1	1.7	ng/L	8.74	ND	173 *	61.9-143	0.250	30	MS-12
Perfluoro-5-oxahexanoic acid (PFMBA)	11.2	1.7	ng/L	8.74	ND	128	61.4-142	0.667	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.48	1.7	ng/L	8.31	1.34	98.0	64-140	2.15	30	
Perfluoropentanesulfonic acid (PFPeS)	10.8	1.7	ng/L	8.22	1.09	119	71-127	3.96	30	
Perfluoroundecanoic acid (PFUnA)	10.2	1.7	ng/L	8.74	ND	117	69-133	5.14	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.43	1.7	ng/L	8.74	ND	96.4	62-138	4.63	30	
Perfluoroheptanoic acid (PFHpA)	14.6	1.7	ng/L	8.74	4.03	121	72-130	5.53	30	
Perfluorooctanoic acid (PFOA)	12.8	1.7	ng/L	8.74	2.70	115	71-133	0.859	30	
Perfluorooctanesulfonic acid (PFOS)	24.0	1.7	ng/L	8.09	24.9	-10.9 *	65-140	3.96	30	MS-07A
Perfluorononanoic acid (PFNA)	12.5	1.7	ng/L	8.74	3.06	108	69-130	3.74	30	

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 B345629 - SOP 466-PFAAS
Blank (B345629-BLK1)

Prepared: 07/12/23 Analyzed: 07/14/23

Perfluorobutanoic acid (PFBA)	ND	0.42	µg/kg wet
Perfluorobutanesulfonic acid (PFBS)	ND	0.42	µg/kg wet
Perfluoropentanoic acid (PFPeA)	ND	0.42	µg/kg wet
Perfluorohexanoic acid (PFHxA)	ND	0.42	µg/kg wet
11Cl-PF3OUdS (F53B Major)	ND	0.42	µg/kg wet
9Cl-PF3ONS (F53B Minor)	ND	0.42	µg/kg wet
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.42	µg/kg wet
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.42	µg/kg wet
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.42	µg/kg wet
Perfluorodecanoic acid (PFDA)	ND	0.42	µg/kg wet
Perfluorododecanoic acid (PFDoA)	ND	0.42	µg/kg wet
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.42	µg/kg wet
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.42	µg/kg wet
N-EtFOSAA (NEtFOSAA)	ND	0.42	µg/kg wet
N-MeFOSAA (NMeFOSAA)	ND	0.42	µg/kg wet
Perfluorotetradecanoic acid (PFTA)	ND	0.42	µg/kg wet
Perfluorotridecanoic acid (PFTrDA)	ND	0.42	µg/kg wet
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.42	µg/kg wet
Perfluorodecanesulfonic acid (PFDS)	ND	0.42	µg/kg wet
Perfluorooctanesulfonamide (FOSA)	ND	0.42	µg/kg wet
Perfluorononanesulfonic acid (PFNS)	ND	0.42	µg/kg wet
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.42	µg/kg wet
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.42	µg/kg wet
Perfluorohexanesulfonic acid (PFHxS)	ND	0.42	µg/kg wet
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.42	µg/kg wet
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.42	µg/kg wet
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.42	µg/kg wet
Perfluoropentanesulfonic acid (PFPeS)	ND	0.42	µg/kg wet
Perfluoroundecanoic acid (PFUnA)	ND	0.42	µg/kg wet
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.42	µg/kg wet
Perfluoroheptanoic acid (PFHpA)	ND	0.42	µg/kg wet
Perfluorooctanoic acid (PFOA)	ND	0.42	µg/kg wet
Perfluorooctanesulfonic acid (PFOS)	ND	0.42	µg/kg wet
Perfluorononanoic acid (PFNA)	ND	0.42	µg/kg wet

LCS (B345629-BS1)

Prepared: 07/12/23 Analyzed: 07/14/23

Perfluorobutanoic acid (PFBA)	2.04	0.44	µg/kg wet	2.22	92.1	71-135
Perfluorobutanesulfonic acid (PFBS)	1.72	0.44	µg/kg wet	1.96	87.9	72-128
Perfluoropentanoic acid (PFPeA)	2.09	0.44	µg/kg wet	2.22	94.3	69-132
Perfluorohexanoic acid (PFHxA)	2.02	0.44	µg/kg wet	2.22	91.3	70-132
11Cl-PF3OUdS (F53B Major)	1.79	0.44	µg/kg wet	2.09	85.6	41.8-128
9Cl-PF3ONS (F53B Minor)	1.81	0.44	µg/kg wet	2.07	87.6	51.1-141
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.94	0.44	µg/kg wet	2.09	92.7	55.2-122
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.58	0.44	µg/kg wet	2.22	71.3	27.6-137
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.23	0.44	µg/kg wet	2.13	105	65-137
Perfluorodecanoic acid (PFDA)	2.18	0.44	µg/kg wet	2.22	98.1	69-133
Perfluorododecanoic acid (PFDoA)	1.99	0.44	µg/kg wet	2.22	89.6	69-135
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	1.70	0.44	µg/kg wet	1.97	86.0	56.7-133

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 B345629 - SOP 466-PFAAS
LCS (B345629-BS1)

Prepared: 07/12/23 Analyzed: 07/14/23

Perfluoroheptanesulfonic acid (PFHpS)	1.99	0.44	µg/kg wet	2.12		93.8	70-132			
N-EtFOSAA (NEtFOSAA)	2.21	0.44	µg/kg wet	2.22		99.7	61-139			
N-MeFOSAA (NMeFOSAA)	2.20	0.44	µg/kg wet	2.22		99.2	63-144			
Perfluorotetradecanoic acid (PFTA)	2.11	0.44	µg/kg wet	2.22		95.2	69-133			
Perfluorotridecanoic acid (PFTTrDA)	2.22	0.44	µg/kg wet	2.22		100	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	1.93	0.44	µg/kg wet	2.07		92.9	62-145			
Perfluorodecanesulfonic acid (PFDS)	1.86	0.44	µg/kg wet	2.14		87.2	59-134			
Perfluorooctanesulfonamide (FOSA)	1.97	0.44	µg/kg wet	2.22		88.8	67-137			
Perfluorononanesulfonic acid (PFNS)	2.04	0.44	µg/kg wet	2.13		95.8	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	2.10	0.44	µg/kg wet	2.22		94.6	51.4-142			
Perfluoro-1-butanefulfonamide (FBSA)	2.07	0.44	µg/kg wet	2.22		93.3	53.5-129			
Perfluorohexanesulfonic acid (PFHxS)	2.03	0.44	µg/kg wet	2.03		99.8	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	2.06	0.44	µg/kg wet	2.22		92.7	57.8-127			
Perfluoro-5-oxahexanoic acid (PFMBA)	2.09	0.44	µg/kg wet	2.22		94.1	56.5-132			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1.86	0.44	µg/kg wet	2.11		88.2	64-140			
Perfluoropentanesulfonic acid (PFPeS)	2.01	0.44	µg/kg wet	2.08		96.5	73-123			
Perfluoroundecanoic acid (PFUnA)	2.04	0.44	µg/kg wet	2.22		92.1	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.02	0.44	µg/kg wet	2.22		91.3	54.5-128			
Perfluoroheptanoic acid (PFHpA)	2.13	0.44	µg/kg wet	2.22		96.1	71-131			
Perfluorooctanoic acid (PFOA)	2.09	0.44	µg/kg wet	2.22		94.5	69-133			
Perfluorooctanesulfonic acid (PFOS)	2.03	0.44	µg/kg wet	2.05		99.2	68-136			
Perfluorononanoic acid (PFNA)	2.00	0.44	µg/kg wet	2.22		90.3	72-129			

Matrix Spike (B345629-MS1)
Source: 23F3413-03RE1

Prepared: 07/12/23 Analyzed: 07/14/23

Perfluorobutanoic acid (PFBA)	8.90	1.7	µg/kg dry	8.79	1.06	89.3	71-135			
Perfluorobutanesulfonic acid (PFBS)	6.62	1.7	µg/kg dry	7.77	ND	85.2	72-128			
Perfluoropentanoic acid (PFPeA)	10.2	1.7	µg/kg dry	8.79	1.64	97.1	69-132			
Perfluorohexanoic acid (PFHxA)	8.75	1.7	µg/kg dry	8.79	ND	99.6	70-132			
11Cl-PF3OUdS (F53B Major)	6.81	1.7	µg/kg dry	8.28	ND	82.3	4.02-158			
9Cl-PF3ONS (F53B Minor)	7.27	1.7	µg/kg dry	8.19	ND	88.8	52.5-150			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.28	1.7	µg/kg dry	8.28	ND	87.9	50.7-124			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	5.84	1.7	µg/kg dry	8.79	ND	66.4	29.2-146			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.99	1.7	µg/kg dry	8.44	ND	107	65-137			
Perfluorodecanoic acid (PFDA)	8.50	1.7	µg/kg dry	8.79	ND	96.6	69-133			
Perfluorododecanoic acid (PFDoA)	7.20	1.7	µg/kg dry	8.79	ND	81.9	69-135			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	6.58	1.7	µg/kg dry	7.82	ND	84.2	60.7-135			
Perfluoroheptanesulfonic acid (PFHpS)	7.21	1.7	µg/kg dry	8.40	ND	85.8	70-132			
N-EtFOSAA (NEtFOSAA)	8.70	1.7	µg/kg dry	8.79	ND	99.0	61-139			
N-MeFOSAA (NMeFOSAA)	9.28	1.7	µg/kg dry	8.79	ND	106	63-144			
Perfluorotetradecanoic acid (PFTA)	7.90	1.7	µg/kg dry	8.79	ND	89.9	69-133			
Perfluorotridecanoic acid (PFTTrDA)	8.33	1.7	µg/kg dry	8.79	ND	94.8	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	6.97	1.7	µg/kg dry	8.23	ND	84.7	62-145			
Perfluorodecanesulfonic acid (PFDS)	8.12	1.7	µg/kg dry	8.47	ND	95.8	59-134			
Perfluorooctanesulfonamide (FOSA)	7.88	1.7	µg/kg dry	8.79	ND	89.7	67-137			
Perfluorononanesulfonic acid (PFNS)	8.64	1.7	µg/kg dry	8.44	ND	102	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.39	1.7	µg/kg dry	8.79	ND	95.4	18.9-162			
Perfluoro-1-butanefulfonamide (FBSA)	7.83	1.7	µg/kg dry	8.79	ND	89.0	49.8-135			
Perfluorohexanesulfonic acid (PFHxS)	8.10	1.7	µg/kg dry	8.05	ND	101	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	8.08	1.7	µg/kg dry	8.79	ND	92.0	62-155			
Perfluoro-5-oxahexanoic acid (PFMBA)	7.48	1.7	µg/kg dry	8.79	ND	85.0	52.1-148			

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 B345629 - SOP 466-PFAAS

Matrix Spike (B345629-MS1)		Source: 23F3413-03RE1		Prepared: 07/12/23		Analyzed: 07/14/23				
6:2 Fluorotelomersulfonic acid (6:2FTS A)	7.11	1.7	µg/kg dry	8.35	ND	85.1	64-140			
Perfluoropentanesulfonic acid (PFPeS)	7.52	1.7	µg/kg dry	8.26	ND	91.0	73-123			
Perfluoroundecanoic acid (PFUnA)	7.71	1.7	µg/kg dry	8.79	ND	87.7	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	7.73	1.7	µg/kg dry	8.79	ND	87.9	54.6-133			
Perfluoroheptanoic acid (PFHpA)	9.13	1.7	µg/kg dry	8.79	ND	104	71-131			
Perfluorooctanoic acid (PFOA)	9.08	1.7	µg/kg dry	8.79	ND	103	69-133			
Perfluorooctanesulfonic acid (PFOS)	21.1	1.7	µg/kg dry	8.12	7.73	165	* 68-136			MS-22
Perfluorononanoic acid (PFNA)	9.88	1.7	µg/kg dry	8.79	0.843	103	72-129			

Matrix Spike Dup (B345629-MSD1)		Source: 23F3413-03RE1		Prepared: 07/12/23		Analyzed: 07/14/23				
Perfluorobutanoic acid (PFBA)	9.32	1.8	µg/kg dry	9.04	1.06	91.4	71-135	4.57	30	
Perfluorobutanesulfonic acid (PFBS)	6.78	1.8	µg/kg dry	7.99	ND	84.8	72-128	2.31	30	
Perfluoropentanoic acid (PFPeA)	9.93	1.8	µg/kg dry	9.04	1.64	91.7	69-132	2.50	30	
Perfluorohexanoic acid (PFHxA)	8.63	1.8	µg/kg dry	9.04	ND	95.5	70-132	1.40	30	
11Cl-PF3OUdS (F53B Major)	6.59	1.8	µg/kg dry	8.52	ND	77.4	4.02-158	3.32	30	
9Cl-PF3ONS (F53B Minor)	6.94	1.8	µg/kg dry	8.42	ND	82.3	52.5-150	4.72	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.48	1.8	µg/kg dry	8.52	ND	87.8	50.7-124	2.65	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	5.60	1.8	µg/kg dry	9.04	ND	61.9	29.2-146	4.27	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.07	1.8	µg/kg dry	8.68	ND	93.0	65-137	10.8	30	
Perfluorodecanoic acid (PFDA)	9.13	1.8	µg/kg dry	9.04	ND	101	69-133	7.16	30	
Perfluorododecanoic acid (PFDoA)	8.17	1.8	µg/kg dry	9.04	ND	90.4	69-135	12.7	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	6.86	1.8	µg/kg dry	8.04	ND	85.3	60.7-135	4.11	30	
Perfluoroheptanesulfonic acid (PFHpS)	8.42	1.8	µg/kg dry	8.64	ND	97.4	70-132	15.4	30	
N-EtFOSAA (NEtFOSAA)	9.74	1.8	µg/kg dry	9.04	ND	108	61-139	11.2	30	
N-MeFOSAA (NMeFOSAA)	9.41	1.8	µg/kg dry	9.04	ND	104	63-144	1.40	30	
Perfluorotetradecanoic acid (PFTA)	8.62	1.8	µg/kg dry	9.04	ND	95.3	69-133	8.67	30	
Perfluorotridecanoic acid (PFTrDA)	8.51	1.8	µg/kg dry	9.04	ND	94.2	66-139	2.17	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.04	1.8	µg/kg dry	8.46	ND	95.0	62-145	14.2	30	
Perfluorodecanesulfonic acid (PFDS)	6.65	1.8	µg/kg dry	8.71	ND	76.3	59-134	19.9	30	
Perfluorooctanesulfonamide (FOSA)	8.73	1.8	µg/kg dry	9.04	ND	96.5	67-137	10.2	30	
Perfluorononanesulfonic acid (PFNS)	7.05	1.8	µg/kg dry	8.68	ND	81.2	69-125	20.3	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	8.35	1.8	µg/kg dry	9.04	ND	92.4	18.9-162	0.456	30	
Perfluoro-1-butanedisulfonamide (FBSA)	7.81	1.8	µg/kg dry	9.04	ND	86.4	49.8-135	0.261	30	
Perfluorohexanesulfonic acid (PFHxS)	8.58	1.8	µg/kg dry	8.28	ND	104	67-130	5.65	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	8.76	1.8	µg/kg dry	9.04	ND	96.9	62-155	7.98	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	8.15	1.8	µg/kg dry	9.04	ND	90.1	52.1-148	8.60	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.64	1.8	µg/kg dry	8.59	ND	101	64-140	19.5	30	
Perfluoropentanesulfonic acid (PFPeS)	8.45	1.8	µg/kg dry	8.50	ND	99.5	73-123	11.7	30	
Perfluoroundecanoic acid (PFUnA)	8.58	1.8	µg/kg dry	9.04	ND	94.9	64-136	10.6	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.04	1.8	µg/kg dry	9.04	ND	89.0	54.6-133	3.97	30	
Perfluoroheptanoic acid (PFHpA)	9.00	1.8	µg/kg dry	9.04	ND	99.6	71-131	1.44	30	
Perfluorooctanoic acid (PFOA)	9.04	1.8	µg/kg dry	9.04	ND	100	69-133	0.404	30	
Perfluorooctanesulfonic acid (PFOS)	17.0	1.8	µg/kg dry	8.35	7.73	112	68-136	21.4	30	
Perfluorononanoic acid (PFNA)	9.58	1.8	µg/kg dry	9.04	0.843	96.6	72-129	3.14	30	

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. Possibility 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.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
S-29	Extracted Internal Standard is outside of control limits.

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-101 (23F3413-01) Lab File ID: 23F3413-01.d Analyzed: 07/05/23 10:27									
M8FOSA	109209.6	3.964583	180,129.00	3.964583	61	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	13184.1	2.51325	26,719.00	2.51325	49	50 - 150	0.0000	+/-0.50	*
M2PFTA	220301.3	4.313416	426,476.00	4.313416	52	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	28270.68	3.778883	34,421.00	3.778883	82	50 - 150	0.0000	+/-0.50	
MPFBA	125517.6	1.058467	254,892.00	1.050167	49	50 - 150	0.0083	+/-0.50	*
M3HFPO-DA	42359.82	2.847483	94,589.00	2.847483	45	50 - 150	0.0000	+/-0.50	*
M6PFDA	256132.6	3.779417	437,096.00	3.779417	59	50 - 150	0.0000	+/-0.50	
M3PFBS	55615.3	1.90325	103,152.00	1.90325	54	50 - 150	0.0000	+/-0.50	
M7PFUnA	256717	3.93005	435,798.00	3.93005	59	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	15431.66	3.4293	27,940.00	3.4205	55	50 - 150	0.0088	+/-0.50	
M5PFPeA	131756	1.731383	261,832.00	1.7231	50	50 - 150	0.0083	+/-0.50	
M5PFHxA	235458	2.605183	457,562.00	2.605183	51	50 - 150	0.0000	+/-0.50	
M3PFHxS	33835.55	3.201883	60,933.00	3.193817	56	50 - 150	0.0081	+/-0.50	
M4PFHpA	238653.2	3.170783	453,494.00	3.1627	53	50 - 150	0.0081	+/-0.50	
M8PFOA	269072.3	3.437833	498,763.00	3.437833	54	50 - 150	0.0000	+/-0.50	
M8PFOS	38085.18	3.6282	62,844.00	3.620217	61	50 - 150	0.0080	+/-0.50	
M9PFNA	257233.6	3.629233	441,700.00	3.62125	58	50 - 150	0.0080	+/-0.50	
MPFDoA	217465	4.07265	388,524.00	4.072667	56	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	53080.25	3.937517	95,598.00	3.937517	56	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	61175.96	3.85765	108,487.00	3.85765	56	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-102 (23F3413-02)		Lab File ID: 23F3413-02.d				Analyzed: 07/05/23 10:34			
M8FOSA	188898.1	3.964583	180,129.00	3.964583	105	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	29584.68	2.505033	26,719.00	2.51325	111	50 - 150	-0.0082	+/-0.50	
M2PFTA	473417.8	4.313416	426,476.00	4.313416	111	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	50665.49	3.778883	34,421.00	3.778883	147	50 - 150	0.0000	+/-0.50	
MPFBA	262231.7	1.050167	254,892.00	1.050167	103	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	92631.34	2.8393	94,589.00	2.847483	98	50 - 150	-0.0082	+/-0.50	
M6PFDA	496037.3	3.779417	437,096.00	3.779417	113	50 - 150	0.0000	+/-0.50	
M3PFBS	110694.8	1.894967	103,152.00	1.90325	107	50 - 150	-0.0083	+/-0.50	
M7PFUnA	478341.7	3.93005	435,798.00	3.93005	110	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	35064.89	3.4205	27,940.00	3.4205	126	50 - 150	0.0000	+/-0.50	
M5PFPeA	271180.7	1.7231	261,832.00	1.7231	104	50 - 150	0.0000	+/-0.50	
M5PFHxA	481048.5	2.596967	457,562.00	2.605183	105	50 - 150	-0.0082	+/-0.50	
M3PFHxS	65383.01	3.193817	60,933.00	3.193817	107	50 - 150	0.0000	+/-0.50	
M4PFHpA	475632.2	3.1627	453,494.00	3.1627	105	50 - 150	0.0000	+/-0.50	
M8PFOA	518579	3.437833	498,763.00	3.437833	104	50 - 150	0.0000	+/-0.50	
M8PFOS	72382.72	3.620217	62,844.00	3.620217	115	50 - 150	0.0000	+/-0.50	
M9PFNA	465545.8	3.629233	441,700.00	3.62125	105	50 - 150	0.0080	+/-0.50	
MPFDoA	399564.3	4.07265	388,524.00	4.072667	103	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	107366.3	3.937517	95,598.00	3.937517	112	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	120041.6	3.85765	108,487.00	3.85765	111	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-103 (23F3413-03RE1) Lab File ID: 23F3413-03RE1.d Analyzed: 07/14/23 10:25									
M8FOSA	140170.7	3.980567	190,946.00	3.972583	73	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	15562.99	2.505033	29,162.00	2.496817	53	50 - 150	0.0082	+/-0.50	
M2PFTA	294856.9	4.329683	449,045.00	4.329683	66	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	46665.06	3.794833	54,120.00	3.78685	86	50 - 150	0.0080	+/-0.50	
MPFBA	114647.3	1.058467	254,405.00	1.050167	45	50 - 150	0.0083	+/-0.50	*
M3HFPO-DA	45963.47	2.8393	83,460.00	2.8393	55	50 - 150	0.0000	+/-0.50	
M6PFDA	343423.6	3.803317	477,655.00	3.79535	72	50 - 150	0.0080	+/-0.50	
M3PFBS	58374.54	1.886667	113,386.00	1.878383	51	50 - 150	0.0083	+/-0.50	
M7PFUnA	334436.5	3.946033	443,707.00	3.938033	75	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	21178.21	3.4373	34,696.00	3.4293	61	50 - 150	0.0080	+/-0.50	
M5PFPeA	118616.4	1.714833	254,247.00	1.706567	47	50 - 150	0.0083	+/-0.50	*
M5PFHxA	212953.3	2.588767	430,078.00	2.588767	50	50 - 150	0.0000	+/-0.50	
M3PFHxS	38146.24	3.21025	68,427.00	3.201883	56	50 - 150	0.0084	+/-0.50	
M4PFHpA	225106.9	3.178867	435,510.00	3.1627	52	50 - 150	0.0162	+/-0.50	
M8PFOA	268410.5	3.453817	480,570.00	3.445833	56	50 - 150	0.0080	+/-0.50	
M8PFOS	43574.82	3.644167	70,794.00	3.636183	62	50 - 150	0.0080	+/-0.50	
M9PFNA	282289.1	3.6452	438,001.00	3.637217	64	50 - 150	0.0080	+/-0.50	
MPFDoA	316277.6	4.08865	394,842.00	4.08065	80	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	68441.43	3.9535	109,524.00	3.9535	62	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	76586.93	3.873767	116,491.00	3.873767	66	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-104 (23F3413-04) Lab File ID: 23F3413-04.d Analyzed: 07/05/23 10:48									
M8FOSA	156290.3	3.964583	180,129.00	3.964583	87	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	20680.24	2.505033	26,719.00	2.51325	77	50 - 150	-0.0082	+/-0.50	
M2PFTA	345818.9	4.313416	426,476.00	4.313416	81	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	40536.62	3.778883	34,421.00	3.778883	118	50 - 150	0.0000	+/-0.50	
MPFBA	179057.6	1.058467	254,892.00	1.050167	70	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	69342.98	2.8393	94,589.00	2.847483	73	50 - 150	-0.0082	+/-0.50	
M6PFDA	403939.2	3.779417	437,096.00	3.779417	92	50 - 150	0.0000	+/-0.50	
M3PFBS	79652.29	1.90325	103,152.00	1.90325	77	50 - 150	0.0000	+/-0.50	
M7PFUnA	383146.3	3.93005	435,798.00	3.93005	88	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	23513.22	3.4205	27,940.00	3.4205	84	50 - 150	0.0000	+/-0.50	
M5PFPeA	187906.8	1.7231	261,832.00	1.7231	72	50 - 150	0.0000	+/-0.50	
M5PFHxA	331345.9	2.596967	457,562.00	2.605183	72	50 - 150	-0.0082	+/-0.50	
M3PFHxS	49066.04	3.193817	60,933.00	3.193817	81	50 - 150	0.0000	+/-0.50	
M4PFHpA	335838.5	3.1627	453,494.00	3.1627	74	50 - 150	0.0000	+/-0.50	
M8PFOA	371631.6	3.437833	498,763.00	3.437833	75	50 - 150	0.0000	+/-0.50	
M8PFOS	58705.03	3.620217	62,844.00	3.620217	93	50 - 150	0.0000	+/-0.50	
M9PFNA	344997.4	3.62125	441,700.00	3.62125	78	50 - 150	0.0000	+/-0.50	
MPFDoA	332567.2	4.07265	388,524.00	4.072667	86	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	85330.27	3.937517	95,598.00	3.937517	89	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	95317.04	3.85765	108,487.00	3.85765	88	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-105 (23F3413-05)		Lab File ID: 23F3413-05.d				Analyzed: 07/05/23 10:56			
M8FOSA	151157.6	3.964583	180,129.00	3.964583	84	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	23857.63	2.505033	26,719.00	2.51325	89	50 - 150	-0.0082	+/-0.50	
M2PFTA	337245.5	4.313416	426,476.00	4.313416	79	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	41171.37	3.778883	34,421.00	3.778883	120	50 - 150	0.0000	+/-0.50	
MPFBA	204828.3	1.050167	254,892.00	1.050167	80	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	78846.55	2.847483	94,589.00	2.847483	83	50 - 150	0.0000	+/-0.50	
M6PFDA	391651.5	3.779417	437,096.00	3.779417	90	50 - 150	0.0000	+/-0.50	
M3PFBS	91674.48	1.90325	103,152.00	1.90325	89	50 - 150	0.0000	+/-0.50	
M7PFUnA	363058	3.93005	435,798.00	3.93005	83	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	30768.57	3.4293	27,940.00	3.4205	110	50 - 150	0.0088	+/-0.50	
M5PFPeA	218837.3	1.7231	261,832.00	1.7231	84	50 - 150	0.0000	+/-0.50	
M5PFHxA	389458	2.596967	457,562.00	2.605183	85	50 - 150	-0.0082	+/-0.50	
M3PFHxS	54249.8	3.193817	60,933.00	3.193817	89	50 - 150	0.0000	+/-0.50	
M4PFHpA	384142.8	3.1627	453,494.00	3.1627	85	50 - 150	0.0000	+/-0.50	
M8PFOA	407454	3.437833	498,763.00	3.437833	82	50 - 150	0.0000	+/-0.50	
M8PFOS	53828.57	3.6282	62,844.00	3.620217	86	50 - 150	0.0080	+/-0.50	
M9PFNA	370786.3	3.629233	441,700.00	3.62125	84	50 - 150	0.0080	+/-0.50	
MPFDoA	333486.2	4.07265	388,524.00	4.072667	86	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	81081.26	3.937517	95,598.00	3.937517	85	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	94335.18	3.85765	108,487.00	3.85765	87	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-106 (23F3413-06) Lab File ID: 23F3413-06.d Analyzed: 07/05/23 11:03									
M8FOSA	156759.5	3.964583	180,129.00	3.964583	87	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	25066.86	2.505033	26,719.00	2.51325	94	50 - 150	-0.0082	+/-0.50	
M2PFTA	355078.1	4.313416	426,476.00	4.313416	83	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	52885.3	3.778883	34,421.00	3.778883	154	50 - 150	0.0000	+/-0.50	*
MPFBA	210060.8	1.058467	254,892.00	1.050167	82	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	75949	2.8393	94,589.00	2.847483	80	50 - 150	-0.0082	+/-0.50	
M6PFDA	413621.8	3.779417	437,096.00	3.779417	95	50 - 150	0.0000	+/-0.50	
M3PFBS	90853.2	1.894967	103,152.00	1.90325	88	50 - 150	-0.0083	+/-0.50	
M7PFUnA	384442.6	3.93005	435,798.00	3.93005	88	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	30537.9	3.4293	27,940.00	3.4205	109	50 - 150	0.0088	+/-0.50	
M5PFPeA	220271.6	1.7231	261,832.00	1.7231	84	50 - 150	0.0000	+/-0.50	
M5PFHxA	391442.4	2.596967	457,562.00	2.605183	86	50 - 150	-0.0082	+/-0.50	
M3PFHxS	57584	3.201883	60,933.00	3.193817	95	50 - 150	0.0081	+/-0.50	
M4PFHpA	396673	3.1627	453,494.00	3.1627	87	50 - 150	0.0000	+/-0.50	
M8PFOA	443281.7	3.437833	498,763.00	3.437833	89	50 - 150	0.0000	+/-0.50	
M8PFOS	57614.38	3.6282	62,844.00	3.620217	92	50 - 150	0.0080	+/-0.50	
M9PFNA	377396.7	3.629233	441,700.00	3.62125	85	50 - 150	0.0080	+/-0.50	
MPFDoA	339538.8	4.07265	388,524.00	4.072667	87	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	88426.76	3.937517	95,598.00	3.937517	92	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	98691.84	3.85765	108,487.00	3.85765	91	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-107 (23F3413-07) Lab File ID: 23F3413-07.d Analyzed: 07/05/23 11:10									
M8FOSA	148875.1	3.972583	180,129.00	3.964583	83	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	26102.73	2.5543	26,719.00	2.51325	98	50 - 150	0.0410	+/-0.50	
M2PFTA	317825.1	4.313416	426,476.00	4.313416	75	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	66034.42	3.794817	34,421.00	3.778883	192	50 - 150	0.0159	+/-0.50	*
MPFBA	209062.9	1.0834	254,892.00	1.050167	82	50 - 150	0.0332	+/-0.50	
M3HFPO-DA	77803.48	2.880217	94,589.00	2.847483	82	50 - 150	0.0327	+/-0.50	
M6PFDA	424796.5	3.79535	437,096.00	3.779417	97	50 - 150	0.0159	+/-0.50	
M3PFBS	90298.97	1.9364	103,152.00	1.90325	88	50 - 150	0.0331	+/-0.50	
M7PFUnA	360666.9	3.938033	435,798.00	3.93005	83	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	30187.47	3.445283	27,940.00	3.4205	108	50 - 150	0.0248	+/-0.50	
M5PFPeA	223612.4	1.766017	261,832.00	1.7231	85	50 - 150	0.0429	+/-0.50	
M5PFHxA	377967.4	2.638533	457,562.00	2.605183	83	50 - 150	0.0334	+/-0.50	
M3PFHxS	53577.39	3.218333	60,933.00	3.193817	88	50 - 150	0.0245	+/-0.50	
M4PFHpA	370358.4	3.195017	453,494.00	3.1627	82	50 - 150	0.0323	+/-0.50	
M8PFOA	421961.3	3.453817	498,763.00	3.437833	85	50 - 150	0.0160	+/-0.50	
M8PFOS	55884.73	3.636183	62,844.00	3.620217	89	50 - 150	0.0160	+/-0.50	
M9PFNA	346915.5	3.6452	441,700.00	3.62125	79	50 - 150	0.0240	+/-0.50	
MPFDoA	311237	4.07265	388,524.00	4.072667	80	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	79931.69	3.9455	95,598.00	3.937517	84	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	100057.7	3.865617	108,487.00	3.85765	92	50 - 150	0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-108 (23F3413-08) Lab File ID: 23F3413-08.d Analyzed: 07/05/23 11:17									
M8FOSA	137478.8	3.9566	180,129.00	3.964583	76	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	27024.73	2.463967	26,719.00	2.51325	101	50 - 150	-0.0493	+/-0.50	
M2PFTA	304520.3	4.297266	426,476.00	4.313416	71	50 - 150	-0.0162	+/-0.50	
M2-8:2FTS	68814.21	3.770917	34,421.00	3.778883	200	50 - 150	-0.0080	+/-0.50	*
MPFBA	217260.2	1.04185	254,892.00	1.050167	85	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	78595.29	2.806567	94,589.00	2.847483	83	50 - 150	-0.0409	+/-0.50	
M6PFDA	407105.6	3.77145	437,096.00	3.779417	93	50 - 150	-0.0080	+/-0.50	
M3PFBS	95288.89	1.861817	103,152.00	1.90325	92	50 - 150	-0.0414	+/-0.50	
M7PFUnA	364805.3	3.92205	435,798.00	3.93005	84	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	35341.19	3.41245	27,940.00	3.4205	126	50 - 150	-0.0080	+/-0.50	
M5PFPeA	232306.7	1.690017	261,832.00	1.7231	89	50 - 150	-0.0331	+/-0.50	
M5PFHxA	401979.7	2.5477	457,562.00	2.605183	88	50 - 150	-0.0575	+/-0.50	
M3PFHxS	60421.37	3.17765	60,933.00	3.193817	99	50 - 150	-0.0162	+/-0.50	
M4PFHpA	406728.2	3.14655	453,494.00	3.1627	90	50 - 150	-0.0162	+/-0.50	
M8PFOA	443231.1	3.421167	498,763.00	3.437833	89	50 - 150	-0.0167	+/-0.50	
M8PFOS	59117.49	3.612233	62,844.00	3.620217	94	50 - 150	-0.0080	+/-0.50	
M9PFNA	398850.4	3.613267	441,700.00	3.62125	90	50 - 150	-0.0080	+/-0.50	
MPFDoA	301916.1	4.056667	388,524.00	4.072667	78	50 - 150	-0.0160	+/-0.50	
D5-NEtFOSAA	79178.92	3.929517	95,598.00	3.937517	83	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	97252.49	3.8497	108,487.00	3.85765	90	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-109 (23F3413-09)		Lab File ID: 23F3413-09.d				Analyzed: 07/05/23 11:25			
M8FOSA	154576.4	3.964583	180,129.00	3.964583	86	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	25648.92	2.496817	26,719.00	2.51325	96	50 - 150	-0.0164	+/-0.50	
M2PFTA	313379.4	4.30535	426,476.00	4.313416	73	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	67338.09	3.778883	34,421.00	3.778883	196	50 - 150	0.0000	+/-0.50	*
MPFBA	224925.9	1.050167	254,892.00	1.050167	88	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	79649.19	2.8393	94,589.00	2.847483	84	50 - 150	-0.0082	+/-0.50	
M6PFDA	437183.5	3.779417	437,096.00	3.779417	100	50 - 150	0.0000	+/-0.50	
M3PFBS	95614.92	1.886667	103,152.00	1.90325	93	50 - 150	-0.0166	+/-0.50	
M7PFUnA	391861.2	3.93005	435,798.00	3.93005	90	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	32837.13	3.4293	27,940.00	3.4205	118	50 - 150	0.0088	+/-0.50	
M5PFPeA	232078.9	1.714833	261,832.00	1.7231	89	50 - 150	-0.0083	+/-0.50	
M5PFHxA	405932.9	2.58055	457,562.00	2.605183	89	50 - 150	-0.0246	+/-0.50	
M3PFHxS	57719.37	3.193817	60,933.00	3.193817	95	50 - 150	0.0000	+/-0.50	
M4PFHpA	404635.6	3.1627	453,494.00	3.1627	89	50 - 150	0.0000	+/-0.50	
M8PFOA	435806.1	3.437833	498,763.00	3.437833	87	50 - 150	0.0000	+/-0.50	
M8PFOS	55834.82	3.6282	62,844.00	3.620217	89	50 - 150	0.0080	+/-0.50	
M9PFNA	388768.5	3.629233	441,700.00	3.62125	88	50 - 150	0.0080	+/-0.50	
MPFDoA	328282.6	4.064667	388,524.00	4.072667	84	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	91230.38	3.937517	95,598.00	3.937517	95	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	104537	3.85765	108,487.00	3.85765	96	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-110 (23F3413-10) Lab File ID: 23F3413-10.d Analyzed: 07/05/23 11:32									
M8FOSA	157797.9	3.964583	180,129.00	3.964583	88	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	14675.89	2.496817	26,719.00	2.51325	55	50 - 150	-0.0164	+/-0.50	
M2PFTA	400643	4.30535	426,476.00	4.313416	94	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	69476.09	3.778883	34,421.00	3.778883	202	50 - 150	0.0000	+/-0.50	*
MPFBA	128784	1.058467	254,892.00	1.050167	51	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	51218.38	2.8393	94,589.00	2.847483	54	50 - 150	-0.0082	+/-0.50	
M6PFDA	437811.6	3.779417	437,096.00	3.779417	100	50 - 150	0.0000	+/-0.50	
M3PFBS	60842.11	1.886667	103,152.00	1.90325	59	50 - 150	-0.0166	+/-0.50	
M7PFUnA	423509.4	3.93005	435,798.00	3.93005	97	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	23103.1	3.4293	27,940.00	3.4205	83	50 - 150	0.0088	+/-0.50	
M5PFPeA	136365	1.714833	261,832.00	1.7231	52	50 - 150	-0.0083	+/-0.50	
M5PFHxA	245184.4	2.58055	457,562.00	2.605183	54	50 - 150	-0.0246	+/-0.50	
M3PFHxS	42602.96	3.193817	60,933.00	3.193817	70	50 - 150	0.0000	+/-0.50	
M4PFHpA	271434.8	3.1627	453,494.00	3.1627	60	50 - 150	0.0000	+/-0.50	
M8PFOA	347193.4	3.437833	498,763.00	3.437833	70	50 - 150	0.0000	+/-0.50	
M8PFOS	61563.26	3.6282	62,844.00	3.620217	98	50 - 150	0.0080	+/-0.50	
M9PFNA	367977.7	3.629233	441,700.00	3.62125	83	50 - 150	0.0080	+/-0.50	
MPFDoA	353227.5	4.064667	388,524.00	4.072667	91	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	86563.83	3.929517	95,598.00	3.937517	91	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	104100	3.85765	108,487.00	3.85765	96	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-111 (23F3413-11) Lab File ID: 23F3413-11.d Analyzed: 07/05/23 11:54									
M8FOSA	167730.2	3.972583	180,129.00	3.9486	93	50 - 150	0.0240	+/-0.50	
M2-4:2FTS	19795.76	2.505033	26,719.00	2.463967	74	50 - 150	0.0411	+/-0.50	
M2PFTA	381345.7	4.313416	426,476.00	4.297266	89	50 - 150	0.0162	+/-0.50	
M2-8:2FTS	64506.54	3.78685	34,421.00	3.76295	187	50 - 150	0.0239	+/-0.50	*
MPFBA	175989.5	1.058467	254,892.00	1.033533	69	50 - 150	0.0249	+/-0.50	
M3HFPO-DA	68372.45	2.847483	94,589.00	2.806567	72	50 - 150	0.0409	+/-0.50	
M6PFDA	473532.8	3.787383	437,096.00	3.763467	108	50 - 150	0.0239	+/-0.50	
M3PFBS	77788.39	1.894967	103,152.00	1.853533	75	50 - 150	0.0414	+/-0.50	
M7PFUnA	402407.9	3.93005	435,798.00	3.914067	92	50 - 150	0.0160	+/-0.50	
M2-6:2FTS	28257.61	3.4373	27,940.00	3.4044	101	50 - 150	0.0329	+/-0.50	
M5PFPeA	185618.7	1.7231	261,832.00	1.690017	71	50 - 150	0.0331	+/-0.50	
M5PFHxA	325171.4	2.596967	457,562.00	2.5477	71	50 - 150	0.0493	+/-0.50	
M3PFHxS	50079.66	3.21025	60,933.00	3.17765	82	50 - 150	0.0326	+/-0.50	
M4PFHpA	332387.2	3.17885	453,494.00	3.138483	73	50 - 150	0.0404	+/-0.50	
M8PFOA	428995.5	3.445817	498,763.00	3.421167	86	50 - 150	0.0246	+/-0.50	
M8PFOS	60609.88	3.636183	62,844.00	3.612233	96	50 - 150	0.0240	+/-0.50	
M9PFNA	370551.1	3.637217	441,700.00	3.613267	84	50 - 150	0.0240	+/-0.50	
MPFDoA	359883.2	4.07265	388,524.00	4.056667	93	50 - 150	0.0160	+/-0.50	
D5-NEtFOSAA	86269.66	3.937517	95,598.00	3.921533	90	50 - 150	0.0160	+/-0.50	
D3-NMeFOSAA	105348.1	3.865617	108,487.00	3.841733	97	50 - 150	0.0239	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-112 (23F3413-12) Lab File ID: 23F3413-12.d Analyzed: 07/05/23 12:01									
M8FOSA	154083.7	3.980567	180,129.00	3.9486	86	50 - 150	0.0320	+/-0.50	
M2-4:2FTS	26160.92	2.562517	26,719.00	2.463967	98	50 - 150	0.0986	+/-0.50	
M2PFTA	358621.4	4.313416	426,476.00	4.297266	84	50 - 150	0.0162	+/-0.50	
M2-8:2FTS	70166.7	3.8028	34,421.00	3.76295	204	50 - 150	0.0398	+/-0.50	*
MPFBA	223003.7	1.0834	254,892.00	1.033533	87	50 - 150	0.0499	+/-0.50	
M3HFPO-DA	67592.05	2.896583	94,589.00	2.806567	71	50 - 150	0.0900	+/-0.50	
M6PFDA	430826.8	3.803317	437,096.00	3.763467	99	50 - 150	0.0398	+/-0.50	
M3PFBS	95568.26	1.9364	103,152.00	1.853533	93	50 - 150	0.0829	+/-0.50	
M7PFUnA	394313.1	3.946033	435,798.00	3.914067	90	50 - 150	0.0320	+/-0.50	
M2-6:2FTS	32437.22	3.453267	27,940.00	3.4044	116	50 - 150	0.0489	+/-0.50	
M5PFPeA	237881.4	1.757717	261,832.00	1.690017	91	50 - 150	0.0677	+/-0.50	
M5PFHxA	398662.6	2.646767	457,562.00	2.5477	87	50 - 150	0.0991	+/-0.50	
M3PFHxS	57033.55	3.2345	60,933.00	3.17765	94	50 - 150	0.0569	+/-0.50	
M4PFHpA	408320.5	3.203083	453,494.00	3.138483	90	50 - 150	0.0646	+/-0.50	
M8PFOA	440375.3	3.469917	498,763.00	3.421167	88	50 - 150	0.0488	+/-0.50	
M8PFOS	60179.61	3.644167	62,844.00	3.612233	96	50 - 150	0.0319	+/-0.50	
M9PFNA	376150.5	3.653183	441,700.00	3.613267	85	50 - 150	0.0399	+/-0.50	
MPFDoA	323330.6	4.08065	388,524.00	4.056667	83	50 - 150	0.0240	+/-0.50	
D5-NEtFOSAA	87517.76	3.9455	95,598.00	3.921533	92	50 - 150	0.0240	+/-0.50	
D3-NMeFOSAA	104181.6	3.873767	108,487.00	3.841733	96	50 - 150	0.0320	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-113 (23F3413-13) Lab File ID: 23F3413-13.d Analyzed: 07/05/23 12:08									
M8FOSA	153699.8	3.964583	180,129.00	3.9486	85	50 - 150	0.0160	+/-0.50	
M2-4:2FTS	25991.42	2.51325	26,719.00	2.463967	97	50 - 150	0.0493	+/-0.50	
M2PFTA	349533.8	4.30535	426,476.00	4.297266	82	50 - 150	0.0081	+/-0.50	
M2-8:2FTS	68343.72	3.78685	34,421.00	3.76295	199	50 - 150	0.0239	+/-0.50	*
MPFBA	218655.9	1.058467	254,892.00	1.033533	86	50 - 150	0.0249	+/-0.50	
M3HFPO-DA	73096.17	2.855667	94,589.00	2.806567	77	50 - 150	0.0491	+/-0.50	
M6PFDA	439927	3.787383	437,096.00	3.763467	101	50 - 150	0.0239	+/-0.50	
M3PFBS	94313.61	1.894967	103,152.00	1.853533	91	50 - 150	0.0414	+/-0.50	
M7PFUnA	407334.7	3.93005	435,798.00	3.914067	93	50 - 150	0.0160	+/-0.50	
M2-6:2FTS	29899.64	3.4373	27,940.00	3.4044	107	50 - 150	0.0329	+/-0.50	
M5PFPeA	227138	1.7231	261,832.00	1.690017	87	50 - 150	0.0331	+/-0.50	
M5PFHxA	394950.1	2.596967	457,562.00	2.5477	86	50 - 150	0.0493	+/-0.50	
M3PFHxS	54306.39	3.21025	60,933.00	3.17765	89	50 - 150	0.0326	+/-0.50	
M4PFHpA	388163.2	3.17885	453,494.00	3.138483	86	50 - 150	0.0404	+/-0.50	
M8PFOA	420655.2	3.445833	498,763.00	3.421167	84	50 - 150	0.0247	+/-0.50	
M8PFOS	58424.45	3.636183	62,844.00	3.612233	93	50 - 150	0.0240	+/-0.50	
M9PFNA	389476.5	3.637217	441,700.00	3.613267	88	50 - 150	0.0240	+/-0.50	
MPFDoA	320995.3	4.064667	388,524.00	4.056667	83	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	84950.62	3.937517	95,598.00	3.921533	89	50 - 150	0.0160	+/-0.50	
D3-NMeFOSAA	107050.2	3.85765	108,487.00	3.841733	99	50 - 150	0.0159	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-114 (23F3413-14) Lab File ID: 23F3413-14R.d Analyzed: 07/05/23 13:33									
M8FOSA	176430.3	3.924617	180,129.00	3.932617	98	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	24335.22	2.4064	26,719.00	2.4146	91	50 - 150	-0.0082	+/-0.50	
M2PFTA	371953.4	4.27305	426,476.00	4.281116	87	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	62079.89	3.73905	34,421.00	3.747017	180	50 - 150	-0.0080	+/-0.50	*
MPFBA	212508.8	1.016917	254,892.00	1.025233	83	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	77645.13	2.749283	94,589.00	2.76565	82	50 - 150	-0.0164	+/-0.50	
M6PFDA	460912.1	3.739567	437,096.00	3.747533	105	50 - 150	-0.0080	+/-0.50	
M3PFBS	93555.55	1.8121	103,152.00	1.820383	91	50 - 150	-0.0083	+/-0.50	
M7PFUnA	431867.2	3.889883	435,798.00	3.897867	99	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	29529.95	3.380233	27,940.00	3.3883	106	50 - 150	-0.0081	+/-0.50	
M5PFPeA	226149.2	1.64865	261,832.00	1.656917	86	50 - 150	-0.0083	+/-0.50	
M5PFHxA	389134.3	2.490217	457,562.00	2.506633	85	50 - 150	-0.0164	+/-0.50	
M3PFHxS	57636.88	3.137283	60,933.00	3.14535	95	50 - 150	-0.0081	+/-0.50	
M4PFHpA	396745.4	3.105283	453,494.00	3.113417	87	50 - 150	-0.0081	+/-0.50	
M8PFOA	456974.1	3.388967	498,763.00	3.397017	92	50 - 150	-0.0080	+/-0.50	
M8PFOS	60826.07	3.588267	62,844.00	3.588267	97	50 - 150	0.0000	+/-0.50	
M9PFNA	407286.3	3.5893	441,700.00	3.589317	92	50 - 150	0.0000	+/-0.50	
MPFDoA	358586.2	4.032683	388,524.00	4.032683	92	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	88582.8	3.897383	95,598.00	3.905533	93	50 - 150	-0.0082	+/-0.50	
D3-NMeFOSAA	107008.1	3.817433	108,487.00	3.825833	99	50 - 150	-0.0084	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-115 (23F3413-15) Lab File ID: 23F3413-15.d Analyzed: 07/05/23 12:33									
M8FOSA	165708.8	3.924617	180,129.00	3.9486	92	50 - 150	-0.0240	+/-0.50	
M2-4:2FTS	17503.37	2.4064	26,719.00	2.463967	66	50 - 150	-0.0576	+/-0.50	
M2PFTA	381996.4	4.281116	426,476.00	4.297266	90	50 - 150	-0.0161	+/-0.50	
M2-8:2FTS	52705.98	3.747017	34,421.00	3.76295	153	50 - 150	-0.0159	+/-0.50	*
MPFBA	151226.4	1.025233	254,892.00	1.033533	59	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	59583.54	2.757467	94,589.00	2.806567	63	50 - 150	-0.0491	+/-0.50	
M6PFDA	417819.7	3.747533	437,096.00	3.763467	96	50 - 150	-0.0159	+/-0.50	
M3PFBS	67660.91	1.8121	103,152.00	1.853533	66	50 - 150	-0.0414	+/-0.50	
M7PFUnA	403691.3	3.889883	435,798.00	3.914067	93	50 - 150	-0.0242	+/-0.50	
M2-6:2FTS	25110.24	3.380233	27,940.00	3.4044	90	50 - 150	-0.0242	+/-0.50	
M5PFPeA	163069.4	1.64865	261,832.00	1.690017	62	50 - 150	-0.0414	+/-0.50	
M5PFHxA	287003.9	2.490217	457,562.00	2.5477	63	50 - 150	-0.0575	+/-0.50	
M3PFHxS	44051.22	3.14535	60,933.00	3.17765	72	50 - 150	-0.0323	+/-0.50	
M4PFHpA	294911.5	3.113417	453,494.00	3.138483	65	50 - 150	-0.0251	+/-0.50	
M8PFOA	353630.4	3.397017	498,763.00	3.421167	71	50 - 150	-0.0242	+/-0.50	
M8PFOS	55910.36	3.588267	62,844.00	3.612233	89	50 - 150	-0.0240	+/-0.50	
M9PFNA	376002.1	3.5893	441,700.00	3.613267	85	50 - 150	-0.0240	+/-0.50	
MPFDoA	348543.9	4.032683	388,524.00	4.056667	90	50 - 150	-0.0240	+/-0.50	
D5-NEtFOSAA	91793.8	3.897383	95,598.00	3.921533	96	50 - 150	-0.0242	+/-0.50	
D3-NMeFOSAA	100537.2	3.817433	108,487.00	3.841733	93	50 - 150	-0.0243	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-I16 (23F3413-16) Lab File ID: 23F3413-16.d Analyzed: 07/05/23 12:40									
M8FOSA	206356.5	3.932617	180,129.00	3.9486	115	50 - 150	-0.0160	+/-0.50	
M2-4:2FTS	31682.47	2.4228	26,719.00	2.463967	119	50 - 150	-0.0412	+/-0.50	
M2PFTA	489917.3	4.281116	426,476.00	4.297266	115	50 - 150	-0.0161	+/-0.50	
M2-8:2FTS	76589.57	3.747017	34,421.00	3.76295	223	50 - 150	-0.0159	+/-0.50	*
MPFBA	290326	1.025233	254,892.00	1.033533	114	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	94640.89	2.76565	94,589.00	2.806567	100	50 - 150	-0.0409	+/-0.50	
M6PFDA	560419.3	3.747533	437,096.00	3.763467	128	50 - 150	-0.0159	+/-0.50	
M3PFBS	123615	1.820383	103,152.00	1.853533	120	50 - 150	-0.0332	+/-0.50	
M7PFUnA	526212.3	3.897867	435,798.00	3.914067	121	50 - 150	-0.0162	+/-0.50	
M2-6:2FTS	43423.25	3.388283	27,940.00	3.4044	155	50 - 150	-0.0161	+/-0.50	*
M5PFPeA	304996.8	1.656917	261,832.00	1.690017	116	50 - 150	-0.0331	+/-0.50	
M5PFHxA	514998.1	2.506633	457,562.00	2.5477	113	50 - 150	-0.0411	+/-0.50	
M3PFHxS	72774.06	3.14535	60,933.00	3.17765	119	50 - 150	-0.0323	+/-0.50	
M4PFHpA	519044.5	3.113417	453,494.00	3.138483	114	50 - 150	-0.0251	+/-0.50	
M8PFOA	573870.4	3.397017	498,763.00	3.421167	115	50 - 150	-0.0242	+/-0.50	
M8PFOS	80290.45	3.588267	62,844.00	3.612233	128	50 - 150	-0.0240	+/-0.50	
M9PFNA	519864.3	3.5893	441,700.00	3.613267	118	50 - 150	-0.0240	+/-0.50	
MPFDoA	449659.6	4.032683	388,524.00	4.056667	116	50 - 150	-0.0240	+/-0.50	
D5-NEtFOSAA	114835.6	3.897383	95,598.00	3.921533	120	50 - 150	-0.0242	+/-0.50	
D3-NMeFOSAA	125139.7	3.825833	108,487.00	3.841733	115	50 - 150	-0.0159	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-SW1 (23F3413-17) Lab File ID: 23F3413-17.d Analyzed: 06/30/23 15:38									
M8FOSA	149749.8	3.964583	220,650.00	3.964583	68	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	51865.96	2.51325	31,950.00	2.51325	162	50 - 150	0.0000	+/-0.50	*
M2PFTA	273156.1	4.313416	513,432.00	4.313416	53	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	50001.18	3.778883	49,893.00	3.778883	100	50 - 150	0.0000	+/-0.50	
MPFBA	122458.9	1.050167	271,664.00	1.050167	45	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	122612.7	2.847483	137,474.00	2.8393	89	50 - 150	0.0082	+/-0.50	
M6PFDA	412501.8	3.779417	536,748.00	3.779417	77	50 - 150	0.0000	+/-0.50	
M3PFBS	93585.23	1.90325	110,268.00	1.894967	85	50 - 150	0.0083	+/-0.50	
M7PFUnA	391812.6	3.93005	494,958.00	3.93005	79	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	55016.63	3.4205	32,993.00	3.4205	167	50 - 150	0.0000	+/-0.50	*
M5PFPeA	218318.8	1.7231	315,157.00	1.7231	69	50 - 150	0.0000	+/-0.50	
M5PFHxA	409649.8	2.596983	531,003.00	2.596983	77	50 - 150	0.0000	+/-0.50	
M3PFHxS	53540.05	3.193817	69,708.00	3.193817	77	50 - 150	0.0000	+/-0.50	
M4PFHpA	414062.5	3.1627	529,559.00	3.1627	78	50 - 150	0.0000	+/-0.50	
M8PFOA	453016.8	3.437833	552,603.00	3.437833	82	50 - 150	0.0000	+/-0.50	
M8PFOS	57664.14	3.620217	73,446.00	3.620217	79	50 - 150	0.0000	+/-0.50	
M9PFNA	425372.3	3.62125	512,846.00	3.629233	83	50 - 150	-0.0080	+/-0.50	
MPFDoA	309820.1	4.072667	450,031.00	4.07265	69	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	88201.41	3.937517	122,552.00	3.937517	72	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	100259.7	3.85765	135,935.00	3.85765	74	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-SW2 (23F3413-18) Lab File ID: 23F3413-18.d Analyzed: 06/30/23 15:45									
M8FOSA	178057	3.964583	220,650.00	3.964583	81	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	80596.54	2.51325	31,950.00	2.51325	252	50 - 150	0.0000	+/-0.50	*
M2PFTA	209762.7	4.313416	513,432.00	4.313416	41	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	65497.61	3.778883	49,893.00	3.778883	131	50 - 150	0.0000	+/-0.50	
MPFBA	153090.1	1.050167	271,664.00	1.050167	56	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	133529.2	2.847483	137,474.00	2.8393	97	50 - 150	0.0082	+/-0.50	
M6PFDA	484551.7	3.779417	536,748.00	3.779417	90	50 - 150	0.0000	+/-0.50	
M3PFBS	123515	1.90325	110,268.00	1.894967	112	50 - 150	0.0083	+/-0.50	
M7PFUnA	438958.4	3.93005	494,958.00	3.93005	89	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	78419.42	3.4205	32,993.00	3.4205	238	50 - 150	0.0000	+/-0.50	*
M5PFPeA	281207.4	1.7231	315,157.00	1.7231	89	50 - 150	0.0000	+/-0.50	
M5PFHxA	533088.2	2.605183	531,003.00	2.596983	100	50 - 150	0.0082	+/-0.50	
M3PFHxS	73388.5	3.193817	69,708.00	3.193817	105	50 - 150	0.0000	+/-0.50	
M4PFHpA	533609.8	3.1627	529,559.00	3.1627	101	50 - 150	0.0000	+/-0.50	
M8PFOA	583636.9	3.437833	552,603.00	3.437833	106	50 - 150	0.0000	+/-0.50	
M8PFOS	75228.23	3.6282	73,446.00	3.620217	102	50 - 150	0.0080	+/-0.50	
M9PFNA	506839	3.629233	512,846.00	3.629233	99	50 - 150	0.0000	+/-0.50	
MPFDoA	301820.6	4.07265	450,031.00	4.07265	67	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	112251.4	3.937517	122,552.00	3.937517	92	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	136631.7	3.85765	135,935.00	3.85765	101	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-SW3 (23F3413-19) Lab File ID: 23F3413-19.d Analyzed: 06/30/23 15:52									
M8FOSA	12084.08	3.9566	220,650.00	3.964583	05	50 - 150	-0.0080	+/-0.50	*
M2-4:2FTS	76900.2	2.51325	31,950.00	2.51325	241	50 - 150	0.0000	+/-0.50	*
M2PFTA	174964.3	4.313416	513,432.00	4.313416	34	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	93227.94	3.770917	49,893.00	3.778883	187	50 - 150	-0.0080	+/-0.50	*
MPFBA	140318.7	1.050167	271,664.00	1.050167	52	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	125199.2	2.8393	137,474.00	2.8393	91	50 - 150	0.0000	+/-0.50	
M6PFDA	438517.5	3.763467	536,748.00	3.779417	82	50 - 150	-0.0160	+/-0.50	
M3PFBS	104044.8	1.894967	110,268.00	1.894967	94	50 - 150	0.0000	+/-0.50	
M7PFUnA	284621.3	3.906067	494,958.00	3.93005	58	50 - 150	-0.0240	+/-0.50	
M2-6:2FTS	121793.6	3.4205	32,993.00	3.4205	369	50 - 150	0.0000	+/-0.50	*
M5PFPeA	249164.6	1.7231	315,157.00	1.7231	79	50 - 150	0.0000	+/-0.50	
M5PFHxA	463505	2.596983	531,003.00	2.596983	87	50 - 150	0.0000	+/-0.50	
M3PFHxS	64438.92	3.193817	69,708.00	3.193817	92	50 - 150	0.0000	+/-0.50	
M4PFHpA	467464.6	3.1627	529,559.00	3.1627	88	50 - 150	0.0000	+/-0.50	
M8PFOA	512638.7	3.437833	552,603.00	3.437833	93	50 - 150	0.0000	+/-0.50	
M8PFOS	66447.22	3.620217	73,446.00	3.620217	90	50 - 150	0.0000	+/-0.50	
M9PFNA	456767.7	3.62125	512,846.00	3.629233	89	50 - 150	-0.0080	+/-0.50	
MPFDoA	208699.5	4.048683	450,031.00	4.07265	46	50 - 150	-0.0240	+/-0.50	*
D5-NEtFOSAA	45622.61	3.905533	122,552.00	3.937517	37	50 - 150	-0.0320	+/-0.50	*
D3-NMeFOSAA	22334.95	3.817433	135,935.00	3.85765	16	50 - 150	-0.0402	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MDP-Dup (23F3413-20) Lab File ID: 23F3413-20.d Analyzed: 07/05/23 12:47									
M8FOSA	168229.4	3.924617	180,129.00	3.9486	93	50 - 150	-0.0240	+/-0.50	
M2-4:2FTS	23793.22	2.4064	26,719.00	2.463967	89	50 - 150	-0.0576	+/-0.50	
M2PFTA	337276.4	4.281116	426,476.00	4.297266	79	50 - 150	-0.0161	+/-0.50	
M2-8:2FTS	61036.09	3.73905	34,421.00	3.76295	177	50 - 150	-0.0239	+/-0.50	*
MPFBA	203830.2	1.025233	254,892.00	1.033533	80	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	70506.5	2.757467	94,589.00	2.806567	75	50 - 150	-0.0491	+/-0.50	
M6PFDA	449127.5	3.747533	437,096.00	3.763467	103	50 - 150	-0.0159	+/-0.50	
M3PFBS	91597.87	1.8121	103,152.00	1.853533	89	50 - 150	-0.0414	+/-0.50	
M7PFUnA	413492.5	3.889883	435,798.00	3.914067	95	50 - 150	-0.0242	+/-0.50	
M2-6:2FTS	32170.02	3.380233	27,940.00	3.4044	115	50 - 150	-0.0242	+/-0.50	
M5PFPeA	216680	1.64865	261,832.00	1.690017	83	50 - 150	-0.0414	+/-0.50	
M5PFHxA	376906.1	2.490217	457,562.00	2.5477	82	50 - 150	-0.0575	+/-0.50	
M3PFHxS	54966.37	3.14535	60,933.00	3.17765	90	50 - 150	-0.0323	+/-0.50	
M4PFHpA	380091.5	3.105283	453,494.00	3.138483	84	50 - 150	-0.0332	+/-0.50	
M8PFOA	438689.5	3.397017	498,763.00	3.421167	88	50 - 150	-0.0242	+/-0.50	
M8PFOS	60836.27	3.588267	62,844.00	3.612233	97	50 - 150	-0.0240	+/-0.50	
M9PFNA	399376	3.5893	441,700.00	3.613267	90	50 - 150	-0.0240	+/-0.50	
MPFDoA	351268.5	4.032683	388,524.00	4.056667	90	50 - 150	-0.0240	+/-0.50	
D5-NEtFOSAA	90047.5	3.897383	95,598.00	3.921533	94	50 - 150	-0.0242	+/-0.50	
D3-NMeFOSAA	110430.5	3.817433	108,487.00	3.841733	102	50 - 150	-0.0243	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Equipment Blank (23F3413-21)			Lab File ID: 23F3413-21.d			Analyzed: 06/30/23 15:59			
M8FOSA	178712.8	3.964583	220,650.00	3.964583	81	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	32659.52	2.51325	31,950.00	2.51325	102	50 - 150	0.0000	+/-0.50	
M2PFTA	429107.4	4.313416	513,432.00	4.313416	84	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	50179.44	3.78685	49,893.00	3.778883	101	50 - 150	0.0080	+/-0.50	
MPFBA	264284.3	1.050167	271,664.00	1.050167	97	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	157992	2.847483	137,474.00	2.8393	115	50 - 150	0.0082	+/-0.50	
M6PFDA	513463	3.779417	536,748.00	3.779417	96	50 - 150	0.0000	+/-0.50	
M3PFBS	117487.5	1.894967	110,268.00	1.894967	107	50 - 150	0.0000	+/-0.50	
M7PFUnA	485085.4	3.93005	494,958.00	3.93005	98	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	41027.04	3.4293	32,993.00	3.4205	124	50 - 150	0.0088	+/-0.50	
M5PFPeA	281290	1.7231	315,157.00	1.7231	89	50 - 150	0.0000	+/-0.50	
M5PFHxA	495822.4	2.596983	531,003.00	2.596983	93	50 - 150	0.0000	+/-0.50	
M3PFHxS	69020.05	3.201883	69,708.00	3.193817	99	50 - 150	0.0081	+/-0.50	
M4PFHpA	503758.5	3.170783	529,559.00	3.1627	95	50 - 150	0.0081	+/-0.50	
M8PFOA	564456	3.437833	552,603.00	3.437833	102	50 - 150	0.0000	+/-0.50	
M8PFOS	76600.35	3.6282	73,446.00	3.620217	104	50 - 150	0.0080	+/-0.50	
M9PFNA	518203.5	3.629233	512,846.00	3.629233	101	50 - 150	0.0000	+/-0.50	
MPFDoA	419863	4.072667	450,031.00	4.07265	93	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	101944	3.937517	122,552.00	3.937517	83	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	123913.6	3.85765	135,935.00	3.85765	91	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B344573-BLK1)			Lab File ID: B344573-BLK1.d			Analyzed: 07/05/23 10:05			
M8FOSA	175542.9	3.964583	180,129.00	3.964583	97	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	25555.52	2.51325	26,719.00	2.51325	96	50 - 150	0.0000	+/-0.50	
M2PFTA	406736.6	4.313416	426,476.00	4.313416	95	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	32589.63	3.778883	34,421.00	3.778883	95	50 - 150	0.0000	+/-0.50	
MPFBA	244593.4	1.050167	254,892.00	1.050167	96	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	79341.96	2.847483	94,589.00	2.847483	84	50 - 150	0.0000	+/-0.50	
M6PFDA	437016	3.779417	437,096.00	3.779417	100	50 - 150	0.0000	+/-0.50	
M3PFBS	102492	1.90325	103,152.00	1.90325	99	50 - 150	0.0000	+/-0.50	
M7PFUnA	431288.2	3.93005	435,798.00	3.93005	99	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	29275.49	3.4205	27,940.00	3.4205	105	50 - 150	0.0000	+/-0.50	
M5PFPeA	251898.9	1.7231	261,832.00	1.7231	96	50 - 150	0.0000	+/-0.50	
M5PFHxA	439738.7	2.605183	457,562.00	2.605183	96	50 - 150	0.0000	+/-0.50	
M3PFHxS	61597.08	3.193817	60,933.00	3.193817	101	50 - 150	0.0000	+/-0.50	
M4PFHpA	425559.2	3.1627	453,494.00	3.1627	94	50 - 150	0.0000	+/-0.50	
M8PFOA	464700.3	3.437833	498,763.00	3.437833	93	50 - 150	0.0000	+/-0.50	
M8PFOS	66823.57	3.620217	62,844.00	3.620217	106	50 - 150	0.0000	+/-0.50	
M9PFNA	439421.4	3.62125	441,700.00	3.62125	99	50 - 150	0.0000	+/-0.50	
MPFDoA	368154.4	4.07265	388,524.00	4.072667	95	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	96460.88	3.937517	95,598.00	3.937517	101	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	103420	3.85765	108,487.00	3.85765	95	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B344573-BS1)			Lab File ID: B344573-BS1.d			Analyzed: 07/05/23 09:58			
M8FOSA	200159.3	3.964583	180,129.00	3.964583	111	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	32224.14	2.51325	26,719.00	2.51325	121	50 - 150	0.0000	+/-0.50	
M2PFTA	492395.8	4.313416	426,476.00	4.313416	115	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	43492.67	3.778883	34,421.00	3.778883	126	50 - 150	0.0000	+/-0.50	
MPFBA	289236.6	1.050167	254,892.00	1.050167	113	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	99217.77	2.847483	94,589.00	2.847483	105	50 - 150	0.0000	+/-0.50	
M6PFDA	521051.3	3.779417	437,096.00	3.779417	119	50 - 150	0.0000	+/-0.50	
M3PFBS	120671.7	1.90325	103,152.00	1.90325	117	50 - 150	0.0000	+/-0.50	
M7PFUnA	491308.4	3.93005	435,798.00	3.93005	113	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	35261.69	3.4205	27,940.00	3.4205	126	50 - 150	0.0000	+/-0.50	
M5PFPeA	296940.8	1.7231	261,832.00	1.7231	113	50 - 150	0.0000	+/-0.50	
M5PFHxA	524195.9	2.605183	457,562.00	2.605183	115	50 - 150	0.0000	+/-0.50	
M3PFHxS	72764.97	3.193817	60,933.00	3.193817	119	50 - 150	0.0000	+/-0.50	
M4PFHpA	508805.4	3.1627	453,494.00	3.1627	112	50 - 150	0.0000	+/-0.50	
M8PFOA	543086	3.437833	498,763.00	3.437833	109	50 - 150	0.0000	+/-0.50	
M8PFOS	76086.93	3.620217	62,844.00	3.620217	121	50 - 150	0.0000	+/-0.50	
M9PFNA	490320.2	3.62125	441,700.00	3.62125	111	50 - 150	0.0000	+/-0.50	
MPFDoA	437191.8	4.072667	388,524.00	4.072667	113	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	102567.7	3.937517	95,598.00	3.937517	107	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	117449	3.85765	108,487.00	3.85765	108	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B344573-MS1) Lab File ID: B344573-MS1.d Analyzed: 07/05/23 10:12									
M8FOSA	159091.1	3.964583	180,129.00	3.964583	88	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	25080.93	2.51325	26,719.00	2.51325	94	50 - 150	0.0000	+/-0.50	
M2PFTA	391779.3	4.313416	426,476.00	4.313416	92	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	35716.34	3.78685	34,421.00	3.778883	104	50 - 150	0.0080	+/-0.50	
MPFBA	222073.1	1.050167	254,892.00	1.050167	87	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	79317.31	2.847483	94,589.00	2.847483	84	50 - 150	0.0000	+/-0.50	
M6PFDA	391088	3.779417	437,096.00	3.779417	89	50 - 150	0.0000	+/-0.50	
M3PFBS	92669.48	1.90325	103,152.00	1.90325	90	50 - 150	0.0000	+/-0.50	
M7PFUnA	380912	3.93005	435,798.00	3.93005	87	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	24601.07	3.4293	27,940.00	3.4205	88	50 - 150	0.0088	+/-0.50	
M5PFPeA	226598.3	1.731383	261,832.00	1.7231	87	50 - 150	0.0083	+/-0.50	
M5PFHxA	396380.9	2.605183	457,562.00	2.605183	87	50 - 150	0.0000	+/-0.50	
M3PFHxS	53317.83	3.201883	60,933.00	3.193817	88	50 - 150	0.0081	+/-0.50	
M4PFHpA	400981.3	3.170783	453,494.00	3.1627	88	50 - 150	0.0081	+/-0.50	
M8PFOA	430535.8	3.437833	498,763.00	3.437833	86	50 - 150	0.0000	+/-0.50	
M8PFOS	59798.32	3.620217	62,844.00	3.620217	95	50 - 150	0.0000	+/-0.50	
M9PFNA	395203	3.629233	441,700.00	3.62125	89	50 - 150	0.0080	+/-0.50	
MPFDoA	350644.7	4.07265	388,524.00	4.072667	90	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	86485.4	3.937517	95,598.00	3.937517	90	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	98372.41	3.85765	108,487.00	3.85765	91	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B344573-MSD1)			Lab File ID: B344573-MSD1.d			Analyzed: 07/05/23 10:19			
M8FOSA	177420.1	3.964583	180,129.00	3.964583	98	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	28144.08	2.51325	26,719.00	2.51325	105	50 - 150	0.0000	+/-0.50	
M2PFTA	442286.2	4.313416	426,476.00	4.313416	104	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	45727.74	3.78685	34,421.00	3.778883	133	50 - 150	0.0080	+/-0.50	
MPFBA	252403.6	1.050167	254,892.00	1.050167	99	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	89017.88	2.847483	94,589.00	2.847483	94	50 - 150	0.0000	+/-0.50	
M6PFDA	481086.4	3.779417	437,096.00	3.779417	110	50 - 150	0.0000	+/-0.50	
M3PFBS	105848.6	1.90325	103,152.00	1.90325	103	50 - 150	0.0000	+/-0.50	
M7PFUnA	453509.2	3.93005	435,798.00	3.93005	104	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	32283.43	3.4293	27,940.00	3.4205	116	50 - 150	0.0088	+/-0.50	
M5PFPeA	260475.9	1.7231	261,832.00	1.7231	99	50 - 150	0.0000	+/-0.50	
M5PFHxA	461103.3	2.605183	457,562.00	2.605183	101	50 - 150	0.0000	+/-0.50	
M3PFHxS	63151.49	3.201883	60,933.00	3.193817	104	50 - 150	0.0081	+/-0.50	
M4PFHpA	465110.3	3.170783	453,494.00	3.1627	103	50 - 150	0.0081	+/-0.50	
M8PFOA	486460.5	3.437833	498,763.00	3.437833	98	50 - 150	0.0000	+/-0.50	
M8PFOS	67246.09	3.6282	62,844.00	3.620217	107	50 - 150	0.0080	+/-0.50	
M9PFNA	432489.6	3.629233	441,700.00	3.62125	98	50 - 150	0.0080	+/-0.50	
MPFDoA	401897.9	4.07265	388,524.00	4.072667	103	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	101787.2	3.937517	95,598.00	3.937517	106	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	117225.2	3.85765	108,487.00	3.85765	108	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B344574-BLK1)			Lab File ID: B344574-BLK1.d			Analyzed: 06/30/23 13:42			
M8FOSA	144583.2	3.964583	220,650.00	3.964583	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	26241.7	2.51325	31,950.00	2.505033	82	50 - 150	0.0082	+/-0.50	
M2PFTA	342233.8	4.313416	513,432.00	4.313416	67	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	36810.44	3.778883	49,893.00	3.778883	74	50 - 150	0.0000	+/-0.50	
MPFBA	209727.5	1.050167	271,664.00	1.050167	77	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	150749.5	2.847483	137,474.00	2.8393	110	50 - 150	0.0082	+/-0.50	
M6PFDA	394231.5	3.779417	536,748.00	3.779417	73	50 - 150	0.0000	+/-0.50	
M3PFBS	95165.32	1.90325	110,268.00	1.894967	86	50 - 150	0.0083	+/-0.50	
M7PFUnA	358497.2	3.93005	494,958.00	3.93005	72	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	29610.72	3.4205	32,993.00	3.4205	90	50 - 150	0.0000	+/-0.50	
M5PFPeA	237520.5	1.7231	315,157.00	1.714833	75	50 - 150	0.0083	+/-0.50	
M5PFHxA	411428.7	2.596967	531,003.00	2.588767	77	50 - 150	0.0082	+/-0.50	
M3PFHxS	55629.86	3.193817	69,708.00	3.193817	80	50 - 150	0.0000	+/-0.50	
M4PFHpA	404392.3	3.1627	529,559.00	3.1627	76	50 - 150	0.0000	+/-0.50	
M8PFOA	445492.8	3.437833	552,603.00	3.42985	81	50 - 150	0.0080	+/-0.50	
M8PFOS	55427.23	3.620217	73,446.00	3.620217	75	50 - 150	0.0000	+/-0.50	
M9PFNA	405101.1	3.629233	512,846.00	3.62125	79	50 - 150	0.0080	+/-0.50	
MPFDoA	314250.3	4.07265	450,031.00	4.064667	70	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	79792.44	3.937517	122,552.00	3.937517	65	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	94518.84	3.85765	135,935.00	3.85765	70	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B344574-BS1)			Lab File ID: B344574-BS1.d			Analyzed: 06/30/23 13:35			
M8FOSA	178645.1	3.964583	220,650.00	3.964583	81	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	32877.82	2.51325	31,950.00	2.505033	103	50 - 150	0.0082	+/-0.50	
M2PFTA	421831.9	4.313416	513,432.00	4.313416	82	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	47746.01	3.778883	49,893.00	3.778883	96	50 - 150	0.0000	+/-0.50	
MPFBA	260868.8	1.050167	271,664.00	1.050167	96	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	154633.6	2.847483	137,474.00	2.8393	112	50 - 150	0.0082	+/-0.50	
M6PFDA	496118.3	3.779417	536,748.00	3.779417	92	50 - 150	0.0000	+/-0.50	
M3PFBS	121146.6	1.90325	110,268.00	1.894967	110	50 - 150	0.0083	+/-0.50	
M7PFUnA	462396	3.93005	494,958.00	3.93005	93	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	37785.32	3.4205	32,993.00	3.4205	115	50 - 150	0.0000	+/-0.50	
M5PFPeA	293869.4	1.7231	315,157.00	1.714833	93	50 - 150	0.0083	+/-0.50	
M5PFHxA	514712.6	2.605183	531,003.00	2.588767	97	50 - 150	0.0164	+/-0.50	
M3PFHxS	71768.84	3.193817	69,708.00	3.193817	103	50 - 150	0.0000	+/-0.50	
M4PFHpA	513871.7	3.1627	529,559.00	3.1627	97	50 - 150	0.0000	+/-0.50	
M8PFOA	580506.2	3.437833	552,603.00	3.42985	105	50 - 150	0.0080	+/-0.50	
M8PFOS	68637.63	3.620217	73,446.00	3.620217	93	50 - 150	0.0000	+/-0.50	
M9PFNA	504858.8	3.629233	512,846.00	3.62125	98	50 - 150	0.0080	+/-0.50	
MPFDoA	378656.8	4.072667	450,031.00	4.064667	84	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	95329.46	3.937517	122,552.00	3.937517	78	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	116703.7	3.85765	135,935.00	3.85765	86	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B344574-MS1) Lab File ID: B344574-MS1.d Analyzed: 06/30/23 15:23									
M8FOSA	132623.9	3.964583	220,650.00	3.964583	60	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	61244.15	2.51325	31,950.00	2.51325	192	50 - 150	0.0000	+/-0.50	*
M2PFTA	227673.2	4.313416	513,432.00	4.313416	44	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	65515.31	3.778883	49,893.00	3.778883	131	50 - 150	0.0000	+/-0.50	
MPFBA	151089.1	1.050167	271,664.00	1.050167	56	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	113821.9	2.847483	137,474.00	2.8393	83	50 - 150	0.0082	+/-0.50	
M6PFDA	459657.7	3.779417	536,748.00	3.779417	86	50 - 150	0.0000	+/-0.50	
M3PFBS	113777.6	1.90325	110,268.00	1.894967	103	50 - 150	0.0083	+/-0.50	
M7PFUnA	430934.4	3.93005	494,958.00	3.93005	87	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	73057.62	3.4205	32,993.00	3.4205	221	50 - 150	0.0000	+/-0.50	*
M5PFPeA	276323.3	1.7231	315,157.00	1.7231	88	50 - 150	0.0000	+/-0.50	
M5PFHxA	505342.6	2.605183	531,003.00	2.596983	95	50 - 150	0.0082	+/-0.50	
M3PFHxS	70180.19	3.193817	69,708.00	3.193817	101	50 - 150	0.0000	+/-0.50	
M4PFHpA	523548.5	3.1627	529,559.00	3.1627	99	50 - 150	0.0000	+/-0.50	
M8PFOA	541457.4	3.437833	552,603.00	3.437833	98	50 - 150	0.0000	+/-0.50	
M8PFOS	66069.01	3.620217	73,446.00	3.620217	90	50 - 150	0.0000	+/-0.50	
M9PFNA	500809.8	3.62125	512,846.00	3.629233	98	50 - 150	-0.0080	+/-0.50	
MPFDoA	311682.3	4.072667	450,031.00	4.07265	69	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	92200.44	3.937517	122,552.00	3.937517	75	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	106564.9	3.85765	135,935.00	3.85765	78	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B344574-MSD1)			Lab File ID: B344574-MSD1.d			Analyzed: 06/30/23 15:30			
M8FOSA	140635.9	3.964583	220,650.00	3.964583	64	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	77126.38	2.505033	31,950.00	2.51325	241	50 - 150	-0.0082	+/-0.50	*
M2PFTA	195041.5	4.313416	513,432.00	4.313416	38	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	70189.7	3.778883	49,893.00	3.778883	141	50 - 150	0.0000	+/-0.50	
MPFBA	138540.2	1.050167	271,664.00	1.050167	51	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	121381.8	2.8393	137,474.00	2.8393	88	50 - 150	0.0000	+/-0.50	
M6PFDA	430390.1	3.779417	536,748.00	3.779417	80	50 - 150	0.0000	+/-0.50	
M3PFBS	106911.5	1.894967	110,268.00	1.894967	97	50 - 150	0.0000	+/-0.50	
M7PFUnA	425763.6	3.93005	494,958.00	3.93005	86	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	82373.07	3.4205	32,993.00	3.4205	250	50 - 150	0.0000	+/-0.50	*
M5PFPeA	254714.9	1.7231	315,157.00	1.7231	81	50 - 150	0.0000	+/-0.50	
M5PFHxA	459222.4	2.596983	531,003.00	2.596983	86	50 - 150	0.0000	+/-0.50	
M3PFHxS	62967.7	3.193817	69,708.00	3.193817	90	50 - 150	0.0000	+/-0.50	
M4PFHpA	468712.3	3.1627	529,559.00	3.1627	89	50 - 150	0.0000	+/-0.50	
M8PFOA	514335.6	3.437833	552,603.00	3.437833	93	50 - 150	0.0000	+/-0.50	
M8PFOS	65531.95	3.620217	73,446.00	3.620217	89	50 - 150	0.0000	+/-0.50	
M9PFNA	461821.9	3.62125	512,846.00	3.629233	90	50 - 150	-0.0080	+/-0.50	
MPFDoA	330038.2	4.064667	450,031.00	4.07265	73	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	95359.03	3.937517	122,552.00	3.937517	78	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	114642.3	3.85765	135,935.00	3.85765	84	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B345629-BLK1)			Lab File ID: B345629-BLK1.d			Analyzed: 07/14/23 10:03			
M8FOSA	154668.1	3.972583	190,946.00	3.972583	81	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	23649.66	2.496817	29,162.00	2.496817	81	50 - 150	0.0000	+/-0.50	
M2PFTA	303383	4.329683	449,045.00	4.329683	68	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	49514.59	3.794817	54,120.00	3.78685	91	50 - 150	0.0080	+/-0.50	
MPFBA	190299.2	1.050167	254,405.00	1.050167	75	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	93177.64	2.831117	83,460.00	2.8393	112	50 - 150	-0.0082	+/-0.50	
M6PFDA	390081.7	3.79535	477,655.00	3.79535	82	50 - 150	0.0000	+/-0.50	
M3PFBS	88170.61	1.878383	113,386.00	1.878383	78	50 - 150	0.0000	+/-0.50	
M7PFUnA	341375.7	3.946033	443,707.00	3.938033	77	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	27038.25	3.4373	34,696.00	3.4293	78	50 - 150	0.0080	+/-0.50	
M5PFPeA	192311.5	1.706567	254,247.00	1.706567	76	50 - 150	0.0000	+/-0.50	
M5PFHxA	333272.6	2.58055	430,078.00	2.588767	77	50 - 150	-0.0082	+/-0.50	
M3PFHxS	52178.83	3.201883	68,427.00	3.201883	76	50 - 150	0.0000	+/-0.50	
M4PFHpA	339037.3	3.170783	435,510.00	3.1627	78	50 - 150	0.0081	+/-0.50	
M8PFOA	370545.7	3.445833	480,570.00	3.445833	77	50 - 150	0.0000	+/-0.50	
M8PFOS	53231.62	3.636183	70,794.00	3.636183	75	50 - 150	0.0000	+/-0.50	
M9PFNA	351926.6	3.637217	438,001.00	3.637217	80	50 - 150	0.0000	+/-0.50	
MPFDoA	280838.4	4.08065	394,842.00	4.08065	71	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	78961.89	3.9535	109,524.00	3.9535	72	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	86940.64	3.873767	116,491.00	3.873767	75	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B345629-BS1)		Lab File ID: B345629-BS1.d				Analyzed: 07/14/23 09:56			
M8FOSA	158114.1	3.980567	190,946.00	3.972583	83	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	26578.67	2.496817	29,162.00	2.496817	91	50 - 150	0.0000	+/-0.50	
M2PFTA	346528.3	4.329683	449,045.00	4.329683	77	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	53984.29	3.794833	54,120.00	3.78685	100	50 - 150	0.0080	+/-0.50	
MPFBA	196881.8	1.058467	254,405.00	1.050167	77	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	94647.25	2.8393	83,460.00	2.8393	113	50 - 150	0.0000	+/-0.50	
M6PFDA	406887.8	3.79535	477,655.00	3.79535	85	50 - 150	0.0000	+/-0.50	
M3PFBS	97451.52	1.886667	113,386.00	1.878383	86	50 - 150	0.0083	+/-0.50	
M7PFUnA	379762.4	3.946033	443,707.00	3.938033	86	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	30095.94	3.4373	34,696.00	3.4293	87	50 - 150	0.0080	+/-0.50	
M5PFPeA	196876.8	1.714833	254,247.00	1.706567	77	50 - 150	0.0083	+/-0.50	
M5PFHxA	349177.3	2.588767	430,078.00	2.588767	81	50 - 150	0.0000	+/-0.50	
M3PFHxS	58563.98	3.21025	68,427.00	3.201883	86	50 - 150	0.0084	+/-0.50	
M4PFHpA	352623	3.170783	435,510.00	3.1627	81	50 - 150	0.0081	+/-0.50	
M8PFOA	395762.3	3.453817	480,570.00	3.445833	82	50 - 150	0.0080	+/-0.50	
M8PFOS	60208.36	3.644167	70,794.00	3.636183	85	50 - 150	0.0080	+/-0.50	
M9PFNA	381396.7	3.6452	438,001.00	3.637217	87	50 - 150	0.0080	+/-0.50	
MPFDoA	317010.3	4.08865	394,842.00	4.08065	80	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	93656.73	3.9535	109,524.00	3.9535	86	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	96651.32	3.873767	116,491.00	3.873767	83	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B345629-MS1)			Lab File ID: B345629-MS1.d			Analyzed: 07/14/23 10:11			
M8FOSA	134793.2	3.988567	190,946.00	3.972583	71	50 - 150	0.0160	+/-0.50	
M2-4:2FTS	18031.43	2.52145	29,162.00	2.496817	62	50 - 150	0.0246	+/-0.50	
M2PFTA	311341.9	4.329683	449,045.00	4.329683	69	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	42947.25	3.8028	54,120.00	3.78685	79	50 - 150	0.0160	+/-0.50	
MPFBA	136894.4	1.058467	254,405.00	1.050167	54	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	62886.72	2.855667	83,460.00	2.8393	75	50 - 150	0.0164	+/-0.50	
M6PFDA	325430.6	3.803317	477,655.00	3.79535	68	50 - 150	0.0080	+/-0.50	
M3PFBS	63903.05	1.90325	113,386.00	1.878383	56	50 - 150	0.0249	+/-0.50	
M7PFUnA	317661	3.954033	443,707.00	3.938033	72	50 - 150	0.0160	+/-0.50	
M2-6:2FTS	23363.69	3.445283	34,696.00	3.4293	67	50 - 150	0.0160	+/-0.50	
M5PFPeA	140001.7	1.7231	254,247.00	1.706567	55	50 - 150	0.0165	+/-0.50	
M5PFHxA	239716.6	2.6134	430,078.00	2.588767	56	50 - 150	0.0246	+/-0.50	
M3PFHxS	39201.18	3.218333	68,427.00	3.201883	57	50 - 150	0.0164	+/-0.50	
M4PFHpA	247068.4	3.186933	435,510.00	3.1627	57	50 - 150	0.0242	+/-0.50	
M8PFOA	276566.8	3.461933	480,570.00	3.445833	58	50 - 150	0.0161	+/-0.50	
M8PFOS	40604.23	3.644167	70,794.00	3.636183	57	50 - 150	0.0080	+/-0.50	
M9PFNA	271208.3	3.6452	438,001.00	3.637217	62	50 - 150	0.0080	+/-0.50	
MPFDoA	307875.2	4.08865	394,842.00	4.08065	78	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	76259.52	3.9615	109,524.00	3.9535	70	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	80054.31	3.88175	116,491.00	3.873767	69	50 - 150	0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B345629-MSD1)			Lab File ID: B345629-MSD1.d			Analyzed: 07/14/23 10:18			
M8FOSA	151186.7	3.988567	190,946.00	3.972583	79	50 - 150	0.0160	+/-0.50	
M2-4:2FTS	28005.33	2.52145	29,162.00	2.496817	96	50 - 150	0.0246	+/-0.50	
M2PFTA	411206	4.329683	449,045.00	4.329683	92	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	62687.77	3.8028	54,120.00	3.78685	116	50 - 150	0.0160	+/-0.50	
MPFBA	206702	1.058467	254,405.00	1.050167	81	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	95327.49	2.855667	83,460.00	2.8393	114	50 - 150	0.0164	+/-0.50	
M6PFDA	425676.9	3.803317	477,655.00	3.79535	89	50 - 150	0.0080	+/-0.50	
M3PFBS	99874.57	1.894967	113,386.00	1.878383	88	50 - 150	0.0166	+/-0.50	
M7PFUnA	377764.8	3.954033	443,707.00	3.938033	85	50 - 150	0.0160	+/-0.50	
M2-6:2FTS	33788.17	3.445283	34,696.00	3.4293	97	50 - 150	0.0160	+/-0.50	
M5PFPeA	214512.8	1.7231	254,247.00	1.706567	84	50 - 150	0.0165	+/-0.50	
M5PFHxA	380546.4	2.605183	430,078.00	2.588767	88	50 - 150	0.0164	+/-0.50	
M3PFHxS	58111.37	3.218333	68,427.00	3.201883	85	50 - 150	0.0164	+/-0.50	
M4PFHpA	387511.1	3.178867	435,510.00	3.1627	89	50 - 150	0.0162	+/-0.50	
M8PFOA	415583.1	3.461933	480,570.00	3.445833	86	50 - 150	0.0161	+/-0.50	
M8PFOS	60957.78	3.644167	70,794.00	3.636183	86	50 - 150	0.0080	+/-0.50	
M9PFNA	392536.8	3.6452	438,001.00	3.637217	90	50 - 150	0.0080	+/-0.50	
MPFDoA	360491.5	4.08865	394,842.00	4.08065	91	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	98416.91	3.9535	109,524.00	3.9535	90	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	109748.3	3.88175	116,491.00	3.873767	94	50 - 150	0.0080	+/-0.50	

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorobutanoic acid (PFBA)	NH-P,PA
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA
Perfluorohexanoic acid (PFHxA)	NH-P,PA
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA
Perfluorododecanoic acid (PFDoA)	NH-P,PA
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanedisulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA
Perfluorooctanoic acid (PFOA)	NH-P,PA
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA
Perfluorononanoic acid (PFNA)	NH-P,PA
<i>SOP-466 PFAS in Soil</i>	
Perfluorobutanoic acid (PFBA)	NH-P,PA
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA
Perfluorohexanoic acid (PFHxA)	NH-P,PA
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA
Perfluorododecanoic acid (PFDoA)	NH-P,PA

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-466 PFAS in Soil</i>	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanesulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA
Perfluorooctanoic acid (PFOA)	NH-P,PA
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA
Perfluorononanoic acid (PFNA)	NH-P,PA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024

23F3413 KAF



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

Barnstable County
3195 Main St. PO Box 427

Project Name: BFTA
Project Location: Barnstable, MA
Project Number: 6206
Project Manager: Roger Thibault

Con-Test Quote Name/Number:
Invoice Recipient: Priscilla Ellis - pellis@barnstablecounty.org
Sampled By: C. Oien & R. Thibault

Doc # 381 Rev 2_06/26/2019

39 Spruce Street
East Longmeadow, MA 01028

CHAIN OF CUSTODY RECORD

ANALYSIS REQUESTED

Requested Turnaround Time
7-Day ☐ 10-Day ☐
PFAS 15-Day (std) ☒ Due Date:
RUSH-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐
Data Delivery
Format: PDF ☒ EXCEL ☒
Other: ☐
CLP Like Data Pkg Required: ☐
Email To: ☐
Fax To #:

Disposal Method
Field Filtered ☐
Lab to Filter ☐
Orthophosphate Samples
Field Filtered ☐
Lab to Filter ☐
PCB ONLY
SOXHLET ☐
NON SOXHLET ☐

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
1	MDP-101	6/21/23	11:00	Grab	OK	U						X
2	MDP-102	6/21/23	11:45			U						X
3	MDP-103	6/21/23	11:30			U						X
4	MDP-104	6/21/23	11:45			U						X
5	MDP-105	6/21/23	12:00			U						X
6	MDP-106	6/21/23	13:00			U						X
7	MDP-107	6/21/23	13:15			U						X
8	MDP-108	6/21/23	13:30			U						X
9	MDP-109	6/21/23	13:45			U						X
10	MDP-110	6/21/23	14:00			U						X

Client Comments:

Date/Time: 6/22/23 12:00
Relinquished by: (signature) *Wanda Key*

Date/Time: 6/23 12:00
Relinquished by: (signature) *BETA Fridge*

Date/Time: 6/26 9:15
Relinquished by: (signature) *A. H...*

Date/Time: 6/26 09:15
Relinquished by: (signature) *De...*

Date/Time: 6/26 13:00
Relinquished by: (signature) *De...*

Date/Time: 6/26 13:00
Relinquished by: (signature) *De...*

Date/Time: 6/26 13:00
Relinquished by: (signature) *De...*

Date/Time: 6/26 13:00
Relinquished by: (signature) *De...*

Date/Time: 6/26 13:00
Relinquished by: (signature) *De...*

Date/Time: 6/26 13:00
Relinquished by: (signature) *De...*

Date/Time: 6/26 13:00
Relinquished by: (signature) *De...*

Date/Time: 6/26 13:00
Relinquished by: (signature) *De...*

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

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

Project Entity
Government ☐
Federal ☐
City ☐
Municipality ☐
21 J ☐
Brownfield ☐
MWRA ☐
School ☐
MBTA ☐
WRTA ☐
Other ☐
Chromatogram ☐
AIHA-LAP, LLC ☐

Preservation Code
Counter Use Only
Total Number Of:
VIALS
GLASS
PLASTIC
BACTERIA
ENCORE
Glassware in the fridge? ☒ Y ☐ N
Glassware in freezer? ☒ Y ☐ N
Prepackaged Coolers ☒ 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)

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

ANALYSIS REQUESTED

[illegible]

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

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.pacelabs.com

ENV-FRM-ELON-0001 V05__Sample Receiving Checklist

Log In Back-Sheet

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



Client Barnstable County
Project Barnstable Fire Training Academy
MCP/RCP Required MA MCP
Deliverable Package Requirement S-1/GW-1
Location Barnstable, MA
PWSID# (When Applicable) no
Arrival Method:
Courier ☒ Fed Ex ☐ Walk In ☐ Other ☐
Received By / Date / Time JA 6/26/23 1300
Back-Sheet By / Date / Time Mem 6/26/23 2140
Temperature Method Gun # 5
Temp ☒ < 6° C Actual Temperature 2.3
Rush Samples: Yes / No Notify No
Short Hold: Yes / No Notify No

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☒	☐
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☒	IDs ☒	Collection Date/Time ☒

All Samples Proper pH:

N/A

☐

☐

Notes regarding Samples/COC outside of SOP:

* Two Equipment blanks not on
COC, added to end of WO

Additional Container Notes

Sample	Soils Jars (Circle Amb/Clear)				Ambers				Plastics						VOA Vials					Other / Fill in						
	16oz Amb/Clear	8oz Amb/Clear	4oz Amb/Clear	2oz Amb/Clear	1 Liter		250mL		100mL	1 Liter		500mL	250mL				Unpreserved	HCl	MeOH	D.I. Water	BiSulfate	Col/Bact	Other / Fill in			
					Unpreserved	HCL	Sulfuric	Sulfuric	Phosphoric	HCl	Unpreserved	Sulfuric	Unpreserved	Sulfuric	Trizma	Sulfuric								Nitric	NaOH	NaOH/Zinc
1																										
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										
13																										
14																										
15																										
16																										
17																										
18																										
19																										
20																										

2
2
1
2

Other plastic

April 10, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: Barnstable, MA
Client Job Number:
Project Number: 6206.02
Laboratory Work Order Number: 23C3651

Enclosed are results of analyses for samples as received by the laboratory on March 31, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 4/10/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206.02

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23C3651

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

PROJECT LOCATION: Barnstable, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
UP-101	23C3651-01	Soil		SM 2540G SOP-466 PFAS	
UP-102	23C3651-02	Soil		SM 2540G SOP-466 PFAS	
UP-103	23C3651-03	Soil		SM 2540G SOP-466 PFAS	
UP-104	23C3651-04	Soil		SM 2540G SOP-466 PFAS	

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.

SOP-466 PFAS**Qualifications:**

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:**M2-4:2FTS**

23C3651-01[UP-101]

M2-6:2FTS

23C3651-01[UP-101], 23C3651-02[UP-102], 23C3651-03[UP-103]

M2-8:2FTS

23C3651-01[UP-101], 23C3651-02[UP-102], 23C3651-03[UP-103], 23C3651-04[UP-104]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23C3651

Date Received: 3/31/2023

Sampled: 3/29/2023 13:00

Field Sample #: UP-101

Sample ID: 23C3651-01

Sample Matrix: Soil

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	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorobutanesulfonic acid (PFBS)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluoropentanoic acid (PFPeA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorohexanoic acid (PFHxA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
11Cl-PF3OUdS (F53B Major)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
9Cl-PF3ONS (F53B Minor)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorodecanoic acid (PFDA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorododecanoic acid (PFDoA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
N-EtFOSAA (NEtFOSAA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
N-MeFOSAA (NMeFOSAA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorotetradecanoic acid (PFTA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorotridecanoic acid (PFTrDA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorodecanesulfonic acid (PFDS)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorooctanesulfonamide (FOSA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorononanesulfonic acid (PFNS)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluoro-1-butanesulfonamide (FBSA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorohexanesulfonic acid (PFHxS)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluoropentanesulfonic acid (PFPeS)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluoroundecanoic acid (PFUnA)	5.5	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluoroheptanoic acid (PFHpA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorooctanoic acid (PFOA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorooctanesulfonic acid (PFOS)	27	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2
Perfluorononanoic acid (PFNA)	ND	2.9	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:37	JR2

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23C3651

Date Received: 3/31/2023

Field Sample #: UP-101

Sampled: 3/29/2023 13:00

Sample ID: 23C3651-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	15.1		% Wt	1		SM 2540G	4/1/23	4/1/23 6:38	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23C3651

Date Received: 3/31/2023

Sampled: 3/29/2023 13:30

Field Sample #: UP-102

Sample ID: 23C3651-02

Sample Matrix: Soil

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	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorobutanesulfonic acid (PFBS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluoropentanoic acid (PFPeA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorohexanoic acid (PFHxA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
11Cl-PF3OUdS (F53B Major)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
9Cl-PF3ONS (F53B Minor)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorodecanoic acid (PFDA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorododecanoic acid (PFDoA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
N-EtFOSAA (NEtFOSAA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
N-MeFOSAA (NMeFOSAA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorotetradecanoic acid (PFTA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorotridecanoic acid (PFTrDA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorodecanesulfonic acid (PFDS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorooctanesulfonamide (FOSA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorononanesulfonic acid (PFNS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorohexanesulfonic acid (PFHxS)	1.2	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluoropentanesulfonic acid (PFPeS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluoroundecanoic acid (PFUnA)	1.1	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluoroheptanoic acid (PFHpA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorooctanoic acid (PFOA)	1.5	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorooctanesulfonic acid (PFOS)	19	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2
Perfluorononanoic acid (PFNA)	1.8	1.1	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:45	JR2

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23C3651

Date Received: 3/31/2023

Field Sample #: UP-102

Sampled: 3/29/2023 13:30

Sample ID: 23C3651-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	38.8		% Wt	1		SM 2540G	4/1/23	4/1/23 6:38	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23C3651

Date Received: 3/31/2023

Sampled: 3/29/2023 13:15

Field Sample #: UP-103

Sample ID: 23C3651-03

Sample Matrix: Soil

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	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorobutanesulfonic acid (PFBS)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluoropentanoic acid (PFPeA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorohexanoic acid (PFHxA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
11Cl-PF3OUdS (F53B Major)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
9Cl-PF3ONS (F53B Minor)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorodecanoic acid (PFDA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorododecanoic acid (PFDoA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
N-EtFOSAA (NEtFOSAA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
N-MeFOSAA (NMeFOSAA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorotetradecanoic acid (PFTA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorotridecanoic acid (PFTrDA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorodecanesulfonic acid (PFDS)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorooctanesulfonamide (FOSA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorononanesulfonic acid (PFNS)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluoro-1-butanefulfonamide (FBFA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorohexanesulfonic acid (PFHxS)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluoropentanesulfonic acid (PFPeS)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluoroundecanoic acid (PFUnA)	2.9	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluoroheptanoic acid (PFHpA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorooctanoic acid (PFOA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorooctanesulfonic acid (PFOS)	21	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2
Perfluorononanoic acid (PFNA)	ND	2.6	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:52	JR2

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23C3651

Date Received: 3/31/2023

Field Sample #: UP-103

Sampled: 3/29/2023 13:15

Sample ID: 23C3651-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	16.6		% Wt	1		SM 2540G	4/1/23	4/1/23 6:38	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23C3651

Date Received: 3/31/2023

Field Sample #: UP-104

Sampled: 3/29/2023 13:45

Sample ID: 23C3651-04

Sample Matrix: Soil

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	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorobutanesulfonic acid (PFBS)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluoropentanoic acid (PFPeA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorohexanoic acid (PFHxA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
11Cl-PF3OUdS (F53B Major)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
9Cl-PF3ONS (F53B Minor)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorodecanoic acid (PFDA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorododecanoic acid (PFDoA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
N-EtFOSAA (NEtFOSAA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
N-MeFOSAA (NMeFOSAA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorotetradecanoic acid (PFTA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorotridecanoic acid (PFTrDA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorodecanesulfonic acid (PFDS)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorooctanesulfonamide (FOSA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorononanesulfonic acid (PFNS)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluoro-1-butanedisulfonamide (FBSA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorohexanesulfonic acid (PFHxS)	0.87	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluoropentanesulfonic acid (PFPeS)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluoroundecanoic acid (PFUnA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluoroheptanoic acid (PFHpA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorooctanoic acid (PFOA)	ND	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorooctanesulfonic acid (PFOS)	10	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2
Perfluorononanoic acid (PFNA)	0.86	0.79	µg/kg dry	1		SOP-466 PFAS	4/5/23	4/8/23 5:59	JR2

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23C3651

Date Received: 3/31/2023

Sampled: 3/29/2023 13:45

Field Sample #: UP-104

Sample ID: 23C3651-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	54.1		% Wt	1		SM 2540G	4/1/23	4/1/23 6:38	WDC

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method: % Solids Analytical Method: SM 2540G**

Lab Number [Field ID]	Batch	Date
23C3651-01 [UP-101]	B335853	04/01/23
23C3651-02 [UP-102]	B335853	04/01/23
23C3651-03 [UP-103]	B335853	04/01/23
23C3651-04 [UP-104]	B335853	04/01/23

Prep Method: SOP 465-PFAAS Analytical Method: SOP-466 PFAS

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23C3651-01 [UP-101]	B336063	5.60	5.00	04/05/23
23C3651-02 [UP-102]	B336063	5.81	5.00	04/05/23
23C3651-03 [UP-103]	B336063	5.74	5.00	04/05/23
23C3651-04 [UP-104]	B336063	5.80	5.00	04/05/23

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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 B336063 - SOP 465-PFAAS
Blank (B336063-BLK1)

Prepared: 04/05/23 Analyzed: 04/08/23

Perfluorobutanoic acid (PFBA)	ND	0.44	µg/kg wet
Perfluorobutanesulfonic acid (PFBS)	ND	0.44	µg/kg wet
Perfluoropentanoic acid (PFPeA)	ND	0.44	µg/kg wet
Perfluorohexanoic acid (PFHxA)	ND	0.44	µg/kg wet
11Cl-PF3OUdS (F53B Major)	ND	0.44	µg/kg wet
9Cl-PF3ONS (F53B Minor)	ND	0.44	µg/kg wet
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.44	µg/kg wet
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.44	µg/kg wet
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.44	µg/kg wet
Perfluorodecanoic acid (PFDA)	ND	0.44	µg/kg wet
Perfluorododecanoic acid (PFDoA)	ND	0.44	µg/kg wet
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.44	µg/kg wet
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.44	µg/kg wet
N-EtFOSAA (NEtFOSAA)	ND	0.44	µg/kg wet
N-MeFOSAA (NMeFOSAA)	ND	0.44	µg/kg wet
Perfluorotetradecanoic acid (PFTA)	ND	0.44	µg/kg wet
Perfluorotridecanoic acid (PFTrDA)	ND	0.44	µg/kg wet
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.44	µg/kg wet
Perfluorodecanesulfonic acid (PFDS)	ND	0.44	µg/kg wet
Perfluorooctanesulfonamide (FOSA)	ND	0.44	µg/kg wet
Perfluorononanesulfonic acid (PFNS)	ND	0.44	µg/kg wet
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.44	µg/kg wet
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.44	µg/kg wet
Perfluorohexanesulfonic acid (PFHxS)	ND	0.44	µg/kg wet
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.44	µg/kg wet
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.44	µg/kg wet
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.44	µg/kg wet
Perfluoropentanesulfonic acid (PFPeS)	ND	0.44	µg/kg wet
Perfluoroundecanoic acid (PFUnA)	ND	0.44	µg/kg wet
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.44	µg/kg wet
Perfluoroheptanoic acid (PFHpA)	ND	0.44	µg/kg wet
Perfluorooctanoic acid (PFOA)	ND	0.44	µg/kg wet
Perfluorooctanesulfonic acid (PFOS)	ND	0.44	µg/kg wet
Perfluorononanoic acid (PFNA)	ND	0.44	µg/kg wet

LCS (B336063-BS1)

Prepared: 04/05/23 Analyzed: 04/08/23

Perfluorobutanoic acid (PFBA)	2.25	0.44	µg/kg wet	2.23	101	71-135
Perfluorobutanesulfonic acid (PFBS)	2.01	0.44	µg/kg wet	1.97	102	72-128
Perfluoropentanoic acid (PFPeA)	2.26	0.44	µg/kg wet	2.23	102	69-132
Perfluorohexanoic acid (PFHxA)	2.24	0.44	µg/kg wet	2.23	101	70-132
11Cl-PF3OUdS (F53B Major)	1.76	0.44	µg/kg wet	2.10	84.0	41.8-128
9Cl-PF3ONS (F53B Minor)	1.81	0.44	µg/kg wet	2.07	87.2	51.1-141
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.94	0.44	µg/kg wet	2.10	92.4	55.2-122
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.46	0.44	µg/kg wet	2.23	65.4	27.6-137
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.18	0.44	µg/kg wet	2.14	102	65-137
Perfluorodecanoic acid (PFDA)	2.37	0.44	µg/kg wet	2.23	107	69-133
Perfluorododecanoic acid (PFDoA)	2.29	0.44	µg/kg wet	2.23	103	69-135
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	1.87	0.44	µg/kg wet	1.98	94.3	56.7-133

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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 B336063 - SOP 465-PFAAS										
LCS (B336063-BS1)										
					Prepared: 04/05/23 Analyzed: 04/08/23					
Perfluoroheptanesulfonic acid (PFHpS)	1.95	0.44	µg/kg wet	2.13		91.7	70-132			
N-EtFOSAA (NEtFOSAA)	2.21	0.44	µg/kg wet	2.23		99.4	61-139			
N-MeFOSAA (NMeFOSAA)	2.57	0.44	µg/kg wet	2.23		115	63-144			
Perfluorotetradecanoic acid (PFTA)	2.16	0.44	µg/kg wet	2.23		97.2	69-133			
Perfluorotridecanoic acid (PFTDA)	2.33	0.44	µg/kg wet	2.23		105	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	2.06	0.44	µg/kg wet	2.08		98.9	62-145			
Perfluorodecanesulfonic acid (PFDS)	2.02	0.44	µg/kg wet	2.15		94.3	59-134			
Perfluorooctanesulfonamide (FOSA)	2.42	0.44	µg/kg wet	2.23		109	67-137			
Perfluorononanesulfonic acid (PFNS)	2.15	0.44	µg/kg wet	2.14		100	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	1.86	0.44	µg/kg wet	2.23		83.4	51.4-142			
Perfluoro-1-butanefulfonamide (FBSA)	1.92	0.44	µg/kg wet	2.23		86.3	53.5-129			
Perfluorohexanesulfonic acid (PFHxS)	2.01	0.44	µg/kg wet	2.04		98.5	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	2.25	0.44	µg/kg wet	2.23		101	57.8-127			
Perfluoro-5-oxahexanoic acid (PFMBA)	2.14	0.44	µg/kg wet	2.23		95.9	56.5-132			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1.92	0.44	µg/kg wet	2.11		91.0	64-140			
Perfluoropentanesulfonic acid (PFPeS)	1.98	0.44	µg/kg wet	2.09		94.4	73-123			
Perfluoroundecanoic acid (PFUnA)	2.32	0.44	µg/kg wet	2.23		104	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.08	0.44	µg/kg wet	2.23		93.4	54.5-128			
Perfluoroheptanoic acid (PFHpA)	2.40	0.44	µg/kg wet	2.23		108	71-131			
Perfluorooctanoic acid (PFOA)	2.28	0.44	µg/kg wet	2.23		102	69-133			
Perfluorooctanesulfonic acid (PFOS)	1.97	0.44	µg/kg wet	2.06		95.7	68-136			
Perfluorononanoic acid (PFNA)	2.10	0.44	µg/kg wet	2.23		94.2	72-129			

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.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
UP-101 (23C3651-01) Lab File ID: 23C3651-01.d Analyzed: 04/08/23 05:37									
M8FOSA	231165.8	3.99655	268,218.00	3.99655	86	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	117730.4	2.52145	70,604.00	2.52145	167	50 - 150	0.0000	+/-0.50	*
M2PFTA	335118.9	4.29725	509,875.00	4.297266	66	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	168472.6	3.778883	43,132.00	3.778883	391	50 - 150	0.0000	+/-0.50	*
MPFBA	235244.7	1.066783	290,328.00	1.058467	81	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	107511.1	2.847483	95,416.00	2.855667	113	50 - 150	-0.0082	+/-0.50	
M6PFDA	406738.3	3.771433	416,071.00	3.7794	98	50 - 150	-0.0080	+/-0.50	
M3PFBS	115384.7	1.911533	117,612.00	1.911533	98	50 - 150	0.0000	+/-0.50	
M7PFUnA	407045.9	3.92205	426,970.00	3.92205	95	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	136962.9	3.4205	39,901.00	3.4293	343	50 - 150	-0.0088	+/-0.50	*
M5PFPeA	249581.4	1.731383	284,204.00	1.731383	88	50 - 150	0.0000	+/-0.50	
M5PFHxA	372365.5	2.605183	404,804.00	2.6134	92	50 - 150	-0.0082	+/-0.50	
M3PFHxS	84141.88	3.201883	75,692.00	3.201883	111	50 - 150	0.0000	+/-0.50	
M4PFHpA	381416.5	3.170783	421,998.00	3.170783	90	50 - 150	0.0000	+/-0.50	
M8PFOA	407764.4	3.437833	471,571.00	3.437833	86	50 - 150	0.0000	+/-0.50	
M8PFOS	81257.85	3.6202	85,233.00	3.6202	95	50 - 150	0.0000	+/-0.50	
M9PFNA	423867.8	3.62125	458,139.00	3.62125	93	50 - 150	0.0000	+/-0.50	
MPFDoA	318083.5	4.056667	401,533.00	4.056667	79	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	181147	3.929517	152,760.00	3.929517	119	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	197735.4	3.849683	176,601.00	3.849683	112	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
UP-102 (23C3651-02)		Lab File ID: 23C3651-02.d				Analyzed: 04/08/23 05:45			
M8FOSA	196237	3.98855	268,218.00	3.99655	73	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	75395.66	2.513233	70,604.00	2.52145	107	50 - 150	-0.0082	+/-0.50	
M2PFTA	327191.8	4.289183	509,875.00	4.297266	64	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	127189.9	3.770917	43,132.00	3.778883	295	50 - 150	-0.0080	+/-0.50	*
MPFBA	213626.1	1.066783	290,328.00	1.058467	74	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	94285.83	2.847483	95,416.00	2.855667	99	50 - 150	-0.0082	+/-0.50	
M6PFDA	346530.6	3.771433	416,071.00	3.7794	83	50 - 150	-0.0080	+/-0.50	
M3PFBS	96949.02	1.911533	117,612.00	1.911533	82	50 - 150	0.0000	+/-0.50	
M7PFUnA	379877.2	3.91405	426,970.00	3.92205	89	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	89362.25	3.4205	39,901.00	3.4293	224	50 - 150	-0.0088	+/-0.50	*
M5PFPeA	218523.8	1.731383	284,204.00	1.731383	77	50 - 150	0.0000	+/-0.50	
M5PFHxA	320844.8	2.605183	404,804.00	2.6134	79	50 - 150	-0.0082	+/-0.50	
M3PFHxS	66733.05	3.201883	75,692.00	3.201883	88	50 - 150	0.0000	+/-0.50	
M4PFHpA	323982.8	3.170783	421,998.00	3.170783	77	50 - 150	0.0000	+/-0.50	
M8PFOA	346532.5	3.437833	471,571.00	3.437833	73	50 - 150	0.0000	+/-0.50	
M8PFOS	68304.41	3.6202	85,233.00	3.6202	80	50 - 150	0.0000	+/-0.50	
M9PFNA	348837.9	3.62125	458,139.00	3.62125	76	50 - 150	0.0000	+/-0.50	
MPFDoA	333651.2	4.056667	401,533.00	4.056667	83	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	153249.3	3.921517	152,760.00	3.929517	100	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	155728	3.849683	176,601.00	3.849683	88	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
UP-103 (23C3651-03)		Lab File ID: 23C3651-03.d				Analyzed: 04/08/23 05:52			
M8FOSA	195890.5	3.98855	268,218.00	3.99655	73	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	88974.61	2.513233	70,604.00	2.52145	126	50 - 150	-0.0082	+/-0.50	
M2PFTA	336258.6	4.289183	509,875.00	4.297266	66	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	119715.8	3.770917	43,132.00	3.778883	278	50 - 150	-0.0080	+/-0.50	*
MPFBA	189826.8	1.058467	290,328.00	1.058467	65	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	88896.22	2.847483	95,416.00	2.855667	93	50 - 150	-0.0082	+/-0.50	
M6PFDA	312640.8	3.771433	416,071.00	3.7794	75	50 - 150	-0.0080	+/-0.50	
M3PFBS	91061.55	1.90325	117,612.00	1.911533	77	50 - 150	-0.0083	+/-0.50	
M7PFUnA	334755.3	3.91405	426,970.00	3.92205	78	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	93001.48	3.4205	39,901.00	3.4293	233	50 - 150	-0.0088	+/-0.50	*
M5PFPeA	199054.3	1.731383	284,204.00	1.731383	70	50 - 150	0.0000	+/-0.50	
M5PFHxA	296252.2	2.605183	404,804.00	2.6134	73	50 - 150	-0.0082	+/-0.50	
M3PFHxS	59713.85	3.1938	75,692.00	3.201883	79	50 - 150	-0.0081	+/-0.50	
M4PFHpA	288291.3	3.1627	421,998.00	3.170783	68	50 - 150	-0.0081	+/-0.50	
M8PFOA	320312.9	3.437833	471,571.00	3.437833	68	50 - 150	0.0000	+/-0.50	
M8PFOS	61955.68	3.6202	85,233.00	3.6202	73	50 - 150	0.0000	+/-0.50	
M9PFNA	309790	3.62125	458,139.00	3.62125	68	50 - 150	0.0000	+/-0.50	
MPFDoA	267787.4	4.056667	401,533.00	4.056667	67	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	144784.9	3.921517	152,760.00	3.929517	95	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	172551.2	3.849683	176,601.00	3.849683	98	50 - 150	0.0000	+/-0.50	

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

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
UP-104 (23C3651-04)		Lab File ID: 23C3651-04.d				Analyzed: 04/08/23 05:59			
M8FOSA	252895.2	3.98855	268,218.00	3.99655	94	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	53527.6	2.52145	70,604.00	2.52145	76	50 - 150	0.0000	+/-0.50	
M2PFTA	428807.1	4.29725	509,875.00	4.297266	84	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	92909.57	3.770917	43,132.00	3.778883	215	50 - 150	-0.0080	+/-0.50	*
MPFBA	246386.6	1.058467	290,328.00	1.058467	85	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	104436.3	2.847483	95,416.00	2.855667	109	50 - 150	-0.0082	+/-0.50	
M6PFDA	415045.8	3.771433	416,071.00	3.7794	100	50 - 150	-0.0080	+/-0.50	
M3PFBS	105530.3	1.911533	117,612.00	1.911533	90	50 - 150	0.0000	+/-0.50	
M7PFUnA	430568	3.922033	426,970.00	3.92205	101	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	59451.2	3.4205	39,901.00	3.4293	149	50 - 150	-0.0088	+/-0.50	
M5PFPeA	237033.7	1.731383	284,204.00	1.731383	83	50 - 150	0.0000	+/-0.50	
M5PFHxA	355001.8	2.605183	404,804.00	2.6134	88	50 - 150	-0.0082	+/-0.50	
M3PFHxS	75326.48	3.201883	75,692.00	3.201883	100	50 - 150	0.0000	+/-0.50	
M4PFHpA	355879.3	3.170783	421,998.00	3.170783	84	50 - 150	0.0000	+/-0.50	
M8PFOA	403450.2	3.437833	471,571.00	3.437833	86	50 - 150	0.0000	+/-0.50	
M8PFOS	81406.14	3.6202	85,233.00	3.6202	96	50 - 150	0.0000	+/-0.50	
M9PFNA	408592.1	3.621233	458,139.00	3.62125	89	50 - 150	0.0000	+/-0.50	
MPFDoA	391728.4	4.056667	401,533.00	4.056667	98	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	161887.6	3.929517	152,760.00	3.929517	106	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	182225.1	3.849683	176,601.00	3.849683	103	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B336063-BLK1)			Lab File ID: B336063-BLK1.d			Analyzed: 04/08/23 04:54			
M8FOSA	284551.6	3.99655	268,218.00	3.99655	106	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	66192.12	2.529667	70,604.00	2.52145	94	50 - 150	0.0082	+/-0.50	
M2PFTA	480061.6	4.29725	509,875.00	4.297266	94	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	50954.51	3.778883	43,132.00	3.778883	118	50 - 150	0.0000	+/-0.50	
MPFBA	281676	1.058467	290,328.00	1.058467	97	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	131615.8	2.855667	95,416.00	2.855667	138	50 - 150	0.0000	+/-0.50	
M6PFDA	429852.2	3.7794	416,071.00	3.7794	103	50 - 150	0.0000	+/-0.50	
M3PFBS	117299.9	1.919817	117,612.00	1.911533	100	50 - 150	0.0083	+/-0.50	
M7PFUnA	445836.6	3.922033	426,970.00	3.92205	104	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	40282.2	3.4293	39,901.00	3.4293	101	50 - 150	0.0000	+/-0.50	
M5PFPeA	270288.8	1.741117	284,204.00	1.731383	95	50 - 150	0.0097	+/-0.50	
M5PFHxA	410802.1	2.6134	404,804.00	2.6134	101	50 - 150	0.0000	+/-0.50	
M3PFHxS	80631.3	3.201883	75,692.00	3.201883	107	50 - 150	0.0000	+/-0.50	
M4PFHpA	402995.6	3.170783	421,998.00	3.170783	95	50 - 150	0.0000	+/-0.50	
M8PFOA	462559.2	3.437833	471,571.00	3.437833	98	50 - 150	0.0000	+/-0.50	
M8PFOS	87780.77	3.6202	85,233.00	3.6202	103	50 - 150	0.0000	+/-0.50	
M9PFNA	428977.5	3.621233	458,139.00	3.62125	94	50 - 150	0.0000	+/-0.50	
MPFDoA	402969	4.056667	401,533.00	4.056667	100	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	136200	3.929517	152,760.00	3.929517	89	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	161491.8	3.849683	176,601.00	3.849683	91	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B336063-BS1)			Lab File ID: B336063-BS1.d			Analyzed: 04/08/23 04:46			
M8FOSA	293971.3	3.99655	268,218.00	3.99655	110	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	66183.13	2.52145	70,604.00	2.52145	94	50 - 150	0.0000	+/-0.50	
M2PFTA	507782.4	4.29725	509,875.00	4.297266	100	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	48711.91	3.778883	43,132.00	3.778883	113	50 - 150	0.0000	+/-0.50	
MPFBA	291179.2	1.058467	290,328.00	1.058467	100	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	125845.3	2.855667	95,416.00	2.855667	132	50 - 150	0.0000	+/-0.50	
M6PFDA	431123	3.7794	416,071.00	3.7794	104	50 - 150	0.0000	+/-0.50	
M3PFBS	120665.6	1.919817	117,612.00	1.911533	103	50 - 150	0.0083	+/-0.50	
M7PFUnA	466638.1	3.92205	426,970.00	3.92205	109	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	39640.08	3.4293	39,901.00	3.4293	99	50 - 150	0.0000	+/-0.50	
M5PFPeA	277421.5	1.741117	284,204.00	1.731383	98	50 - 150	0.0097	+/-0.50	
M5PFHxA	415347.9	2.6134	404,804.00	2.6134	103	50 - 150	0.0000	+/-0.50	
M3PFHxS	87581.91	3.201883	75,692.00	3.201883	116	50 - 150	0.0000	+/-0.50	
M4PFHpA	407840.1	3.170783	421,998.00	3.170783	97	50 - 150	0.0000	+/-0.50	
M8PFOA	461811.7	3.437833	471,571.00	3.437833	98	50 - 150	0.0000	+/-0.50	
M8PFOS	88195.64	3.6202	85,233.00	3.6202	103	50 - 150	0.0000	+/-0.50	
M9PFNA	485490	3.62125	458,139.00	3.62125	106	50 - 150	0.0000	+/-0.50	
MPFDoA	415065	4.056667	401,533.00	4.056667	103	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	144831.9	3.929517	152,760.00	3.929517	95	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	175403.5	3.849683	176,601.00	3.849683	99	50 - 150	0.0000	+/-0.50	

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CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-466 PFAS in Soil</i>	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Major)	NH-P
9Cl-PF3ONS (F53B Minor)	NH-P
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA (NEtFOSAA)	NH-P
N-MeFOSAA (NMeFOSAA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P
Perfluorodecanesulfonic acid (PFDS)	NH-P
Perfluorooctanesulfonamide (FOSA)	NH-P
Perfluorononanesulfonic acid (PFNS)	NH-P
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P
Perfluoro-1-butanedisulfonamide (FBSA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P
Perfluoropentanesulfonic acid (PFPeS)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
Perfluorononanoic acid (PFNA)	NH-P

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.pacelabs.com

Log In Back-Sheet

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



Client Barnstable Co.
Project BFTA
MCP/RCP Required MCP Req'd
Deliverable Package Req. N/A
Location Barnstable, MA
PWSID# (When Applicable) N/A
Arrival Method:
Courier ☒ Fed Ex ☐ Walk In ☐ Other ☐
Received By / Date / Time DWW 03/31/23 1730
Back-Sheet By / Date / Time DWW 03/31/23 1900
Temperature Method GUN # 3
Temp ☒ < 6° C Actual Temperature 5.1
Rush Samples: Yes ☒ No ☐ Notify ☐
Short Hold: Yes ☒ No ☐ Notify ☐

Notes regarding Samples/COC outside of SOP:

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☐	☒
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☒	IDs ☒	Collection Date/Time ☒
All Samples Proper pH: <u>N/A</u> ☐ ☐		

Container (Circle when applicable)	UnP	HCl	HNO3	H2SO4	NaOH	Trizma	NaS2O3	Other Preservative	
1L Amber Plastic									
500 mL Amber Plastic									
250 mL Amber Plastic									
Other Amber Clear Plastic	8								
16oz Amber Clear									
8oz Amber Clear									
4oz Amber Clear									
2oz Amber Clear									
Col/Bacteria									
Flashpoint									
Plastic Bag									
SOC Kit									
Perchlorate									
Encore									
Frozen									
	Proper Headspace	UnP	HCl	MeOH	Bisulfate	DI	Thiosulfate	Sulfuric	Other
Vials									

Appendix F - Laboratory Reports - Phase II Soil Sampling

July 3, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: Barnstable, MA
Client Job Number:
Project Number: 6206
Laboratory Work Order Number: 23F2465

Enclosed are results of analyses for samples as received by the laboratory on June 19, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 7/3/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23F2465

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

PROJECT LOCATION: Barnstable, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Duplicate 1	23F2465-01	Soil		SM 2540G SOP-466 PFAS	
SS-207	23F2465-02	Soil		SM 2540G SOP-466 PFAS	
SS-208	23F2465-03	Soil		SM 2540G SOP-466 PFAS	
SS-205	23F2465-04	Soil		SM 2540G SOP-466 PFAS	
SS-206	23F2465-05	Soil		SM 2540G SOP-466 PFAS	
SS-214 0-6"	23F2465-06	Soil		SM 2540G SOP-466 PFAS	
SS-214 14-20"	23F2465-07	Soil		SM 2540G SOP-466 PFAS	
SS-204 0-6"	23F2465-08	Soil		SM 2540G SOP-466 PFAS	
SS-204 12-16"	23F2465-09	Soil		SM 2540G SOP-466 PFAS	
SS-203	23F2465-10	Soil		SM 2540G SOP-466 PFAS	
SS-213	23F2465-11	Soil		SM 2540G SOP-466 PFAS	
SS-212	23F2465-12	Soil		SM 2540G SOP-466 PFAS	
SS-120 0-6"	23F2465-13	Soil		SM 2540G SOP-466 PFAS	
SS-120 16-20"	23F2465-14	Soil		SM 2540G SOP-466 PFAS	
SS-116	23F2465-15	Soil		SM 2540G SOP-466 PFAS	
SS-211	23F2465-16	Soil		SM 2540G SOP-466 PFAS	
SS-209 0-6"	23F2465-17	Soil		SM 2540G SOP-466 PFAS	
SS-209 16-20"	23F2465-18	Soil		SM 2540G SOP-466 PFAS	
SS-210	23F2465-19	Soil		SM 2540G SOP-466 PFAS	
SS-201	23F2465-20	Soil		SM 2540G SOP-466 PFAS	

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

Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 7/3/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23F2465

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

PROJECT LOCATION: Barnstable, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SS-202	23F2465-21	Soil		SM 2540G	
				SOP-466 PFAS	
EB-6.15.23	23F2465-22	Equipment Blank Water		SOP-454 PFAS	

CASE NARRATIVE SUMMARY

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

SOP-466 PFAS

Qualifications:

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:

Perfluorooctanesulfonic acid (PFOS)

23F2465-12[SS-212], B343981-MS1

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:

M2-6:2FTS

23F2465-11RE1[SS-213]

M2-8:2FTS

23F2465-11RE1[SS-213]

PF-18

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:

M2-6:2FTS

B344462-MS1, B344462-MSD1

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

M2-6:2FTS

B344462-BS1

M2-8:2FTS

B344462-MSD1

M2PFTA

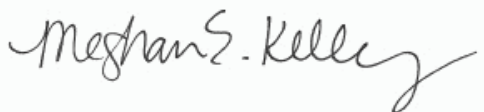
23F2465-09[SS-204 12-16"], 23F2465-10[SS-203]

M3HFPO-DA

23F2465-07[SS-214 14-20"], 23F2465-09[SS-204 12-16"]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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.



Meghan E. Kelley
Reporting Specialist

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: Duplicate 1

Sampled: 6/15/2023 09:20

Sample ID: 23F2465-01

Sample Matrix: Soil

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	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorodecanoic acid (PFDA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorooctanoic acid (PFOA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW
Perfluorononanoic acid (PFNA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:46	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: Duplicate 1

Sampled: 6/15/2023 09:20

Sample ID: 23F2465-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	86.2		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-207

Sampled: 6/15/2023 10:15

Sample ID: 23F2465-02

Sample Matrix: Soil

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	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorodecanoic acid (PFDA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorooctanoic acid (PFOA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorooctanesulfonic acid (PFOS)	0.96	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW
Perfluorononanoic acid (PFNA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 10:53	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 10:15

Field Sample #: SS-207

Sample ID: 23F2465-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	85.8		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-208

Sampled: 6/15/2023 10:20

Sample ID: 23F2465-03

Sample Matrix: Soil

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	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorodecanoic acid (PFDA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorooctanoic acid (PFOA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW
Perfluorononanoic acid (PFNA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:00	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 10:20

Field Sample #: SS-208

Sample ID: 23F2465-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	85.1		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-205

Sampled: 6/15/2023 10:30

Sample ID: 23F2465-04

Sample Matrix: Soil

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	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorodecanoic acid (PFDA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorooctanoic acid (PFOA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorooctanesulfonic acid (PFOS)	1.2	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW
Perfluorononanoic acid (PFNA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:07	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 10:30

Field Sample #: SS-205

Sample ID: 23F2465-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	90.9		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-206

Sampled: 6/15/2023 10:40

Sample ID: 23F2465-05

Sample Matrix: Soil

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	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorodecanoic acid (PFDA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorooctanoic acid (PFOA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW
Perfluorononanoic acid (PFNA)	ND	0.47	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:15	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 10:40

Field Sample #: SS-206

Sample ID: 23F2465-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	88.6		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-214 0-6"

Sampled: 6/15/2023 10:50

Sample ID: 23F2465-06

Sample Matrix: Soil

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	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluoropentanoic acid (PFPeA)	0.66	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorodecanoic acid (PFDA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorooctanoic acid (PFOA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorooctanesulfonic acid (PFOS)	0.75	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW
Perfluorononanoic acid (PFNA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:22	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 10:50

Field Sample #: SS-214 0-6"

Sample ID: 23F2465-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	80.8		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-214 14-20"

Sampled: 6/15/2023 11:00

Sample ID: 23F2465-07

Sample Matrix: Soil

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	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluoropentanoic acid (PFPeA)	0.58	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorodecanoic acid (PFDA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	0.68	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorooctanoic acid (PFOA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorooctanesulfonic acid (PFOS)	1.6	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW
Perfluorononanoic acid (PFNA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:29	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-214 14-20"

Sampled: 6/15/2023 11:00

Sample ID: 23F2465-07

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	81.8		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-204 0-6"

Sampled: 6/15/2023 11:10

Sample ID: 23F2465-08

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	0.59	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluoropentanoic acid (PFPeA)	1.1	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorodecanoic acid (PFDA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorooctanesulfonamide (FOSA)	0.77	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorohexanesulfonic acid (PFHxS)	0.73	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorooctanoic acid (PFOA)	0.51	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorooctanesulfonic acid (PFOS)	12	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW
Perfluorononanoic acid (PFNA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:37	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 11:10

Field Sample #: SS-204 0-6"

Sample ID: 23F2465-08

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	88.3		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-204 12-16"

Sampled: 6/15/2023 11:20

Sample ID: 23F2465-09

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	0.49	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluoropentanoic acid (PFPeA)	0.84	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorodecanoic acid (PFDA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorohexanesulfonic acid (PFHxS)	0.51	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorooctanoic acid (PFOA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorooctanesulfonic acid (PFOS)	13	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW
Perfluorononanoic acid (PFNA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:44	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-204 12-16"

Sampled: 6/15/2023 11:20

Sample ID: 23F2465-09

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	90.1		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-203

Sampled: 6/15/2023 11:30

Sample ID: 23F2465-10

Sample Matrix: Soil

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	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorodecanoic acid (PFDA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorooctanoic acid (PFOA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorooctanesulfonic acid (PFOS)	2.3	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW
Perfluorononanoic acid (PFNA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/26/23	6/27/23 11:51	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 11:30

Field Sample #: SS-203

Sample ID: 23F2465-10

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	87.7		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-213

Sampled: 6/15/2023 08:00

Sample ID: 23F2465-11

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	0.71	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluoropentanoic acid (PFPeA)	0.85	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorohexanoic acid (PFHxA)	0.53	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorodecanoic acid (PFDA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorooctanoic acid (PFOA)	0.64	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorooctanesulfonic acid (PFOS)	2.0	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW
Perfluorononanoic acid (PFNA)	ND	0.51	µg/kg dry	1		SOP-466 PFAS	6/27/23	6/28/23 13:20	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 08:00

Field Sample #: SS-213

Sample ID: 23F2465-11

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	85.1		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 08:10

Field Sample #: SS-212

Sample ID: 23F2465-12

Sample Matrix: Soil

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	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorodecanoic acid (PFDA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorooctanoic acid (PFOA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorooctanesulfonic acid (PFOS)	2.4	0.48	µg/kg dry	1	MS-22	SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW
Perfluorononanoic acid (PFNA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:08	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 08:10

Field Sample #: SS-212

Sample ID: 23F2465-12

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	89.5		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-120 0-6"

Sampled: 6/15/2023 08:20

Sample ID: 23F2465-13

Sample Matrix: Soil

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	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluoropentanoic acid (PFPeA)	0.64	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorodecanoic acid (PFDA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorooctanoic acid (PFOA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorooctanesulfonic acid (PFOS)	1.8	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW
Perfluorononanoic acid (PFNA)	ND	0.53	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:15	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 08:20

Field Sample #: SS-120 0-6"

Sample ID: 23F2465-13

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	83.1		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-120 16-20"

Sampled: 6/15/2023 08:25

Sample ID: 23F2465-14

Sample Matrix: Soil

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	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorodecanoic acid (PFDA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorohexanesulfonic acid (PFHxS)	0.56	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorooctanoic acid (PFOA)	0.51	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorooctanesulfonic acid (PFOS)	3.5	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW
Perfluorononanoic acid (PFNA)	0.65	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:23	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-120 16-20"

Sampled: 6/15/2023 08:25

Sample ID: 23F2465-14

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	85.0		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 09:00

Field Sample #: SS-116

Sample ID: 23F2465-15

Sample Matrix: Soil

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	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorodecanoic acid (PFDA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorooctanoic acid (PFOA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW
Perfluorononanoic acid (PFNA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:30	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 09:00

Field Sample #: SS-116

Sample ID: 23F2465-15

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	80.0		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 09:10

Field Sample #: SS-211

Sample ID: 23F2465-16

Sample Matrix: Soil

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	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorodecanoic acid (PFDA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorohexanesulfonic acid (PFHxS)	0.58	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorooctanoic acid (PFOA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorooctanesulfonic acid (PFOS)	1.8	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW
Perfluorononanoic acid (PFNA)	ND	0.48	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:37	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 09:10

Field Sample #: SS-211

Sample ID: 23F2465-16

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	87.2		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-209 0-6"

Sampled: 6/15/2023 09:30

Sample ID: 23F2465-17

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	1.6	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluoropentanoic acid (PFPeA)	4.1	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorohexanoic acid (PFHxA)	3.6	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorodecanoic acid (PFDA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluoroheptanoic acid (PFHpA)	0.89	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorooctanoic acid (PFOA)	1.0	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorooctanesulfonic acid (PFOS)	13	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW
Perfluorononanoic acid (PFNA)	1.0	0.52	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:44	QNW

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Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 09:30

Field Sample #: SS-209 0-6"

Sample ID: 23F2465-17

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	85.7		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-209 16-20"

Sampled: 6/15/2023 09:35

Sample ID: 23F2465-18

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	0.70	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluoropentanoic acid (PFPeA)	1.8	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorohexanoic acid (PFHxA)	1.3	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorodecanoic acid (PFDA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorooctanoic acid (PFOA)	0.57	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorooctanesulfonic acid (PFOS)	7.9	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW
Perfluorononanoic acid (PFNA)	0.66	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:51	QNW

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Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-209 16-20"

Sampled: 6/15/2023 09:35

Sample ID: 23F2465-18

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	86.5		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Field Sample #: SS-210

Sampled: 6/15/2023 09:45

Sample ID: 23F2465-19

Sample Matrix: Soil

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	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorodecanoic acid (PFDA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorooctanoic acid (PFOA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW
Perfluorononanoic acid (PFNA)	ND	0.49	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 10:59	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 09:45

Field Sample #: SS-210

Sample ID: 23F2465-19

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	86.5		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 11:35

Field Sample #: SS-201

Sample ID: 23F2465-20

Sample Matrix: Soil

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	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorodecanoic acid (PFDA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorooctanoic acid (PFOA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorooctanesulfonic acid (PFOS)	0.60	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW
Perfluorononanoic acid (PFNA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:28	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 11:35

Field Sample #: SS-201

Sample ID: 23F2465-20

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	87.4		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 11:40

Field Sample #: SS-202

Sample ID: 23F2465-21

Sample Matrix: Soil

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	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorodecanoic acid (PFDA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorooctanoic acid (PFOA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorooctanesulfonic acid (PFOS)	0.71	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW
Perfluorononanoic acid (PFNA)	ND	0.46	µg/kg dry	1		SOP-466 PFAS	6/22/23	6/30/23 11:35	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 11:40

Field Sample #: SS-202

Sample ID: 23F2465-21

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	91.8		% Wt	1		SM 2540G	6/22/23	6/22/23 6:10	WDC

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23F2465

Date Received: 6/19/2023

Sampled: 6/15/2023 11:45

Field Sample #: EB-6.15.23

Sample ID: 23F2465-22

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	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	6/29/23	6/30/23 13:49	QNW

Sample Extraction Data**Prep Method:**% Solids **Analytical Method:**SM 2540G

Lab Number [Field ID]	Batch	Date
23F2465-01 [Duplicate 1]	B344000	06/22/23
23F2465-02 [SS-207]	B344000	06/22/23
23F2465-03 [SS-208]	B344000	06/22/23
23F2465-04 [SS-205]	B344000	06/22/23
23F2465-05 [SS-206]	B344000	06/22/23
23F2465-06 [SS-214 0-6"]	B344000	06/22/23
23F2465-07 [SS-214 14-20"]	B344000	06/22/23
23F2465-08 [SS-204 0-6"]	B344000	06/22/23
23F2465-09 [SS-204 12-16"]	B344000	06/22/23
23F2465-10 [SS-203]	B344000	06/22/23
23F2465-11 [SS-213]	B344000	06/22/23
23F2465-12 [SS-212]	B344000	06/22/23
23F2465-13 [SS-120 0-6"]	B344000	06/22/23
23F2465-14 [SS-120 16-20"]	B344000	06/22/23
23F2465-15 [SS-116]	B344000	06/22/23
23F2465-16 [SS-211]	B344000	06/22/23
23F2465-17 [SS-209 0-6"]	B344000	06/22/23
23F2465-18 [SS-209 16-20"]	B344000	06/22/23
23F2465-19 [SS-210]	B344000	06/22/23
23F2465-20 [SS-201]	B344000	06/22/23
23F2465-21 [SS-202]	B344000	06/22/23

Prep Method:SOP 454-PFAAS **Analytical Method:**SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23F2465-22 [EB-6.15.23]	B344574	283	1.00	06/29/23

Prep Method:SOP 466-PFAAS **Analytical Method:**SOP-466 PFAS

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23F2465-01 [Duplicate 1]	B343979	5.63	5.00	06/26/23
23F2465-02 [SS-207]	B343979	5.61	5.00	06/26/23
23F2465-03 [SS-208]	B343979	5.87	5.00	06/26/23
23F2465-04 [SS-205]	B343979	5.64	5.00	06/26/23
23F2465-05 [SS-206]	B343979	5.89	5.00	06/26/23
23F2465-06 [SS-214 0-6"]	B343979	5.93	5.00	06/26/23
23F2465-07 [SS-214 14-20"]	B343979	5.72	5.00	06/26/23
23F2465-08 [SS-204 0-6"]	B343979	5.68	5.00	06/26/23
23F2465-09 [SS-204 12-16"]	B343979	5.98	5.00	06/26/23
23F2465-10 [SS-203]	B343979	5.57	5.00	06/26/23

Prep Method:SOP 466-PFAAS **Analytical Method:**SOP-466 PFAS

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23F2465-12 [SS-212]	B343981	5.73	5.00	06/22/23
23F2465-13 [SS-120 0-6"]	B343981	5.60	5.00	06/22/23
23F2465-14 [SS-120 16-20"]	B343981	5.82	5.00	06/22/23
23F2465-15 [SS-116]	B343981	5.75	5.00	06/22/23
23F2465-16 [SS-211]	B343981	5.90	5.00	06/22/23
23F2465-17 [SS-209 0-6"]	B343981	5.58	5.00	06/22/23
23F2465-18 [SS-209 16-20"]	B343981	5.84	5.00	06/22/23

Sample Extraction Data

Prep Method:SOP 466-PFAAS Analytical Method:SOP-466 PFAS

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23F2465-19 [SS-210]	B343981	5.86	5.00	06/22/23
23F2465-20 [SS-201]	B343981	5.71	5.00	06/22/23
23F2465-21 [SS-202]	B343981	5.85	5.00	06/22/23

Prep Method:SOP 466-PFAAS Analytical Method:SOP-466 PFAS

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23F2465-11RE1 [SS-213]	B344462	5.66	5.00	06/27/23

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 B343979 - SOP 466-PFAAS
Blank (B343979-BLK1)

Prepared: 06/26/23 Analyzed: 06/27/23

Perfluorobutanoic acid (PFBA)	ND	0.45	µg/kg wet
Perfluorobutanesulfonic acid (PFBS)	ND	0.45	µg/kg wet
Perfluoropentanoic acid (PFPeA)	ND	0.45	µg/kg wet
Perfluorohexanoic acid (PFHxA)	ND	0.45	µg/kg wet
11Cl-PF3OUdS (F53B Major)	ND	0.45	µg/kg wet
9Cl-PF3ONS (F53B Minor)	ND	0.45	µg/kg wet
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.45	µg/kg wet
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.45	µg/kg wet
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.45	µg/kg wet
Perfluorodecanoic acid (PFDA)	ND	0.45	µg/kg wet
Perfluorododecanoic acid (PFDoA)	ND	0.45	µg/kg wet
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.45	µg/kg wet
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.45	µg/kg wet
N-EtFOSAA (NEtFOSAA)	ND	0.45	µg/kg wet
N-MeFOSAA (NMeFOSAA)	ND	0.45	µg/kg wet
Perfluorotetradecanoic acid (PFTA)	ND	0.45	µg/kg wet
Perfluorotridecanoic acid (PFTrDA)	ND	0.45	µg/kg wet
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.45	µg/kg wet
Perfluorodecanesulfonic acid (PFDS)	ND	0.45	µg/kg wet
Perfluorooctanesulfonamide (FOSA)	ND	0.45	µg/kg wet
Perfluorononanesulfonic acid (PFNS)	ND	0.45	µg/kg wet
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.45	µg/kg wet
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.45	µg/kg wet
Perfluorohexanesulfonic acid (PFHxS)	ND	0.45	µg/kg wet
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.45	µg/kg wet
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.45	µg/kg wet
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.45	µg/kg wet
Perfluoropentanesulfonic acid (PFPeS)	ND	0.45	µg/kg wet
Perfluoroundecanoic acid (PFUnA)	ND	0.45	µg/kg wet
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.45	µg/kg wet
Perfluoroheptanoic acid (PFHpA)	ND	0.45	µg/kg wet
Perfluorooctanoic acid (PFOA)	ND	0.45	µg/kg wet
Perfluorooctanesulfonic acid (PFOS)	ND	0.45	µg/kg wet
Perfluorononanoic acid (PFNA)	ND	0.45	µg/kg wet

LCS (B343979-BS1)

Prepared: 06/26/23 Analyzed: 06/27/23

Perfluorobutanoic acid (PFBA)	1.95	0.45	µg/kg wet	2.25	86.6	71-135
Perfluorobutanesulfonic acid (PFBS)	1.64	0.45	µg/kg wet	1.99	82.2	72-128
Perfluoropentanoic acid (PFPeA)	1.94	0.45	µg/kg wet	2.25	86.0	69-132
Perfluorohexanoic acid (PFHxA)	1.96	0.45	µg/kg wet	2.25	87.0	70-132
11Cl-PF3OUdS (F53B Major)	1.94	0.45	µg/kg wet	2.12	91.5	41.8-128
9Cl-PF3ONS (F53B Minor)	1.76	0.45	µg/kg wet	2.10	83.8	51.1-141
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.76	0.45	µg/kg wet	2.12	83.0	55.2-122
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.78	0.45	µg/kg wet	2.25	79.2	27.6-137
8:2 Fluorotelomersulfonic acid (8:2FTS A)	1.82	0.45	µg/kg wet	2.16	84.4	65-137
Perfluorodecanoic acid (PFDA)	1.95	0.45	µg/kg wet	2.25	86.8	69-133
Perfluorododecanoic acid (PFDoA)	2.06	0.45	µg/kg wet	2.25	91.5	69-135
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	1.59	0.45	µg/kg wet	2.00	79.5	56.7-133

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 B343979 - SOP 466-PFAAS
LCS (B343979-BS1)

Prepared: 06/26/23 Analyzed: 06/27/23

Perfluoroheptanesulfonic acid (PFHpS)	1.88	0.45	µg/kg wet	2.15		87.2	70-132			
N-EtFOSAA (NEtFOSAA)	2.14	0.45	µg/kg wet	2.25		95.3	61-139			
N-MeFOSAA (NMeFOSAA)	2.44	0.45	µg/kg wet	2.25		108	63-144			
Perfluorotetradecanoic acid (PFTA)	2.14	0.45	µg/kg wet	2.25		95.1	69-133			
Perfluorotridecanoic acid (PFTTrDA)	2.41	0.45	µg/kg wet	2.25		107	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	2.07	0.45	µg/kg wet	2.11		98.2	62-145			
Perfluorodecanesulfonic acid (PFDS)	1.50	0.45	µg/kg wet	2.17		69.0	59-134			
Perfluorooctanesulfonamide (FOSA)	2.05	0.45	µg/kg wet	2.25		91.1	67-137			
Perfluorononanesulfonic acid (PFNS)	1.98	0.45	µg/kg wet	2.16		91.6	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	1.59	0.45	µg/kg wet	2.25		70.8	51.4-142			
Perfluoro-1-butanefulfonamide (FBFA)	1.76	0.45	µg/kg wet	2.25		78.3	53.5-129			
Perfluorohexanesulfonic acid (PFHxS)	1.91	0.45	µg/kg wet	2.06		92.6	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	1.92	0.45	µg/kg wet	2.25		85.1	57.8-127			
Perfluoro-5-oxahexanoic acid (PFMBA)	2.03	0.45	µg/kg wet	2.25		90.3	56.5-132			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1.94	0.45	µg/kg wet	2.14		90.8	64-140			
Perfluoropentanesulfonic acid (PFPeS)	1.92	0.45	µg/kg wet	2.12		90.9	73-123			
Perfluoroundecanoic acid (PFUnA)	2.03	0.45	µg/kg wet	2.25		90.2	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.82	0.45	µg/kg wet	2.25		80.8	54.5-128			
Perfluoroheptanoic acid (PFHpA)	2.20	0.45	µg/kg wet	2.25		97.6	71-131			
Perfluorooctanoic acid (PFOA)	2.03	0.45	µg/kg wet	2.25		90.2	69-133			
Perfluorooctanesulfonic acid (PFOS)	1.83	0.45	µg/kg wet	2.08		88.0	68-136			
Perfluorononanoic acid (PFNA)	2.02	0.45	µg/kg wet	2.25		89.9	72-129			

Matrix Spike (B343979-MS1)
Source: 23F2465-11

Prepared: 06/26/23 Analyzed: 06/27/23

Perfluorobutanoic acid (PFBA)	2.60	0.51	µg/kg dry	2.60	0.350	86.8	71-135			
Perfluorobutanesulfonic acid (PFBS)	2.11	0.51	µg/kg dry	2.29	ND	92.1	72-128			
Perfluoropentanoic acid (PFPeA)	2.68	0.51	µg/kg dry	2.60	0.400	87.9	69-132			
Perfluorohexanoic acid (PFHxA)	2.58	0.51	µg/kg dry	2.60	0.219	90.9	70-132			
11Cl-PF3OUdS (F53B Major)	2.52	0.51	µg/kg dry	2.44	ND	103	4.02-158			
9Cl-PF3ONS (F53B Minor)	2.37	0.51	µg/kg dry	2.42	ND	97.8	52.5-150			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.18	0.51	µg/kg dry	2.44	ND	89.4	50.7-124			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	2.08	0.51	µg/kg dry	2.60	ND	80.3	29.2-146			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.58	0.51	µg/kg dry	2.49	ND	104	65-137			
Perfluorodecanoic acid (PFDA)	2.57	0.51	µg/kg dry	2.60	ND	99.1	69-133			
Perfluorododecanoic acid (PFDoA)	2.58	0.51	µg/kg dry	2.60	ND	99.3	69-135			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	2.03	0.51	µg/kg dry	2.31	ND	87.7	60.7-135			
Perfluoroheptanesulfonic acid (PFHpS)	2.49	0.51	µg/kg dry	2.48	ND	101	70-132			
N-EtFOSAA (NEtFOSAA)	2.65	0.51	µg/kg dry	2.60	ND	102	61-139			
N-MeFOSAA (NMeFOSAA)	2.99	0.51	µg/kg dry	2.60	ND	115	63-144			
Perfluorotetradecanoic acid (PFTA)	2.72	0.51	µg/kg dry	2.60	ND	105	69-133			
Perfluorotridecanoic acid (PFTTrDA)	2.84	0.51	µg/kg dry	2.60	ND	110	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	2.68	0.51	µg/kg dry	2.43	ND	110	62-145			
Perfluorodecanesulfonic acid (PFDS)	2.01	0.51	µg/kg dry	2.50	ND	80.4	59-134			
Perfluorooctanesulfonamide (FOSA)	2.65	0.51	µg/kg dry	2.60	ND	102	67-137			
Perfluorononanesulfonic acid (PFNS)	2.96	0.51	µg/kg dry	2.49	ND	119	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	2.30	0.51	µg/kg dry	2.60	ND	88.6	18.9-162			
Perfluoro-1-butanefulfonamide (FBFA)	2.29	0.51	µg/kg dry	2.60	ND	88.2	49.8-135			
Perfluorohexanesulfonic acid (PFHxS)	2.43	0.51	µg/kg dry	2.38	ND	102	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	2.41	0.51	µg/kg dry	2.60	ND	92.8	62-155			
Perfluoro-5-oxahexanoic acid (PFMBA)	2.55	0.51	µg/kg dry	2.60	ND	98.4	52.1-148			

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 B343979 - SOP 466-PFAAS

Matrix Spike (B343979-MS1)		Source: 23F2465-11		Prepared: 06/26/23		Analyzed: 06/27/23				
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.02	0.51	µg/kg dry	2.47	ND	82.0	64-140			
Perfluoropentanesulfonic acid (PFPeS)	2.44	0.51	µg/kg dry	2.44	ND	100	73-123			
Perfluoroundecanoic acid (PFUnA)	2.74	0.51	µg/kg dry	2.60	ND	106	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.25	0.51	µg/kg dry	2.60	ND	86.5	54.6-133			
Perfluoroheptanoic acid (PFHpA)	2.78	0.51	µg/kg dry	2.60	ND	107	71-131			
Perfluorooctanoic acid (PFOA)	2.89	0.51	µg/kg dry	2.60	ND	111	69-133			
Perfluorooctanesulfonic acid (PFOS)	3.25	0.51	µg/kg dry	2.40	0.534	113	68-136			
Perfluorononanoic acid (PFNA)	2.69	0.51	µg/kg dry	2.60	ND	104	72-129			

Matrix Spike Dup (B343979-MSD1)		Source: 23F2465-11		Prepared: 06/26/23		Analyzed: 06/27/23				
Perfluorobutanoic acid (PFBA)	2.56	0.51	µg/kg dry	2.56	0.350	86.4	71-135	1.78	30	
Perfluorobutanesulfonic acid (PFBS)	1.93	0.51	µg/kg dry	2.26	ND	85.5	72-128	8.91	30	
Perfluoropentanoic acid (PFPeA)	2.64	0.51	µg/kg dry	2.56	0.400	87.7	69-132	1.58	30	
Perfluorohexanoic acid (PFHxA)	2.43	0.51	µg/kg dry	2.56	0.219	86.3	70-132	6.06	30	
11Cl-PF3OUdS (F53B Major)	2.06	0.51	µg/kg dry	2.41	ND	85.4	4.02-158	20.1	30	
9Cl-PF3ONS (F53B Minor)	2.21	0.51	µg/kg dry	2.38	ND	92.7	52.5-150	6.86	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	0.51	µg/kg dry	2.41	ND	83.0	50.7-124	8.96	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	2.08	0.51	µg/kg dry	2.56	ND	81.3	29.2-146	0.356	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.23	0.51	µg/kg dry	2.45	ND	90.8	65-137	14.6	30	
Perfluorodecanoic acid (PFDA)	2.20	0.51	µg/kg dry	2.56	ND	86.3	69-133	15.4	30	
Perfluorododecanoic acid (PFDoA)	2.28	0.51	µg/kg dry	2.56	ND	89.4	69-135	12.1	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	1.87	0.51	µg/kg dry	2.27	ND	82.2	60.7-135	7.99	30	
Perfluoroheptanesulfonic acid (PFHpS)	2.15	0.51	µg/kg dry	2.44	ND	87.9	70-132	14.9	30	
N-EtFOSAA (NEtFOSAA)	2.37	0.51	µg/kg dry	2.56	ND	92.8	61-139	11.0	30	
N-MeFOSAA (NMeFOSAA)	2.40	0.51	µg/kg dry	2.56	ND	93.9	63-144	21.9	30	
Perfluorotetradecanoic acid (PFTA)	2.37	0.51	µg/kg dry	2.56	ND	92.5	69-133	13.8	30	
Perfluorotridecanoic acid (PFTrDA)	2.65	0.51	µg/kg dry	2.56	ND	104	66-139	7.19	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	2.27	0.51	µg/kg dry	2.39	ND	94.7	62-145	16.7	30	
Perfluorodecanesulfonic acid (PFDS)	1.82	0.51	µg/kg dry	2.46	ND	73.7	59-134	10.3	30	
Perfluorooctanesulfonamide (FOSA)	2.23	0.51	µg/kg dry	2.56	ND	87.2	67-137	17.3	30	
Perfluorononanesulfonic acid (PFNS)	2.65	0.51	µg/kg dry	2.45	ND	108	69-125	11.0	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	2.18	0.51	µg/kg dry	2.56	ND	85.2	18.9-162	5.41	30	
Perfluoro-1-butanedisulfonamide (FBSA)	2.13	0.51	µg/kg dry	2.56	ND	83.2	49.8-135	7.27	30	
Perfluorohexanesulfonic acid (PFHxS)	2.06	0.51	µg/kg dry	2.34	ND	88.0	67-130	16.6	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	2.18	0.51	µg/kg dry	2.56	ND	85.5	62-155	9.72	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	2.26	0.51	µg/kg dry	2.56	ND	88.3	52.1-148	12.3	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1.78	0.51	µg/kg dry	2.43	ND	73.2	64-140	12.8	30	
Perfluoropentanesulfonic acid (PFPeS)	2.16	0.51	µg/kg dry	2.40	ND	90.0	73-123	12.0	30	
Perfluoroundecanoic acid (PFUnA)	2.16	0.51	µg/kg dry	2.56	ND	84.6	64-136	23.5	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	0.51	µg/kg dry	2.56	ND	78.2	54.6-133	11.6	30	
Perfluoroheptanoic acid (PFHpA)	2.60	0.51	µg/kg dry	2.56	ND	102	71-131	6.73	30	
Perfluorooctanoic acid (PFOA)	2.60	0.51	µg/kg dry	2.56	ND	102	69-133	10.4	30	
Perfluorooctanesulfonic acid (PFOS)	3.14	0.51	µg/kg dry	2.36	0.534	110	68-136	3.35	30	
Perfluorononanoic acid (PFNA)	2.58	0.51	µg/kg dry	2.56	ND	101	72-129	4.25	30	

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 B343981 - SOP 466-PFAAS
Blank (B343981-BLK1)

Prepared: 06/22/23 Analyzed: 06/30/23

Perfluorobutanoic acid (PFBA)	ND	0.44	µg/kg wet
Perfluorobutanesulfonic acid (PFBS)	ND	0.44	µg/kg wet
Perfluoropentanoic acid (PFPeA)	ND	0.44	µg/kg wet
Perfluorohexanoic acid (PFHxA)	ND	0.44	µg/kg wet
11Cl-PF3OUdS (F53B Major)	ND	0.44	µg/kg wet
9Cl-PF3ONS (F53B Minor)	ND	0.44	µg/kg wet
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.44	µg/kg wet
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.44	µg/kg wet
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.44	µg/kg wet
Perfluorodecanoic acid (PFDA)	ND	0.44	µg/kg wet
Perfluorododecanoic acid (PFDoA)	ND	0.44	µg/kg wet
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.44	µg/kg wet
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.44	µg/kg wet
N-EtFOSAA (NEtFOSAA)	ND	0.44	µg/kg wet
N-MeFOSAA (NMeFOSAA)	ND	0.44	µg/kg wet
Perfluorotetradecanoic acid (PFTA)	ND	0.44	µg/kg wet
Perfluorotridecanoic acid (PFTrDA)	ND	0.44	µg/kg wet
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.44	µg/kg wet
Perfluorodecanesulfonic acid (PFDS)	ND	0.44	µg/kg wet
Perfluorooctanesulfonamide (FOSA)	ND	0.44	µg/kg wet
Perfluorononanesulfonic acid (PFNS)	ND	0.44	µg/kg wet
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.44	µg/kg wet
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.44	µg/kg wet
Perfluorohexanesulfonic acid (PFHxS)	ND	0.44	µg/kg wet
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.44	µg/kg wet
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.44	µg/kg wet
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.44	µg/kg wet
Perfluoropentanesulfonic acid (PFPeS)	ND	0.44	µg/kg wet
Perfluoroundecanoic acid (PFUnA)	ND	0.44	µg/kg wet
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.44	µg/kg wet
Perfluoroheptanoic acid (PFHpA)	ND	0.44	µg/kg wet
Perfluorooctanoic acid (PFOA)	ND	0.44	µg/kg wet
Perfluorooctanesulfonic acid (PFOS)	ND	0.44	µg/kg wet
Perfluorononanoic acid (PFNA)	ND	0.44	µg/kg wet

LCS (B343981-BS1)

Prepared: 06/22/23 Analyzed: 06/30/23

Perfluorobutanoic acid (PFBA)	1.72	0.43	µg/kg wet	2.15	80.0	71-135
Perfluorobutanesulfonic acid (PFBS)	1.47	0.43	µg/kg wet	1.90	77.7	72-128
Perfluoropentanoic acid (PFPeA)	1.70	0.43	µg/kg wet	2.15	79.1	69-132
Perfluorohexanoic acid (PFHxA)	1.66	0.43	µg/kg wet	2.15	77.4	70-132
11Cl-PF3OUdS (F53B Major)	1.60	0.43	µg/kg wet	2.02	79.3	41.8-128
9Cl-PF3ONS (F53B Minor)	1.54	0.43	µg/kg wet	2.00	76.9	51.1-141
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.50	0.43	µg/kg wet	2.02	74.0	55.2-122
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.53	0.43	µg/kg wet	2.15	71.4	27.6-137
8:2 Fluorotelomersulfonic acid (8:2FTS A)	1.67	0.43	µg/kg wet	2.06	80.8	65-137
Perfluorodecanoic acid (PFDA)	1.83	0.43	µg/kg wet	2.15	85.1	69-133
Perfluorododecanoic acid (PFDoA)	1.72	0.43	µg/kg wet	2.15	80.1	69-135
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	1.42	0.43	µg/kg wet	1.91	74.5	56.7-133

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 B343981 - SOP 466-PFAAS
LCS (B343981-BS1)

Prepared: 06/22/23 Analyzed: 06/30/23

Perfluoroheptanesulfonic acid (PFHpS)	1.57	0.43	µg/kg wet	2.05		76.4	70-132			
N-EtFOSAA (NEtFOSAA)	1.84	0.43	µg/kg wet	2.15		85.9	61-139			
N-MeFOSAA (NMeFOSAA)	1.93	0.43	µg/kg wet	2.15		89.9	63-144			
Perfluorotetradecanoic acid (PFTA)	1.83	0.43	µg/kg wet	2.15		85.0	69-133			
Perfluorotridecanoic acid (PFTTrDA)	1.99	0.43	µg/kg wet	2.15		92.7	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	1.64	0.43	µg/kg wet	2.01		81.7	62-145			
Perfluorodecanesulfonic acid (PFDS)	1.36	0.43	µg/kg wet	2.07		65.6	59-134			
Perfluorooctanesulfonamide (FOSA)	1.73	0.43	µg/kg wet	2.15		80.6	67-137			
Perfluorononanesulfonic acid (PFNS)	1.70	0.43	µg/kg wet	2.06		82.4	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	1.42	0.43	µg/kg wet	2.15		66.0	51.4-142			
Perfluoro-1-butanefulfonamide (FBSA)	1.65	0.43	µg/kg wet	2.15		76.9	53.5-129			
Perfluorohexanesulfonic acid (PFHxS)	1.54	0.43	µg/kg wet	1.97		78.2	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	1.73	0.43	µg/kg wet	2.15		80.7	57.8-127			
Perfluoro-5-oxahexanoic acid (PFMBA)	1.80	0.43	µg/kg wet	2.15		84.0	56.5-132			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1.69	0.43	µg/kg wet	2.04		82.7	64-140			
Perfluoropentanesulfonic acid (PFPeS)	1.75	0.43	µg/kg wet	2.02		86.9	73-123			
Perfluoroundecanoic acid (PFUnA)	1.71	0.43	µg/kg wet	2.15		79.8	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.43	0.43	µg/kg wet	2.15		66.8	54.5-128			
Perfluoroheptanoic acid (PFHpA)	1.85	0.43	µg/kg wet	2.15		86.2	71-131			
Perfluorooctanoic acid (PFOA)	1.73	0.43	µg/kg wet	2.15		80.5	69-133			
Perfluorooctanesulfonic acid (PFOS)	1.50	0.43	µg/kg wet	1.98		75.7	68-136			
Perfluorononanoic acid (PFNA)	1.72	0.43	µg/kg wet	2.15		80.1	72-129			

Matrix Spike (B343981-MS1)
Source: 23F2465-12

Prepared: 06/22/23 Analyzed: 06/30/23

Perfluorobutanoic acid (PFBA)	2.63	0.49	µg/kg dry	2.45	0.251	97.0	71-135			
Perfluorobutanesulfonic acid (PFBS)	1.93	0.49	µg/kg dry	2.17	ND	89.1	72-128			
Perfluoropentanoic acid (PFPeA)	2.57	0.49	µg/kg dry	2.45	0.259	94.1	69-132			
Perfluorohexanoic acid (PFHxA)	2.49	0.49	µg/kg dry	2.45	ND	102	70-132			
11Cl-PF3OUdS (F53B Major)	2.03	0.49	µg/kg dry	2.31	ND	88.0	4.02-158			
9Cl-PF3ONS (F53B Minor)	2.05	0.49	µg/kg dry	2.28	ND	89.6	52.5-150			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.99	0.49	µg/kg dry	2.31	ND	86.1	50.7-124			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.99	0.49	µg/kg dry	2.45	ND	81.3	29.2-146			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.27	0.49	µg/kg dry	2.35	ND	96.7	65-137			
Perfluorodecanoic acid (PFDA)	2.54	0.49	µg/kg dry	2.45	ND	104	69-133			
Perfluorododecanoic acid (PFDoA)	2.38	0.49	µg/kg dry	2.45	ND	97.1	69-135			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	1.87	0.49	µg/kg dry	2.18	ND	85.8	60.7-135			
Perfluoroheptanesulfonic acid (PFHpS)	1.98	0.49	µg/kg dry	2.34	ND	84.4	70-132			
N-EtFOSAA (NEtFOSAA)	2.61	0.49	µg/kg dry	2.45	ND	107	61-139			
N-MeFOSAA (NMeFOSAA)	2.59	0.49	µg/kg dry	2.45	ND	106	63-144			
Perfluorotetradecanoic acid (PFTA)	2.49	0.49	µg/kg dry	2.45	ND	102	69-133			
Perfluorotridecanoic acid (PFTTrDA)	2.72	0.49	µg/kg dry	2.45	ND	111	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	2.15	0.49	µg/kg dry	2.29	ND	93.8	62-145			
Perfluorodecanesulfonic acid (PFDS)	1.85	0.49	µg/kg dry	2.36	ND	78.1	59-134			
Perfluorooctanesulfonamide (FOSA)	2.35	0.49	µg/kg dry	2.45	ND	96.0	67-137			
Perfluorononanesulfonic acid (PFNS)	2.39	0.49	µg/kg dry	2.35	ND	101	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	1.89	0.49	µg/kg dry	2.45	ND	77.2	18.9-162			
Perfluoro-1-butanefulfonamide (FBSA)	1.95	0.49	µg/kg dry	2.45	ND	79.6	49.8-135			
Perfluorohexanesulfonic acid (PFHxS)	2.24	0.49	µg/kg dry	2.24	ND	99.7	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	2.31	0.49	µg/kg dry	2.45	ND	94.5	62-155			
Perfluoro-5-oxahexanoic acid (PFMBA)	2.37	0.49	µg/kg dry	2.45	ND	96.6	52.1-148			

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 B343981 - SOP 466-PFAAS

Matrix Spike (B343981-MS1)		Source: 23F2465-12		Prepared: 06/22/23		Analyzed: 06/30/23				
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.15	0.49	µg/kg dry	2.33	ND	92.2	64-140			
Perfluoropentanesulfonic acid (PFPeS)	2.21	0.49	µg/kg dry	2.30	ND	95.8	73-123			
Perfluoroundecanoic acid (PFUnA)	2.56	0.49	µg/kg dry	2.45	ND	104	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.88	0.49	µg/kg dry	2.45	ND	76.5	54.6-133			
Perfluoroheptanoic acid (PFHpA)	2.55	0.49	µg/kg dry	2.45	ND	104	71-131			
Perfluorooctanoic acid (PFOA)	2.82	0.49	µg/kg dry	2.45	0.315	102	69-133			
Perfluorooctanesulfonic acid (PFOS)	5.68	0.49	µg/kg dry	2.26	2.41	144	* 68-136			MS-22
Perfluorononanoic acid (PFNA)	3.05	0.49	µg/kg dry	2.45	0.439	107	72-129			

Matrix Spike Dup (B343981-MSD1)		Source: 23F2465-12		Prepared: 06/22/23		Analyzed: 06/30/23				
Perfluorobutanoic acid (PFBA)	2.44	0.47	µg/kg dry	2.38	0.251	92.0	71-135	7.17	30	
Perfluorobutanesulfonic acid (PFBS)	1.87	0.47	µg/kg dry	2.11	ND	88.5	72-128	3.35	30	
Perfluoropentanoic acid (PFPeA)	2.53	0.47	µg/kg dry	2.38	0.259	95.1	69-132	1.50	30	
Perfluorohexanoic acid (PFHxA)	2.42	0.47	µg/kg dry	2.38	ND	101	70-132	2.88	30	
11Cl-PF3OUdS (F53B Major)	2.16	0.47	µg/kg dry	2.25	ND	96.3	4.02-158	6.31	30	
9Cl-PF3ONS (F53B Minor)	2.11	0.47	µg/kg dry	2.22	ND	95.0	52.5-150	3.14	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.98	0.47	µg/kg dry	2.25	ND	88.3	50.7-124	0.0881	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	2.18	0.47	µg/kg dry	2.38	ND	91.4	29.2-146	9.00	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.31	0.47	µg/kg dry	2.29	ND	101	65-137	1.73	30	
Perfluorodecanoic acid (PFDA)	2.42	0.47	µg/kg dry	2.38	ND	101	69-133	5.19	30	
Perfluorododecanoic acid (PFDoA)	2.22	0.47	µg/kg dry	2.38	ND	93.1	69-135	6.89	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	1.84	0.47	µg/kg dry	2.12	ND	86.7	60.7-135	1.66	30	
Perfluoroheptanesulfonic acid (PFHpS)	2.11	0.47	µg/kg dry	2.28	ND	92.6	70-132	6.65	30	
N-EtFOSAA (NEtFOSAA)	2.27	0.47	µg/kg dry	2.38	ND	95.1	61-139	14.0	30	
N-MeFOSAA (NMeFOSAA)	2.46	0.47	µg/kg dry	2.38	ND	103	63-144	5.14	30	
Perfluorotetradecanoic acid (PFTA)	2.41	0.47	µg/kg dry	2.38	ND	101	69-133	3.37	30	
Perfluorotridecanoic acid (PFTrDA)	2.54	0.47	µg/kg dry	2.38	ND	107	66-139	6.85	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	2.42	0.47	µg/kg dry	2.23	ND	109	62-145	12.0	30	
Perfluorodecanesulfonic acid (PFDS)	1.76	0.47	µg/kg dry	2.30	ND	76.7	59-134	4.61	30	
Perfluorooctanesulfonamide (FOSA)	2.30	0.47	µg/kg dry	2.38	ND	96.5	67-137	2.23	30	
Perfluorononanesulfonic acid (PFNS)	2.22	0.47	µg/kg dry	2.29	ND	96.9	69-125	7.22	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	2.01	0.47	µg/kg dry	2.38	ND	84.3	18.9-162	6.11	30	
Perfluoro-1-butanedisulfonamide (FBSA)	2.07	0.47	µg/kg dry	2.38	ND	86.7	49.8-135	5.78	30	
Perfluorohexanesulfonic acid (PFHxS)	2.19	0.47	µg/kg dry	2.18	ND	100	67-130	2.23	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	2.23	0.47	µg/kg dry	2.38	ND	93.3	62-155	3.88	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	2.36	0.47	µg/kg dry	2.38	ND	99.0	52.1-148	0.202	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.19	0.47	µg/kg dry	2.27	ND	96.8	64-140	2.23	30	
Perfluoropentanesulfonic acid (PFPeS)	2.19	0.47	µg/kg dry	2.24	ND	97.9	73-123	0.558	30	
Perfluoroundecanoic acid (PFUnA)	2.45	0.47	µg/kg dry	2.38	ND	103	64-136	4.10	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.89	0.47	µg/kg dry	2.38	ND	79.2	54.6-133	0.734	30	
Perfluoroheptanoic acid (PFHpA)	2.56	0.47	µg/kg dry	2.38	ND	107	71-131	0.508	30	
Perfluorooctanoic acid (PFOA)	2.70	0.47	µg/kg dry	2.38	0.315	99.9	69-133	4.62	30	
Perfluorooctanesulfonic acid (PFOS)	4.97	0.47	µg/kg dry	2.20	2.41	117	68-136	13.2	30	
Perfluorononanoic acid (PFNA)	2.86	0.47	µg/kg dry	2.38	0.439	102	72-129	6.28	30	

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 B344462 - SOP 466-PFAAS
Blank (B344462-BLK1)

Prepared: 06/27/23 Analyzed: 06/28/23

Perfluorobutanoic acid (PFBA)	ND	0.42	µg/kg wet
Perfluorobutanesulfonic acid (PFBS)	ND	0.42	µg/kg wet
Perfluoropentanoic acid (PFPeA)	ND	0.42	µg/kg wet
Perfluorohexanoic acid (PFHxA)	ND	0.42	µg/kg wet
11Cl-PF3OUdS (F53B Major)	ND	0.42	µg/kg wet
9Cl-PF3ONS (F53B Minor)	ND	0.42	µg/kg wet
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.42	µg/kg wet
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.42	µg/kg wet
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.42	µg/kg wet
Perfluorodecanoic acid (PFDA)	ND	0.42	µg/kg wet
Perfluorododecanoic acid (PFDoA)	ND	0.42	µg/kg wet
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.42	µg/kg wet
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.42	µg/kg wet
N-EtFOSAA (NEtFOSAA)	ND	0.42	µg/kg wet
N-MeFOSAA (NMeFOSAA)	ND	0.42	µg/kg wet
Perfluorotetradecanoic acid (PFTA)	ND	0.42	µg/kg wet
Perfluorotridecanoic acid (PFTrDA)	ND	0.42	µg/kg wet
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.42	µg/kg wet
Perfluorodecanesulfonic acid (PFDS)	ND	0.42	µg/kg wet
Perfluorooctanesulfonamide (FOSA)	ND	0.42	µg/kg wet
Perfluorononanesulfonic acid (PFNS)	ND	0.42	µg/kg wet
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.42	µg/kg wet
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.42	µg/kg wet
Perfluorohexanesulfonic acid (PFHxS)	ND	0.42	µg/kg wet
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.42	µg/kg wet
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.42	µg/kg wet
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.42	µg/kg wet
Perfluoropentanesulfonic acid (PFPeS)	ND	0.42	µg/kg wet
Perfluoroundecanoic acid (PFUnA)	ND	0.42	µg/kg wet
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.42	µg/kg wet
Perfluoroheptanoic acid (PFHpA)	ND	0.42	µg/kg wet
Perfluorooctanoic acid (PFOA)	ND	0.42	µg/kg wet
Perfluorooctanesulfonic acid (PFOS)	ND	0.42	µg/kg wet
Perfluorononanoic acid (PFNA)	ND	0.42	µg/kg wet

LCS (B344462-BS1)

Prepared: 06/27/23 Analyzed: 06/28/23

Perfluorobutanoic acid (PFBA)	1.81	0.42	µg/kg wet	2.14	84.3	71-135
Perfluorobutanesulfonic acid (PFBS)	1.58	0.42	µg/kg wet	1.89	83.6	72-128
Perfluoropentanoic acid (PFPeA)	1.80	0.42	µg/kg wet	2.14	84.0	69-132
Perfluorohexanoic acid (PFHxA)	1.81	0.42	µg/kg wet	2.14	84.4	70-132
11Cl-PF3OUdS (F53B Major)	1.59	0.42	µg/kg wet	2.02	79.0	41.8-128
9Cl-PF3ONS (F53B Minor)	1.64	0.42	µg/kg wet	2.00	82.3	51.1-141
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.62	0.42	µg/kg wet	2.02	80.4	55.2-122
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.21	0.42	µg/kg wet	2.14	56.7	27.6-137
8:2 Fluorotelomersulfonic acid (8:2FTS A)	1.66	0.42	µg/kg wet	2.06	80.7	65-137
Perfluorodecanoic acid (PFDA)	1.98	0.42	µg/kg wet	2.14	92.4	69-133
Perfluorododecanoic acid (PFDoA)	1.90	0.42	µg/kg wet	2.14	88.6	69-135
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	1.51	0.42	µg/kg wet	1.91	79.3	56.7-133

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 B344462 - SOP 466-PFAAS
LCS (B344462-BS1)

Prepared: 06/27/23 Analyzed: 06/28/23

Perfluoroheptanesulfonic acid (PFHpS)	1.62	0.42	µg/kg wet	2.05		79.3	70-132			
N-EtFOSAA (NEtFOSAA)	2.03	0.42	µg/kg wet	2.14		94.6	61-139			
N-MeFOSAA (NMeFOSAA)	1.94	0.42	µg/kg wet	2.14		90.8	63-144			
Perfluorotetradecanoic acid (PFTA)	1.99	0.42	µg/kg wet	2.14		92.8	69-133			
Perfluorotridecanoic acid (PFTTrDA)	2.11	0.42	µg/kg wet	2.14		98.7	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	1.84	0.42	µg/kg wet	2.01		91.9	62-145			
Perfluorodecanesulfonic acid (PFDS)	1.53	0.42	µg/kg wet	2.07		74.2	59-134			
Perfluorooctanesulfonamide (FOSA)	1.98	0.42	µg/kg wet	2.14		92.3	67-137			
Perfluorononanesulfonic acid (PFNS)	1.92	0.42	µg/kg wet	2.06		93.3	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	1.60	0.42	µg/kg wet	2.14		74.7	51.4-142			
Perfluoro-1-butanefulfonamide (FBSA)	1.71	0.42	µg/kg wet	2.14		79.6	53.5-129			
Perfluorohexanesulfonic acid (PFHxS)	1.68	0.42	µg/kg wet	1.96		85.6	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	1.78	0.42	µg/kg wet	2.14		83.0	57.8-127			
Perfluoro-5-oxahexanoic acid (PFMBA)	1.92	0.42	µg/kg wet	2.14		89.7	56.5-132			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1.47	0.42	µg/kg wet	2.04		72.4	64-140			
Perfluoropentanesulfonic acid (PFPeS)	1.80	0.42	µg/kg wet	2.01		89.5	73-123			
Perfluoroundecanoic acid (PFUnA)	1.82	0.42	µg/kg wet	2.14		85.1	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1.62	0.42	µg/kg wet	2.14		75.6	54.5-128			
Perfluoroheptanoic acid (PFHpA)	1.99	0.42	µg/kg wet	2.14		92.7	71-131			
Perfluorooctanoic acid (PFOA)	1.98	0.42	µg/kg wet	2.14		92.2	69-133			
Perfluorooctanesulfonic acid (PFOS)	1.73	0.42	µg/kg wet	1.98		87.6	68-136			
Perfluorononanoic acid (PFNA)	1.86	0.42	µg/kg wet	2.14		86.8	72-129			

Matrix Spike (B344462-MS1)
Source: 23F2465-11RE1

Prepared: 06/27/23 Analyzed: 06/28/23

Perfluorobutanoic acid (PFBA)	3.53	0.49	µg/kg dry	2.50	0.714	113	71-135			
Perfluorobutanesulfonic acid (PFBS)	2.10	0.49	µg/kg dry	2.21	ND	95.3	72-128			
Perfluoropentanoic acid (PFPeA)	3.71	0.49	µg/kg dry	2.50	0.849	115	69-132			
Perfluorohexanoic acid (PFHxA)	3.37	0.49	µg/kg dry	2.50	0.532	114	70-132			
11Cl-PF3OUdS (F53B Major)	2.24	0.49	µg/kg dry	2.35	ND	95.1	4.02-158			
9Cl-PF3ONS (F53B Minor)	2.10	0.49	µg/kg dry	2.33	ND	90.2	52.5-150			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.14	0.49	µg/kg dry	2.35	ND	91.2	50.7-124			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.65	0.49	µg/kg dry	2.50	ND	66.2	29.2-146			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.51	0.49	µg/kg dry	2.40	ND	105	65-137			
Perfluorodecanoic acid (PFDA)	2.66	0.49	µg/kg dry	2.50	ND	107	69-133			
Perfluorododecanoic acid (PFDoA)	2.55	0.49	µg/kg dry	2.50	ND	102	69-135			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	1.95	0.49	µg/kg dry	2.22	ND	87.8	60.7-135			
Perfluoroheptanesulfonic acid (PFHpS)	2.53	0.49	µg/kg dry	2.39	ND	106	70-132			
N-EtFOSAA (NEtFOSAA)	2.53	0.49	µg/kg dry	2.50	ND	101	61-139			
N-MeFOSAA (NMeFOSAA)	2.82	0.49	µg/kg dry	2.50	ND	113	63-144			
Perfluorotetradecanoic acid (PFTA)	2.57	0.49	µg/kg dry	2.50	ND	103	69-133			
Perfluorotridecanoic acid (PFTTrDA)	2.74	0.49	µg/kg dry	2.50	ND	110	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	2.26	0.49	µg/kg dry	2.34	ND	96.8	62-145			
Perfluorodecanesulfonic acid (PFDS)	2.05	0.49	µg/kg dry	2.41	ND	85.3	59-134			
Perfluorooctanesulfonamide (FOSA)	2.56	0.49	µg/kg dry	2.50	ND	103	67-137			
Perfluorononanesulfonic acid (PFNS)	2.17	0.49	µg/kg dry	2.40	ND	90.4	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	2.00	0.49	µg/kg dry	2.50	ND	80.3	18.9-162			
Perfluoro-1-butanefulfonamide (FBSA)	2.16	0.49	µg/kg dry	2.50	ND	86.6	49.8-135			
Perfluorohexanesulfonic acid (PFHxS)	2.53	0.49	µg/kg dry	2.29	0.249	99.9	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	2.42	0.49	µg/kg dry	2.50	ND	97.1	62-155			
Perfluoro-5-oxahexanoic acid (PFMBA)	2.51	0.49	µg/kg dry	2.50	ND	101	52.1-148			

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 B344462 - SOP 466-PFAAS

Matrix Spike (B344462-MS1)		Source: 23F2465-11RE1		Prepared: 06/27/23		Analyzed: 06/28/23				
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.36	0.49	µg/kg dry	2.37	ND	99.5	64-140			
Perfluoropentanesulfonic acid (PFPeS)	2.42	0.49	µg/kg dry	2.35	ND	103	73-123			
Perfluoroundecanoic acid (PFUnA)	2.73	0.49	µg/kg dry	2.50	ND	109	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.19	0.49	µg/kg dry	2.50	ND	87.7	54.6-133			
Perfluoroheptanoic acid (PFHpA)	2.85	0.49	µg/kg dry	2.50	0.278	103	71-131			
Perfluorooctanoic acid (PFOA)	3.21	0.49	µg/kg dry	2.50	0.641	103	69-133			
Perfluorooctanesulfonic acid (PFOS)	4.83	0.49	µg/kg dry	2.31	2.04	121	68-136			
Perfluorononanoic acid (PFNA)	2.91	0.49	µg/kg dry	2.50	0.303	104	72-129			

Matrix Spike Dup (B344462-MSD1)		Source: 23F2465-11RE1		Prepared: 06/27/23		Analyzed: 06/28/23				
Perfluorobutanoic acid (PFBA)	3.11	0.50	µg/kg dry	2.53	0.714	94.6	71-135	12.7	30	
Perfluorobutanesulfonic acid (PFBS)	1.99	0.50	µg/kg dry	2.24	ND	89.0	72-128	5.55	30	
Perfluoropentanoic acid (PFPeA)	3.16	0.50	µg/kg dry	2.53	0.849	91.3	69-132	16.0	30	
Perfluorohexanoic acid (PFHxA)	2.76	0.50	µg/kg dry	2.53	0.532	88.2	70-132	19.7	30	
11Cl-PF3OUdS (F53B Major)	1.93	0.50	µg/kg dry	2.38	ND	81.0	4.02-158	14.7	30	
9Cl-PF3ONS (F53B Minor)	2.07	0.50	µg/kg dry	2.36	ND	87.9	52.5-150	1.25	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.07	0.50	µg/kg dry	2.38	ND	86.8	50.7-124	3.59	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.69	0.50	µg/kg dry	2.53	ND	66.8	29.2-146	2.26	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.43	0.50	µg/kg dry	2.43	ND	100	65-137	3.17	30	
Perfluorodecanoic acid (PFDA)	2.51	0.50	µg/kg dry	2.53	ND	99.4	69-133	5.61	30	
Perfluorododecanoic acid (PFDoA)	2.34	0.50	µg/kg dry	2.53	ND	92.5	69-135	8.56	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	1.90	0.50	µg/kg dry	2.25	ND	84.3	60.7-135	2.69	30	
Perfluoroheptanesulfonic acid (PFHpS)	2.26	0.50	µg/kg dry	2.42	ND	93.6	70-132	11.0	30	
N-EtFOSAA (NEtFOSAA)	2.66	0.50	µg/kg dry	2.53	ND	105	61-139	5.17	30	
N-MeFOSAA (NMeFOSAA)	2.65	0.50	µg/kg dry	2.53	ND	105	63-144	6.03	30	
Perfluorotetradecanoic acid (PFTA)	2.48	0.50	µg/kg dry	2.53	ND	98.0	69-133	3.44	30	
Perfluorotridecanoic acid (PFTrDA)	2.70	0.50	µg/kg dry	2.53	ND	107	66-139	1.65	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	2.36	0.50	µg/kg dry	2.37	ND	99.6	62-145	4.20	30	
Perfluorodecanesulfonic acid (PFDS)	1.97	0.50	µg/kg dry	2.44	ND	80.7	59-134	4.23	30	
Perfluorooctanesulfonamide (FOSA)	2.43	0.50	µg/kg dry	2.53	ND	96.2	67-137	5.26	30	
Perfluorononanesulfonic acid (PFNS)	2.19	0.50	µg/kg dry	2.43	ND	90.3	69-125	1.22	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	1.79	0.50	µg/kg dry	2.53	ND	70.8	18.9-162	11.3	30	
Perfluoro-1-butanedisulfonamide (FBSA)	2.00	0.50	µg/kg dry	2.53	ND	79.1	49.8-135	7.71	30	
Perfluorohexanesulfonic acid (PFHxS)	2.46	0.50	µg/kg dry	2.32	0.249	95.3	67-130	3.13	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	2.32	0.50	µg/kg dry	2.53	ND	91.9	62-155	4.12	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	2.43	0.50	µg/kg dry	2.53	ND	96.0	52.1-148	3.36	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.08	0.50	µg/kg dry	2.40	ND	86.5	64-140	12.7	30	
Perfluoropentanesulfonic acid (PFPeS)	2.33	0.50	µg/kg dry	2.38	ND	97.8	73-123	4.09	30	
Perfluoroundecanoic acid (PFUnA)	2.46	0.50	µg/kg dry	2.53	ND	97.4	64-136	10.0	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	0.50	µg/kg dry	2.53	ND	79.3	54.6-133	8.76	30	
Perfluoroheptanoic acid (PFHpA)	2.65	0.50	µg/kg dry	2.53	0.278	93.6	71-131	7.32	30	
Perfluorooctanoic acid (PFOA)	2.81	0.50	µg/kg dry	2.53	0.641	85.8	69-133	13.4	30	
Perfluorooctanesulfonic acid (PFOS)	4.21	0.50	µg/kg dry	2.34	2.04	92.9	68-136	13.6	30	
Perfluorononanoic acid (PFNA)	2.79	0.50	µg/kg dry	2.53	0.303	98.5	72-129	3.96	30	

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 B344574 - SOP 454-PFAAS
Blank (B344574-BLK1)

Prepared: 06/29/23 Analyzed: 06/30/23

Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L
11Cl-PF3OUdS (F53B Major)	ND	2.0	ng/L
9Cl-PF3ONS (F53B Minor)	ND	2.0	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	2.0	ng/L
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	2.0	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L
N-EtFOSAA (NEtFOSAA)	ND	2.0	ng/L
N-MeFOSAA (NMeFOSAA)	ND	2.0	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	2.0	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	2.0	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	2.0	ng/L
Perfluoro-1-butanesulfonamide (FBSA)	ND	2.0	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	2.0	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	2.0	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	2.0	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	2.0	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L

LCS (B344574-BS1)

Prepared: 06/29/23 Analyzed: 06/30/23

Perfluorobutanoic acid (PFBA)	9.79	2.0	ng/L	9.81	99.8	73-129
Perfluorobutanesulfonic acid (PFBS)	8.37	2.0	ng/L	8.68	96.4	72-130
Perfluoropentanoic acid (PFPeA)	9.75	2.0	ng/L	9.81	99.3	72-129
Perfluorohexanoic acid (PFHxA)	9.80	2.0	ng/L	9.81	99.9	72-129
11Cl-PF3OUdS (F53B Major)	10.0	2.0	ng/L	9.24	109	55.1-141
9Cl-PF3ONS (F53B Minor)	10.6	2.0	ng/L	9.15	116	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.47	2.0	ng/L	9.24	102	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.50	2.0	ng/L	9.81	66.2	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.5	2.0	ng/L	9.42	112	67-138
Perfluorodecanoic acid (PFDA)	11.3	2.0	ng/L	9.81	116	71-129
Perfluorododecanoic acid (PFDoA)	10.3	2.0	ng/L	9.81	105	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	8.44	2.0	ng/L	8.73	96.6	49.4-154

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 B344574 - SOP 454-PFAAS
LCS (B344574-BS1)

Prepared: 06/29/23 Analyzed: 06/30/23

Perfluoroheptanesulfonic acid (PFHpS)	11.1	2.0	ng/L	9.37		118	69-134			
N-EtFOSAA (NEtFOSAA)	11.9	2.0	ng/L	9.81		121	61-135			
N-MeFOSAA (NMeFOSAA)	11.0	2.0	ng/L	9.81		112	65-136			
Perfluorotetradecanoic acid (PFTTA)	11.5	2.0	ng/L	9.81		117	71-132			
Perfluorotridecanoic acid (PFTTrDA)	11.7	2.0	ng/L	9.81		119	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.66	2.0	ng/L	9.18		105	63-143			
Perfluorodecanesulfonic acid (PFDS)	7.40	2.0	ng/L	9.47		78.1	53-142			
Perfluorooctanesulfonamide (FOSA)	10.9	2.0	ng/L	9.81		112	67-137			
Perfluorononanesulfonic acid (PFNS)	10.5	2.0	ng/L	9.42		111	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.46	2.0	ng/L	9.81		86.2	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	9.58	2.0	ng/L	9.81		97.7	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	9.51	2.0	ng/L	8.98		106	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	10.7	2.0	ng/L	9.81		109	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	11.0	2.0	ng/L	9.81		112	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.33	2.0	ng/L	9.32		100	64-140			
Perfluoropentanesulfonic acid (PFPeS)	9.71	2.0	ng/L	9.22		105	71-127			
Perfluoroundecanoic acid (PFUnA)	10.6	2.0	ng/L	9.81		108	69-133			
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	8.68	2.0	ng/L	9.81		88.5	58.5-143			
Perfluoroheptanoic acid (PFHpA)	10.5	2.0	ng/L	9.81		107	72-130			
Perfluorooctanoic acid (PFOA)	10.8	2.0	ng/L	9.81		110	71-133			
Perfluorooctanesulfonic acid (PFOS)	10.9	2.0	ng/L	9.08		121	65-140			
Perfluorononanoic acid (PFNA)	10.3	2.0	ng/L	9.81		105	69-130			

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-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.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
S-29	Extracted Internal Standard is outside of control limits.

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Duplicate 1 (23F2465-01) Lab File ID: 23F2465-01.d Analyzed: 06/27/23 10:46									
M8FOSA	124745.3	3.972583	184,692.00	3.9726	68	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	16041.26	2.5543	28,725.00	2.5461	56	50 - 150	0.0082	+/-0.50	
M2PFTA	290499.3	4.329683	475,121.00	4.3297	61	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	23744.26	3.794833	43,601.00	3.794833	54	50 - 150	0.0000	+/-0.50	
MPFBA	150315.8	1.058467	237,855.00	1.058467	63	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	74917.34	2.872033	113,844.00	2.872033	66	50 - 150	0.0000	+/-0.50	
M6PFDA	267841.5	3.79535	433,493.00	3.795367	62	50 - 150	0.0000	+/-0.50	
M3PFBS	62595.02	1.9364	94,783.00	1.928117	66	50 - 150	0.0083	+/-0.50	
M7PFUnA	283104.7	3.94605	465,869.00	3.94605	61	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	18652.09	3.4373	30,967.00	3.4373	60	50 - 150	0.0000	+/-0.50	
M5PFPeA	151382.8	1.749417	255,163.00	1.749433	59	50 - 150	0.0000	+/-0.50	
M5PFHxA	263046.9	2.638533	431,214.00	2.638533	61	50 - 150	0.0000	+/-0.50	
M3PFHxS	37078.43	3.218333	62,457.00	3.21025	59	50 - 150	0.0081	+/-0.50	
M4PFHpA	262258.8	3.186933	444,956.00	3.178867	59	50 - 150	0.0081	+/-0.50	
M8PFOA	287698.3	3.453817	476,397.00	3.445833	60	50 - 150	0.0080	+/-0.50	
M8PFOS	38157.59	3.636183	64,373.00	3.636183	59	50 - 150	0.0000	+/-0.50	
M9PFNA	251715.8	3.637217	430,665.00	3.637233	58	50 - 150	0.0000	+/-0.50	
MPFDoA	245315.8	4.08865	399,805.00	4.080667	61	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	72718.3	3.953517	100,493.00	3.953517	72	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	75061.73	3.873783	109,665.00	3.873783	68	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-207 (23F2465-02)		Lab File ID: 23F2465-02.d				Analyzed: 06/27/23 10:53			
M8FOSA	141328.9	3.972583	184,692.00	3.9726	77	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	19784.99	2.5461	28,725.00	2.5461	69	50 - 150	0.0000	+/-0.50	
M2PFTA	297866.3	4.329683	475,121.00	4.3297	63	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	34059.93	3.794833	43,601.00	3.794833	78	50 - 150	0.0000	+/-0.50	
MPFBA	179388.3	1.058467	237,855.00	1.058467	75	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	64609.31	2.872033	113,844.00	2.872033	57	50 - 150	0.0000	+/-0.50	
M6PFDA	318174.7	3.79535	433,493.00	3.795367	73	50 - 150	0.0000	+/-0.50	
M3PFBS	75495.23	1.9364	94,783.00	1.928117	80	50 - 150	0.0083	+/-0.50	
M7PFUnA	323661	3.946033	465,869.00	3.94605	69	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	22309.4	3.4373	30,967.00	3.4373	72	50 - 150	0.0000	+/-0.50	
M5PFPeA	184950.2	1.749417	255,163.00	1.749433	72	50 - 150	0.0000	+/-0.50	
M5PFHxA	321196.9	2.638533	431,214.00	2.638533	74	50 - 150	0.0000	+/-0.50	
M3PFHxS	46045.36	3.21025	62,457.00	3.21025	74	50 - 150	0.0000	+/-0.50	
M4PFHpA	314947.1	3.186933	444,956.00	3.178867	71	50 - 150	0.0081	+/-0.50	
M8PFOA	360030.8	3.453817	476,397.00	3.445833	76	50 - 150	0.0080	+/-0.50	
M8PFOS	47151.55	3.636183	64,373.00	3.636183	73	50 - 150	0.0000	+/-0.50	
M9PFNA	330866.2	3.637217	430,665.00	3.637233	77	50 - 150	0.0000	+/-0.50	
MPFDaA	286125	4.08865	399,805.00	4.080667	72	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	73784.23	3.9535	100,493.00	3.953517	73	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	80759.88	3.873767	109,665.00	3.873783	74	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-208 (23F2465-03)		Lab File ID: 23F2465-03.d				Analyzed: 06/27/23 11:00			
M8FOSA	108824	3.980583	184,692.00	3.9726	59	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	17641.3	2.554317	28,725.00	2.5461	61	50 - 150	0.0082	+/-0.50	
M2PFTA	262337.3	4.329683	475,121.00	4.3297	55	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	28085.5	3.794833	43,601.00	3.794833	64	50 - 150	0.0000	+/-0.50	
MPFBA	154518.4	1.058467	237,855.00	1.058467	65	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	60910.09	2.880217	113,844.00	2.872033	54	50 - 150	0.0082	+/-0.50	
M6PFDA	267411.5	3.79535	433,493.00	3.795367	62	50 - 150	0.0000	+/-0.50	
M3PFBS	66804.64	1.9364	94,783.00	1.928117	70	50 - 150	0.0083	+/-0.50	
M7PFUnA	265982.4	3.946033	465,869.00	3.94605	57	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	23243.04	3.4373	30,967.00	3.4373	75	50 - 150	0.0000	+/-0.50	
M5PFPeA	160021.7	1.749417	255,163.00	1.749433	63	50 - 150	0.0000	+/-0.50	
M5PFHxA	275513.8	2.646783	431,214.00	2.638533	64	50 - 150	0.0083	+/-0.50	
M3PFHxS	42047.8	3.218333	62,457.00	3.21025	67	50 - 150	0.0081	+/-0.50	
M4PFHpA	293109.1	3.18695	444,956.00	3.178867	66	50 - 150	0.0081	+/-0.50	
M8PFOA	301487.6	3.453817	476,397.00	3.445833	63	50 - 150	0.0080	+/-0.50	
M8PFOS	40159.15	3.6362	64,373.00	3.636183	62	50 - 150	0.0000	+/-0.50	
M9PFNA	275496	3.637233	430,665.00	3.637233	64	50 - 150	0.0000	+/-0.50	
MPFDoA	241684.3	4.08865	399,805.00	4.080667	60	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	60578.4	3.953517	100,493.00	3.953517	60	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	71850.84	3.873783	109,665.00	3.873783	66	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-205 (23F2465-04)		Lab File ID: 23F2465-04.d				Analyzed: 06/27/23 11:07			
M8FOSA	138614.5	3.9806	184,692.00	3.9726	75	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	21383.99	2.5543	28,725.00	2.5461	74	50 - 150	0.0082	+/-0.50	
M2PFTA	295826.6	4.3297	475,121.00	4.3297	62	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	37227.11	3.802817	43,601.00	3.794833	85	50 - 150	0.0080	+/-0.50	
MPFBA	188532.9	1.058467	237,855.00	1.058467	79	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	69847.23	2.880217	113,844.00	2.872033	61	50 - 150	0.0082	+/-0.50	
M6PFDA	350353.6	3.795367	433,493.00	3.795367	81	50 - 150	0.0000	+/-0.50	
M3PFBS	79659.97	1.9364	94,783.00	1.928117	84	50 - 150	0.0083	+/-0.50	
M7PFUnA	332439.5	3.94605	465,869.00	3.94605	71	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	24692.99	3.4453	30,967.00	3.4373	80	50 - 150	0.0080	+/-0.50	
M5PFPeA	196108.9	1.749417	255,163.00	1.749433	77	50 - 150	0.0000	+/-0.50	
M5PFHxA	337453	2.646767	431,214.00	2.638533	78	50 - 150	0.0082	+/-0.50	
M3PFHxS	50075.72	3.21835	62,457.00	3.21025	80	50 - 150	0.0081	+/-0.50	
M4PFHpA	342383.6	3.186933	444,956.00	3.178867	77	50 - 150	0.0081	+/-0.50	
M8PFOA	374863.8	3.453833	476,397.00	3.445833	79	50 - 150	0.0080	+/-0.50	
M8PFOS	49203.22	3.6362	64,373.00	3.636183	76	50 - 150	0.0000	+/-0.50	
M9PFNA	338720.1	3.645233	430,665.00	3.637233	79	50 - 150	0.0080	+/-0.50	
MPFDoA	283750.3	4.088666	399,805.00	4.080667	71	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	72832.05	3.953517	100,493.00	3.953517	72	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	83010.13	3.873783	109,665.00	3.873783	76	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-206 (23F2465-05)		Lab File ID: 23F2465-05.d				Analyzed: 06/27/23 11:15			
M8FOSA	138459.2	3.980583	184,692.00	3.9726	75	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	22153.08	2.554317	28,725.00	2.5461	77	50 - 150	0.0082	+/-0.50	
M2PFTA	333135.3	4.3297	475,121.00	4.3297	70	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	38339.46	3.794833	43,601.00	3.794833	88	50 - 150	0.0000	+/-0.50	
MPFBA	187393.7	1.058467	237,855.00	1.058467	79	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	57977.26	2.880217	113,844.00	2.872033	51	50 - 150	0.0082	+/-0.50	
M6PFDA	356538.9	3.79535	433,493.00	3.795367	82	50 - 150	0.0000	+/-0.50	
M3PFBS	81224.94	1.9364	94,783.00	1.928117	86	50 - 150	0.0083	+/-0.50	
M7PFUnA	343829.4	3.94605	465,869.00	3.94605	74	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	25694.18	3.4453	30,967.00	3.4373	83	50 - 150	0.0080	+/-0.50	
M5PFPeA	192738.5	1.749417	255,163.00	1.749433	76	50 - 150	0.0000	+/-0.50	
M5PFHxA	337931.8	2.646783	431,214.00	2.638533	78	50 - 150	0.0083	+/-0.50	
M3PFHxS	50289.65	3.218333	62,457.00	3.21025	81	50 - 150	0.0081	+/-0.50	
M4PFHpA	347042.9	3.18695	444,956.00	3.178867	78	50 - 150	0.0081	+/-0.50	
M8PFOA	367129.4	3.453817	476,397.00	3.445833	77	50 - 150	0.0080	+/-0.50	
M8PFOS	51045.55	3.6362	64,373.00	3.636183	79	50 - 150	0.0000	+/-0.50	
M9PFNA	334040.8	3.645217	430,665.00	3.637233	78	50 - 150	0.0080	+/-0.50	
MPFDoA	310178.1	4.08865	399,805.00	4.080667	78	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	80848.98	3.953517	100,493.00	3.953517	80	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	92326.58	3.873783	109,665.00	3.873783	84	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-214 0-6" (23F2465-06) Lab File ID: 23F2465-06.d Analyzed: 06/27/23 11:22									
M8FOSA	131684	3.980583	184,692.00	3.9726	71	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	18101.07	2.562517	28,725.00	2.5461	63	50 - 150	0.0164	+/-0.50	
M2PFTA	290006.7	4.3297	475,121.00	4.3297	61	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	30344.83	3.8028	43,601.00	3.794833	70	50 - 150	0.0080	+/-0.50	
MPFBA	162825.1	1.058467	237,855.00	1.058467	68	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	61029.68	2.880217	113,844.00	2.872033	54	50 - 150	0.0082	+/-0.50	
M6PFDA	302815.2	3.803317	433,493.00	3.795367	70	50 - 150	0.0079	+/-0.50	
M3PFBS	68984.38	1.9364	94,783.00	1.928117	73	50 - 150	0.0083	+/-0.50	
M7PFUnA	300408.7	3.94605	465,869.00	3.94605	64	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	21404.46	3.4453	30,967.00	3.4373	69	50 - 150	0.0080	+/-0.50	
M5PFPeA	165486.7	1.757717	255,163.00	1.749433	65	50 - 150	0.0083	+/-0.50	
M5PFHxA	287642.6	2.646767	431,214.00	2.638533	67	50 - 150	0.0082	+/-0.50	
M3PFHxS	43173.08	3.218333	62,457.00	3.21025	69	50 - 150	0.0081	+/-0.50	
M4PFHpA	294405.1	3.195017	444,956.00	3.178867	66	50 - 150	0.0162	+/-0.50	
M8PFOA	317801.1	3.453817	476,397.00	3.445833	67	50 - 150	0.0080	+/-0.50	
M8PFOS	45794.22	3.644183	64,373.00	3.636183	71	50 - 150	0.0080	+/-0.50	
M9PFNA	301529.8	3.645217	430,665.00	3.637233	70	50 - 150	0.0080	+/-0.50	
MPFDoA	276057.6	4.08865	399,805.00	4.080667	69	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	69199.69	3.953517	100,493.00	3.953517	69	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	70870.06	3.873783	109,665.00	3.873783	65	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-214 14-20" (23F2465-07) Lab File ID: 23F2465-07.d Analyzed: 06/27/23 11:29									
M8FOSA	108834.6	3.980583	184,692.00	3.9726	59	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	16311.88	2.5543	28,725.00	2.5461	57	50 - 150	0.0082	+/-0.50	
M2PFTA	245349.3	4.3297	475,121.00	4.3297	52	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	31403.71	3.8028	43,601.00	3.794833	72	50 - 150	0.0080	+/-0.50	
MPFBA	139910	1.058467	237,855.00	1.058467	59	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	33790.09	2.880217	113,844.00	2.872033	30	50 - 150	0.0082	+/-0.50	*
M6PFDA	266735.5	3.803333	433,493.00	3.795367	62	50 - 150	0.0080	+/-0.50	
M3PFBS	59244.61	1.9364	94,783.00	1.928117	63	50 - 150	0.0083	+/-0.50	
M7PFUnA	262755.9	3.94605	465,869.00	3.94605	56	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	19178.74	3.445283	30,967.00	3.4373	62	50 - 150	0.0080	+/-0.50	
M5PFPeA	142614.6	1.749417	255,163.00	1.749433	56	50 - 150	0.0000	+/-0.50	
M5PFHxA	247928.5	2.646767	431,214.00	2.638533	57	50 - 150	0.0082	+/-0.50	
M3PFHxS	37739.27	3.218333	62,457.00	3.21025	60	50 - 150	0.0081	+/-0.50	
M4PFHpA	251217.3	3.195017	444,956.00	3.178867	56	50 - 150	0.0162	+/-0.50	
M8PFOA	275583.2	3.453817	476,397.00	3.445833	58	50 - 150	0.0080	+/-0.50	
M8PFOS	39319.43	3.644183	64,373.00	3.636183	61	50 - 150	0.0080	+/-0.50	
M9PFNA	262513.8	3.645217	430,665.00	3.637233	61	50 - 150	0.0080	+/-0.50	
MPFDoA	229615.1	4.088666	399,805.00	4.080667	57	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	62428.58	3.953517	100,493.00	3.953517	62	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	68921.59	3.873783	109,665.00	3.873783	63	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-204 0-6" (23F2465-08) Lab File ID: 23F2465-08.d Analyzed: 06/27/23 11:37									
M8FOSA	142556.7	3.980583	184,692.00	3.9726	77	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	21887.06	2.554317	28,725.00	2.5461	76	50 - 150	0.0082	+/-0.50	
M2PFTA	296859.1	4.337817	475,121.00	4.3297	62	50 - 150	0.0081	+/-0.50	
M2-8:2FTS	35250.56	3.8028	43,601.00	3.794833	81	50 - 150	0.0080	+/-0.50	
MPFBA	185947.2	1.058467	237,855.00	1.058467	78	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	69402.62	2.880217	113,844.00	2.872033	61	50 - 150	0.0082	+/-0.50	
M6PFDA	330067.7	3.803333	433,493.00	3.795367	76	50 - 150	0.0080	+/-0.50	
M3PFBS	80373.37	1.9364	94,783.00	1.928117	85	50 - 150	0.0083	+/-0.50	
M7PFUnA	326669.3	3.94605	465,869.00	3.94605	70	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	24609.79	3.4453	30,967.00	3.4373	79	50 - 150	0.0080	+/-0.50	
M5PFPeA	191575.7	1.757717	255,163.00	1.749433	75	50 - 150	0.0083	+/-0.50	
M5PFHxA	332714.3	2.646767	431,214.00	2.638533	77	50 - 150	0.0082	+/-0.50	
M3PFHxS	49400.2	3.218333	62,457.00	3.21025	79	50 - 150	0.0081	+/-0.50	
M4PFHpA	340363.7	3.195017	444,956.00	3.178867	76	50 - 150	0.0162	+/-0.50	
M8PFOA	369796.5	3.453833	476,397.00	3.445833	78	50 - 150	0.0080	+/-0.50	
M8PFOS	48558.77	3.644183	64,373.00	3.636183	75	50 - 150	0.0080	+/-0.50	
M9PFNA	332429.7	3.645217	430,665.00	3.637233	77	50 - 150	0.0080	+/-0.50	
MPFDoA	270010.4	4.088666	399,805.00	4.080667	68	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	73981.05	3.953517	100,493.00	3.953517	74	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	76283.99	3.873783	109,665.00	3.873783	70	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-204 12-16" (23F2465-09) Lab File ID: 23F2465-09.d Analyzed: 06/27/23 11:44									
M8FOSA	108475.1	3.980583	184,692.00	3.9726	59	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	15590.92	2.554317	28,725.00	2.5461	54	50 - 150	0.0082	+/-0.50	
M2PFTA	222190.4	4.329683	475,121.00	4.3297	47	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	24431.91	3.794833	43,601.00	3.794833	56	50 - 150	0.0000	+/-0.50	
MPFBA	139932.7	1.058467	237,855.00	1.058467	59	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	44630.21	2.880217	113,844.00	2.872033	39	50 - 150	0.0082	+/-0.50	*
M6PFDA	267694	3.795367	433,493.00	3.795367	62	50 - 150	0.0000	+/-0.50	
M3PFBS	59272.87	1.9364	94,783.00	1.928117	63	50 - 150	0.0083	+/-0.50	
M7PFUnA	253581.6	3.94605	465,869.00	3.94605	54	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	16068.33	3.4453	30,967.00	3.4373	52	50 - 150	0.0080	+/-0.50	
M5PFPeA	142340.6	1.749433	255,163.00	1.749433	56	50 - 150	0.0000	+/-0.50	
M5PFHxA	249649	2.63855	431,214.00	2.638533	58	50 - 150	0.0000	+/-0.50	
M3PFHxS	36367.4	3.218333	62,457.00	3.21025	58	50 - 150	0.0081	+/-0.50	
M4PFHpA	254935.7	3.18695	444,956.00	3.178867	57	50 - 150	0.0081	+/-0.50	
M8PFOA	274256.3	3.453817	476,397.00	3.445833	58	50 - 150	0.0080	+/-0.50	
M8PFOS	37520.11	3.6362	64,373.00	3.636183	58	50 - 150	0.0000	+/-0.50	
M9PFNA	246207.6	3.637233	430,665.00	3.637233	57	50 - 150	0.0000	+/-0.50	
MPFDoA	221023.3	4.08865	399,805.00	4.080667	55	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	52857.23	3.953517	100,493.00	3.953517	53	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	66056	3.873783	109,665.00	3.873783	60	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-203 (23F2465-10)		Lab File ID: 23F2465-10.d				Analyzed: 06/27/23 11:51			
M8FOSA	112895.9	3.980583	184,692.00	3.9726	61	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	15013.39	2.5461	28,725.00	2.5461	52	50 - 150	0.0000	+/-0.50	
M2PFTA	219648.2	4.3297	475,121.00	4.3297	46	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	26981.83	3.794833	43,601.00	3.794833	62	50 - 150	0.0000	+/-0.50	
MPFBA	134565.5	1.058467	237,855.00	1.058467	57	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	59469.53	2.872033	113,844.00	2.872033	52	50 - 150	0.0000	+/-0.50	
M6PFDA	258235	3.795367	433,493.00	3.795367	60	50 - 150	0.0000	+/-0.50	
M3PFBS	56205	1.928117	94,783.00	1.928117	59	50 - 150	0.0000	+/-0.50	
M7PFUnA	251099.2	3.94605	465,869.00	3.94605	54	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	19011.21	3.437317	30,967.00	3.4373	61	50 - 150	0.0000	+/-0.50	
M5PFPeA	137201.3	1.749433	255,163.00	1.749433	54	50 - 150	0.0000	+/-0.50	
M5PFHxA	241146.3	2.638533	431,214.00	2.638533	56	50 - 150	0.0000	+/-0.50	
M3PFHxS	36396.56	3.218333	62,457.00	3.21025	58	50 - 150	0.0081	+/-0.50	
M4PFHpA	246241.4	3.186933	444,956.00	3.178867	55	50 - 150	0.0081	+/-0.50	
M8PFOA	272859.3	3.453833	476,397.00	3.445833	57	50 - 150	0.0080	+/-0.50	
M8PFOS	38880.89	3.6362	64,373.00	3.636183	60	50 - 150	0.0000	+/-0.50	
M9PFNA	243874.5	3.637233	430,665.00	3.637233	57	50 - 150	0.0000	+/-0.50	
MPFDoA	217688.5	4.088666	399,805.00	4.080667	54	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	52604.88	3.953517	100,493.00	3.953517	52	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	57374.68	3.873783	109,665.00	3.873783	52	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-213 (23F2465-11RE1) Lab File ID: 23F2465-11RE1.d Analyzed: 06/28/23 13:20									
M8FOSA	208077.6	3.972583	181,872.00	3.972583	114	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	33106.64	2.52145	26,816.00	2.52145	123	50 - 150	0.0000	+/-0.50	
M2PFTA	476295.2	4.321567	492,243.00	4.321567	97	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	60899.92	3.786867	37,439.00	3.78685	163	50 - 150	0.0000	+/-0.50	*
MPFBA	252212.9	1.050167	240,397.00	1.050167	105	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	135335.4	2.855667	113,218.00	2.855667	120	50 - 150	0.0000	+/-0.50	
M6PFDA	496196.7	3.787383	454,843.00	3.787383	109	50 - 150	0.0000	+/-0.50	
M3PFBS	118260.8	1.911533	97,680.00	1.911533	121	50 - 150	0.0000	+/-0.50	
M7PFUnA	505827.5	3.93805	446,056.00	3.93805	113	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	49525.27	3.4293	27,636.00	3.4293	179	50 - 150	0.0000	+/-0.50	*
M5PFPeA	268780.2	1.731383	259,176.00	1.731383	104	50 - 150	0.0000	+/-0.50	
M5PFHxA	482330.3	2.6134	442,985.00	2.6134	109	50 - 150	0.0000	+/-0.50	
M3PFHxS	72261.15	3.201883	65,348.00	3.201883	111	50 - 150	0.0000	+/-0.50	
M4PFHpA	490488.6	3.170783	453,645.00	3.170783	108	50 - 150	0.0000	+/-0.50	
M8PFOA	570215.3	3.437833	506,837.00	3.437833	113	50 - 150	0.0000	+/-0.50	
M8PFOS	71943.55	3.6282	61,723.00	3.6282	117	50 - 150	0.0000	+/-0.50	
M9PFNA	508670.5	3.629233	450,390.00	3.629233	113	50 - 150	0.0000	+/-0.50	
MPFDoA	437860.7	4.072667	416,449.00	4.072667	105	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	123776.6	3.937533	105,961.00	3.945517	117	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	138322.3	3.857667	114,882.00	3.865617	120	50 - 150	-0.0079	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-212 (23F2465-12)		Lab File ID: 23F2465-12.d				Analyzed: 06/30/23 10:08			
M8FOSA	194928.4	3.964583	220,650.00	3.964583	88	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	26218.55	2.51325	31,950.00	2.505033	82	50 - 150	0.0082	+/-0.50	
M2PFTA	454820	4.313416	513,432.00	4.313416	89	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	49998.59	3.778883	49,893.00	3.778883	100	50 - 150	0.0000	+/-0.50	
MPFBA	243859.8	1.050167	271,664.00	1.050167	90	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	111818.6	2.8393	137,474.00	2.8393	81	50 - 150	0.0000	+/-0.50	
M6PFDA	513348.5	3.779417	536,748.00	3.779417	96	50 - 150	0.0000	+/-0.50	
M3PFBS	114365.6	1.90325	110,268.00	1.894967	104	50 - 150	0.0083	+/-0.50	
M7PFUnA	497244.6	3.93005	494,958.00	3.93005	100	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	31664.43	3.4205	32,993.00	3.4205	96	50 - 150	0.0000	+/-0.50	
M5PFPeA	267152.4	1.7231	315,157.00	1.7231	85	50 - 150	0.0000	+/-0.50	
M5PFHxA	473667.6	2.596967	531,003.00	2.596983	89	50 - 150	0.0000	+/-0.50	
M3PFHxS	68123.75	3.193817	69,708.00	3.193817	98	50 - 150	0.0000	+/-0.50	
M4PFHpA	486694.1	3.1627	529,559.00	3.1627	92	50 - 150	0.0000	+/-0.50	
M8PFOA	541295.8	3.437833	552,603.00	3.42985	98	50 - 150	0.0080	+/-0.50	
M8PFOS	68770.3	3.620217	73,446.00	3.620217	94	50 - 150	0.0000	+/-0.50	
M9PFNA	490506.8	3.629233	512,846.00	3.62125	96	50 - 150	0.0080	+/-0.50	
MPFDoA	413333.3	4.07265	450,031.00	4.064667	92	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	95169.77	3.937517	122,552.00	3.937517	78	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	102805	3.85765	135,935.00	3.85765	76	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-120 0-6" (23F2465-13) Lab File ID: 23F2465-13.d Analyzed: 06/30/23 10:15									
M8FOSA	223921.3	3.964583	220,650.00	3.964583	101	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	29869.98	2.51325	31,950.00	2.505033	93	50 - 150	0.0082	+/-0.50	
M2PFTA	517401.7	4.313416	513,432.00	4.313416	101	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	59501.68	3.778883	49,893.00	3.778883	119	50 - 150	0.0000	+/-0.50	
MPFBA	265495.9	1.050167	271,664.00	1.050167	98	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	126027.6	2.8393	137,474.00	2.8393	92	50 - 150	0.0000	+/-0.50	
M6PFDA	557969.3	3.779417	536,748.00	3.779417	104	50 - 150	0.0000	+/-0.50	
M3PFBS	123451.9	1.90325	110,268.00	1.894967	112	50 - 150	0.0083	+/-0.50	
M7PFUnA	546491.5	3.93005	494,958.00	3.93005	110	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	39508.91	3.4205	32,993.00	3.4205	120	50 - 150	0.0000	+/-0.50	
M5PFPeA	292467.4	1.7231	315,157.00	1.7231	93	50 - 150	0.0000	+/-0.50	
M5PFHxA	518421.7	2.596967	531,003.00	2.596983	98	50 - 150	0.0000	+/-0.50	
M3PFHxS	71574.45	3.193817	69,708.00	3.193817	103	50 - 150	0.0000	+/-0.50	
M4PFHpA	521450.3	3.1627	529,559.00	3.1627	98	50 - 150	0.0000	+/-0.50	
M8PFOA	558428.8	3.437833	552,603.00	3.42985	101	50 - 150	0.0080	+/-0.50	
M8PFOS	84383.77	3.620217	73,446.00	3.620217	115	50 - 150	0.0000	+/-0.50	
M9PFNA	545693.7	3.629233	512,846.00	3.62125	106	50 - 150	0.0080	+/-0.50	
MPFDoA	468623	4.07265	450,031.00	4.064667	104	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	105560.4	3.937517	122,552.00	3.937517	86	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	124132.4	3.85765	135,935.00	3.85765	91	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-120 16-20" (23F2465-14) Lab File ID: 23F2465-14.d Analyzed: 06/30/23 10:23									
M8FOSA	219802	3.964583	220,650.00	3.964583	100	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	31333.85	2.505033	31,950.00	2.505033	98	50 - 150	0.0000	+/-0.50	
M2PFTA	504278.8	4.313416	513,432.00	4.313416	98	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	59796.68	3.778883	49,893.00	3.778883	120	50 - 150	0.0000	+/-0.50	
MPFBA	266719.4	1.050167	271,664.00	1.050167	98	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	155058	2.8393	137,474.00	2.8393	113	50 - 150	0.0000	+/-0.50	
M6PFDA	541528.4	3.779417	536,748.00	3.779417	101	50 - 150	0.0000	+/-0.50	
M3PFBS	123611.2	1.894967	110,268.00	1.894967	112	50 - 150	0.0000	+/-0.50	
M7PFUnA	522095.3	3.93005	494,958.00	3.93005	105	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	39369.98	3.4205	32,993.00	3.4205	119	50 - 150	0.0000	+/-0.50	
M5PFPeA	299579.3	1.714833	315,157.00	1.7231	95	50 - 150	-0.0083	+/-0.50	
M5PFHxA	523261.6	2.588767	531,003.00	2.596983	99	50 - 150	-0.0082	+/-0.50	
M3PFHxS	69698.57	3.193817	69,708.00	3.193817	100	50 - 150	0.0000	+/-0.50	
M4PFHpA	524761.3	3.1627	529,559.00	3.1627	99	50 - 150	0.0000	+/-0.50	
M8PFOA	571648.1	3.42985	552,603.00	3.42985	103	50 - 150	0.0000	+/-0.50	
M8PFOS	76491.83	3.620217	73,446.00	3.620217	104	50 - 150	0.0000	+/-0.50	
M9PFNA	527228.7	3.62125	512,846.00	3.62125	103	50 - 150	0.0000	+/-0.50	
MPFDoA	464934.4	4.064667	450,031.00	4.064667	103	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	111919.8	3.937517	122,552.00	3.937517	91	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	128702.9	3.85765	135,935.00	3.85765	95	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-116 (23F2465-15) Lab File ID: 23F2465-15.d Analyzed: 06/30/23 10:30									
M8FOSA	200640.5	3.964583	220,650.00	3.964583	91	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	28773.28	2.51325	31,950.00	2.505033	90	50 - 150	0.0082	+/-0.50	
M2PFTA	446357.1	4.313416	513,432.00	4.313416	87	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	54150.7	3.778883	49,893.00	3.778883	109	50 - 150	0.0000	+/-0.50	
MPFBA	242593.4	1.050167	271,664.00	1.050167	89	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	129587	2.8393	137,474.00	2.8393	94	50 - 150	0.0000	+/-0.50	
M6PFDA	502157.4	3.779417	536,748.00	3.779417	94	50 - 150	0.0000	+/-0.50	
M3PFBS	113157.5	1.90325	110,268.00	1.894967	103	50 - 150	0.0083	+/-0.50	
M7PFUnA	479517.6	3.93005	494,958.00	3.93005	97	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	32961.94	3.4205	32,993.00	3.4205	100	50 - 150	0.0000	+/-0.50	
M5PFPeA	267055.7	1.7231	315,157.00	1.7231	85	50 - 150	0.0000	+/-0.50	
M5PFHxA	480133.6	2.596967	531,003.00	2.596983	90	50 - 150	0.0000	+/-0.50	
M3PFHxS	63546.52	3.193817	69,708.00	3.193817	91	50 - 150	0.0000	+/-0.50	
M4PFHpA	478835.1	3.1627	529,559.00	3.1627	90	50 - 150	0.0000	+/-0.50	
M8PFOA	520315.3	3.437833	552,603.00	3.42985	94	50 - 150	0.0080	+/-0.50	
M8PFOS	71929.38	3.620217	73,446.00	3.620217	98	50 - 150	0.0000	+/-0.50	
M9PFNA	477894	3.62125	512,846.00	3.62125	93	50 - 150	0.0000	+/-0.50	
MPFDoA	412827.6	4.064667	450,031.00	4.064667	92	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	97790.88	3.937517	122,552.00	3.937517	80	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	120415.9	3.85765	135,935.00	3.85765	89	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-211 (23F2465-16) Lab File ID: 23F2465-16.d Analyzed: 06/30/23 10:37									
M8FOSA	156866.1	3.964583	220,650.00	3.964583	71	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	26387.43	2.505033	31,950.00	2.505033	83	50 - 150	0.0000	+/-0.50	
M2PFTA	369022.2	4.313416	513,432.00	4.313416	72	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	49213.54	3.778883	49,893.00	3.778883	99	50 - 150	0.0000	+/-0.50	
MPFBA	183214	1.050167	271,664.00	1.050167	67	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	94456.02	2.8393	137,474.00	2.8393	69	50 - 150	0.0000	+/-0.50	
M6PFDA	399220.6	3.779417	536,748.00	3.779417	74	50 - 150	0.0000	+/-0.50	
M3PFBS	87777.8	1.894967	110,268.00	1.894967	80	50 - 150	0.0000	+/-0.50	
M7PFUnA	411393.3	3.93005	494,958.00	3.93005	83	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	36158.77	3.4205	32,993.00	3.4205	110	50 - 150	0.0000	+/-0.50	
M5PFPeA	209320.4	1.7231	315,157.00	1.7231	66	50 - 150	0.0000	+/-0.50	
M5PFHxA	368392.3	2.596967	531,003.00	2.596983	69	50 - 150	0.0000	+/-0.50	
M3PFHxS	51578.04	3.193817	69,708.00	3.193817	74	50 - 150	0.0000	+/-0.50	
M4PFHpA	381665.8	3.1627	529,559.00	3.1627	72	50 - 150	0.0000	+/-0.50	
M8PFOA	420151.1	3.437833	552,603.00	3.42985	76	50 - 150	0.0080	+/-0.50	
M8PFOS	53822.97	3.620217	73,446.00	3.620217	73	50 - 150	0.0000	+/-0.50	
M9PFNA	408136.5	3.62125	512,846.00	3.62125	80	50 - 150	0.0000	+/-0.50	
MPFDoA	345287.5	4.07265	450,031.00	4.064667	77	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	96116.14	3.937517	122,552.00	3.937517	78	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	111840.3	3.85765	135,935.00	3.85765	82	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-209 0-6" (23F2465-17) Lab File ID: 23F2465-17.d Analyzed: 06/30/23 10:44									
M8FOSA	197776.9	3.964583	220,650.00	3.964583	90	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	26874.06	2.505033	31,950.00	2.505033	84	50 - 150	0.0000	+/-0.50	
M2PFTA	431137.8	4.313416	513,432.00	4.313416	84	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	46648.45	3.778883	49,893.00	3.778883	93	50 - 150	0.0000	+/-0.50	
MPFBA	236692.8	1.050167	271,664.00	1.050167	87	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	124195.1	2.8393	137,474.00	2.8393	90	50 - 150	0.0000	+/-0.50	
M6PFDA	482681.1	3.779417	536,748.00	3.779417	90	50 - 150	0.0000	+/-0.50	
M3PFBS	107040.1	1.894967	110,268.00	1.894967	97	50 - 150	0.0000	+/-0.50	
M7PFUnA	452202.3	3.93005	494,958.00	3.93005	91	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	31875.72	3.4205	32,993.00	3.4205	97	50 - 150	0.0000	+/-0.50	
M5PFPeA	257512.6	1.714833	315,157.00	1.7231	82	50 - 150	-0.0083	+/-0.50	
M5PFHxA	454747.4	2.588767	531,003.00	2.596983	86	50 - 150	-0.0082	+/-0.50	
M3PFHxS	64634.24	3.193817	69,708.00	3.193817	93	50 - 150	0.0000	+/-0.50	
M4PFHpA	464733.2	3.1627	529,559.00	3.1627	88	50 - 150	0.0000	+/-0.50	
M8PFOA	496384.4	3.42985	552,603.00	3.42985	90	50 - 150	0.0000	+/-0.50	
M8PFOS	67421.32	3.620217	73,446.00	3.620217	92	50 - 150	0.0000	+/-0.50	
M9PFNA	467104.7	3.62125	512,846.00	3.62125	91	50 - 150	0.0000	+/-0.50	
MPFDoA	400086.1	4.064667	450,031.00	4.064667	89	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	92296.21	3.937517	122,552.00	3.937517	75	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	116567.9	3.85765	135,935.00	3.85765	86	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-209 16-20" (23F2465-18) Lab File ID: 23F2465-18.d Analyzed: 06/30/23 10:51									
M8FOSA	251246.3	3.964583	220,650.00	3.964583	114	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	35892.06	2.496817	31,950.00	2.505033	112	50 - 150	-0.0082	+/-0.50	
M2PFTA	561484.3	4.313416	513,432.00	4.313416	109	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	65870.73	3.778883	49,893.00	3.778883	132	50 - 150	0.0000	+/-0.50	
MPFBA	303781.7	1.050167	271,664.00	1.050167	112	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	136147.7	2.831117	137,474.00	2.8393	99	50 - 150	-0.0082	+/-0.50	
M6PFDA	635951.4	3.779417	536,748.00	3.779417	118	50 - 150	0.0000	+/-0.50	
M3PFBS	138537.6	1.886683	110,268.00	1.894967	126	50 - 150	-0.0083	+/-0.50	
M7PFUnA	605845.1	3.93005	494,958.00	3.93005	122	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	44369.71	3.4205	32,993.00	3.4205	134	50 - 150	0.0000	+/-0.50	
M5PFPeA	329064.9	1.714833	315,157.00	1.7231	104	50 - 150	-0.0083	+/-0.50	
M5PFHxA	580836.5	2.588767	531,003.00	2.596983	109	50 - 150	-0.0082	+/-0.50	
M3PFHxS	80760.66	3.193817	69,708.00	3.193817	116	50 - 150	0.0000	+/-0.50	
M4PFHpA	581471.1	3.154633	529,559.00	3.1627	110	50 - 150	-0.0081	+/-0.50	
M8PFOA	648875.6	3.42985	552,603.00	3.42985	117	50 - 150	0.0000	+/-0.50	
M8PFOS	85233.28	3.620217	73,446.00	3.620217	116	50 - 150	0.0000	+/-0.50	
M9PFNA	591748.3	3.62125	512,846.00	3.62125	115	50 - 150	0.0000	+/-0.50	
MPFDoA	512589.3	4.064667	450,031.00	4.064667	114	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	129625.1	3.929517	122,552.00	3.937517	106	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	145762.9	3.85765	135,935.00	3.85765	107	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-210 (23F2465-19) Lab File ID: 23F2465-19.d Analyzed: 06/30/23 10:59									
M8FOSA	200376.4	3.964583	220,650.00	3.964583	91	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	29689.92	2.505033	31,950.00	2.505033	93	50 - 150	0.0000	+/-0.50	
M2PFTA	462330.6	4.313416	513,432.00	4.313416	90	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	72167.96	3.778883	49,893.00	3.778883	145	50 - 150	0.0000	+/-0.50	
MPFBA	226589.1	1.050167	271,664.00	1.050167	83	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	102468.4	2.8393	137,474.00	2.8393	75	50 - 150	0.0000	+/-0.50	
M6PFDA	487714.2	3.779417	536,748.00	3.779417	91	50 - 150	0.0000	+/-0.50	
M3PFBS	107569.9	1.894967	110,268.00	1.894967	98	50 - 150	0.0000	+/-0.50	
M7PFUnA	491101.5	3.93005	494,958.00	3.93005	99	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	40965.88	3.4293	32,993.00	3.4205	124	50 - 150	0.0088	+/-0.50	
M5PFPeA	250400.3	1.7231	315,157.00	1.7231	79	50 - 150	0.0000	+/-0.50	
M5PFHxA	443271.3	2.596983	531,003.00	2.596983	83	50 - 150	0.0000	+/-0.50	
M3PFHxS	63730.3	3.193817	69,708.00	3.193817	91	50 - 150	0.0000	+/-0.50	
M4PFHpA	466963.5	3.1627	529,559.00	3.1627	88	50 - 150	0.0000	+/-0.50	
M8PFOA	507350.8	3.437833	552,603.00	3.42985	92	50 - 150	0.0080	+/-0.50	
M8PFOS	69452.19	3.6282	73,446.00	3.620217	95	50 - 150	0.0080	+/-0.50	
M9PFNA	477556.2	3.629233	512,846.00	3.62125	93	50 - 150	0.0080	+/-0.50	
MPFDoA	433852.4	4.07265	450,031.00	4.064667	96	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	107658.4	3.937517	122,552.00	3.937517	88	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	134892.6	3.85765	135,935.00	3.85765	99	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-201 (23F2465-20)		Lab File ID: 23F2465-20.d				Analyzed: 06/30/23 11:28			
M8FOSA	239763.8	3.964583	220,650.00	3.964583	109	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	33625.2	2.505033	31,950.00	2.496817	105	50 - 150	0.0082	+/-0.50	
M2PFTA	526852.4	4.313416	513,432.00	4.313416	103	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	66635.96	3.778883	49,893.00	3.778883	134	50 - 150	0.0000	+/-0.50	
MPFBA	296863	1.050167	271,664.00	1.050167	109	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	119074.5	2.8393	137,474.00	2.831117	87	50 - 150	0.0082	+/-0.50	
M6PFDA	625285.5	3.779417	536,748.00	3.779417	116	50 - 150	0.0000	+/-0.50	
M3PFBS	133234.3	1.894967	110,268.00	1.886667	121	50 - 150	0.0083	+/-0.50	
M7PFUnA	598223.6	3.93005	494,958.00	3.92205	121	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	38893.69	3.4205	32,993.00	3.4205	118	50 - 150	0.0000	+/-0.50	
M5PFPeA	325078.7	1.7231	315,157.00	1.714833	103	50 - 150	0.0083	+/-0.50	
M5PFHxA	565299.1	2.588767	531,003.00	2.588767	106	50 - 150	0.0000	+/-0.50	
M3PFHxS	79582.16	3.193817	69,708.00	3.185733	114	50 - 150	0.0081	+/-0.50	
M4PFHpA	563123.4	3.1627	529,559.00	3.154633	106	50 - 150	0.0081	+/-0.50	
M8PFOA	617941.1	3.437833	552,603.00	3.42985	112	50 - 150	0.0080	+/-0.50	
M8PFOS	84194.65	3.620217	73,446.00	3.620217	115	50 - 150	0.0000	+/-0.50	
M9PFNA	565266.8	3.62125	512,846.00	3.62125	110	50 - 150	0.0000	+/-0.50	
MPFDoA	499481.2	4.07265	450,031.00	4.064667	111	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	124079.8	3.937517	122,552.00	3.929517	101	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	135768.1	3.85765	135,935.00	3.85765	100	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
SS-202 (23F2465-21) Lab File ID: 23F2465-21.d Analyzed: 06/30/23 11:35									
M8FOSA	203090.7	3.964583	220,650.00	3.964583	92	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	30690.49	2.505033	31,950.00	2.496817	96	50 - 150	0.0082	+/-0.50	
M2PFTA	449232.8	4.313416	513,432.00	4.313416	87	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	56775.61	3.778883	49,893.00	3.778883	114	50 - 150	0.0000	+/-0.50	
MPFBA	260628.9	1.050167	271,664.00	1.050167	96	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	105461.5	2.8393	137,474.00	2.831117	77	50 - 150	0.0082	+/-0.50	
M6PFDA	532379.9	3.779417	536,748.00	3.779417	99	50 - 150	0.0000	+/-0.50	
M3PFBS	115962.8	1.894967	110,268.00	1.886667	105	50 - 150	0.0083	+/-0.50	
M7PFUnA	513588	3.93005	494,958.00	3.92205	104	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	32420.16	3.4205	32,993.00	3.4205	98	50 - 150	0.0000	+/-0.50	
M5PFPeA	280990.1	1.7231	315,157.00	1.714833	89	50 - 150	0.0083	+/-0.50	
M5PFHxA	485733.4	2.596967	531,003.00	2.588767	91	50 - 150	0.0082	+/-0.50	
M3PFHxS	70501.12	3.193817	69,708.00	3.185733	101	50 - 150	0.0081	+/-0.50	
M4PFHpA	490891.5	3.1627	529,559.00	3.154633	93	50 - 150	0.0081	+/-0.50	
M8PFOA	538162.6	3.437833	552,603.00	3.42985	97	50 - 150	0.0080	+/-0.50	
M8PFOS	80320.37	3.620217	73,446.00	3.620217	109	50 - 150	0.0000	+/-0.50	
M9PFNA	483170.1	3.62125	512,846.00	3.62125	94	50 - 150	0.0000	+/-0.50	
MPFDoA	423684.6	4.07265	450,031.00	4.064667	94	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	99197.49	3.937517	122,552.00	3.929517	81	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	116033.7	3.85765	135,935.00	3.85765	85	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
EB-6.15.23 (23F2465-22) Lab File ID: 23F2465-22.d Analyzed: 06/30/23 13:49									
M8FOSA	162009.8	3.964583	220,650.00	3.964583	73	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	28633.67	2.51325	31,950.00	2.505033	90	50 - 150	0.0082	+/-0.50	
M2PFTA	370382.7	4.313416	513,432.00	4.313416	72	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	46858.59	3.778883	49,893.00	3.778883	94	50 - 150	0.0000	+/-0.50	
MPFBA	238334	1.050167	271,664.00	1.050167	88	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	139909.7	2.847483	137,474.00	2.8393	102	50 - 150	0.0082	+/-0.50	
M6PFDA	465314.4	3.779417	536,748.00	3.779417	87	50 - 150	0.0000	+/-0.50	
M3PFBS	104146.1	1.90325	110,268.00	1.894967	94	50 - 150	0.0083	+/-0.50	
M7PFUnA	457615.5	3.93005	494,958.00	3.93005	92	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	33779.84	3.4293	32,993.00	3.4205	102	50 - 150	0.0088	+/-0.50	
M5PFPeA	255171.9	1.7231	315,157.00	1.714833	81	50 - 150	0.0083	+/-0.50	
M5PFHxA	449515.5	2.596967	531,003.00	2.588767	85	50 - 150	0.0082	+/-0.50	
M3PFHxS	61965.03	3.193817	69,708.00	3.193817	89	50 - 150	0.0000	+/-0.50	
M4PFHpA	442133.3	3.1627	529,559.00	3.1627	83	50 - 150	0.0000	+/-0.50	
M8PFOA	490207.5	3.437833	552,603.00	3.42985	89	50 - 150	0.0080	+/-0.50	
M8PFOS	68963.2	3.620217	73,446.00	3.620217	94	50 - 150	0.0000	+/-0.50	
M9PFNA	462355	3.62125	512,846.00	3.62125	90	50 - 150	0.0000	+/-0.50	
MPFDoA	380561.3	4.07265	450,031.00	4.064667	85	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	92583.81	3.937517	122,552.00	3.937517	76	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	114455.3	3.85765	135,935.00	3.85765	84	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B343979-BLK1)			Lab File ID: B343979-BLK1.d			Analyzed: 06/27/23 10:24			
M8FOSA	164621.1	3.972583	184,692.00	3.9726	89	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	26547.57	2.5461	28,725.00	2.5461	92	50 - 150	0.0000	+/-0.50	
M2PFTA	391428.3	4.329683	475,121.00	4.3297	82	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	38761.94	3.794817	43,601.00	3.794833	89	50 - 150	0.0000	+/-0.50	
MPFBA	234378.4	1.058467	237,855.00	1.058467	99	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	95393.48	2.872033	113,844.00	2.872033	84	50 - 150	0.0000	+/-0.50	
M6PFDA	416429.4	3.79535	433,493.00	3.795367	96	50 - 150	0.0000	+/-0.50	
M3PFBS	99929.58	1.9281	94,783.00	1.928117	105	50 - 150	0.0000	+/-0.50	
M7PFUnA	413774.4	3.946033	465,869.00	3.94605	89	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	28921.98	3.4373	30,967.00	3.4373	93	50 - 150	0.0000	+/-0.50	
M5PFPeA	239029.7	1.749417	255,163.00	1.749433	94	50 - 150	0.0000	+/-0.50	
M5PFHxA	414992.3	2.638533	431,214.00	2.638533	96	50 - 150	0.0000	+/-0.50	
M3PFHxS	59535.57	3.21025	62,457.00	3.21025	95	50 - 150	0.0000	+/-0.50	
M4PFHpA	428792.9	3.186933	444,956.00	3.178867	96	50 - 150	0.0081	+/-0.50	
M8PFOA	467097.9	3.445817	476,397.00	3.445833	98	50 - 150	0.0000	+/-0.50	
M8PFOS	64525.34	3.636183	64,373.00	3.636183	100	50 - 150	0.0000	+/-0.50	
M9PFNA	405130	3.637217	430,665.00	3.637233	94	50 - 150	0.0000	+/-0.50	
MPFDoA	363337.3	4.08865	399,805.00	4.080667	91	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	87933.27	3.9535	100,493.00	3.953517	88	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	105228.7	3.873767	109,665.00	3.873783	96	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B343979-BS1)			Lab File ID: B343979-BS1.d			Analyzed: 06/27/23 10:16			
M8FOSA	182720.5	3.9726	184,692.00	3.9726	99	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	29174.17	2.5461	28,725.00	2.5461	102	50 - 150	0.0000	+/-0.50	
M2PFTA	411468.9	4.329717	475,121.00	4.3297	87	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	43789.42	3.794833	43,601.00	3.794833	100	50 - 150	0.0000	+/-0.50	
MPFBA	260901.6	1.058467	237,855.00	1.058467	110	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	102936.6	2.872033	113,844.00	2.872033	90	50 - 150	0.0000	+/-0.50	
M6PFDA	469439.2	3.795367	433,493.00	3.795367	108	50 - 150	0.0000	+/-0.50	
M3PFBS	110685	1.928117	94,783.00	1.928117	117	50 - 150	0.0000	+/-0.50	
M7PFUnA	452874.3	3.94605	465,869.00	3.94605	97	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	30803.96	3.437317	30,967.00	3.4373	99	50 - 150	0.0000	+/-0.50	
M5PFPeA	267448.1	1.749417	255,163.00	1.749433	105	50 - 150	0.0000	+/-0.50	
M5PFHxA	459516.7	2.638533	431,214.00	2.638533	107	50 - 150	0.0000	+/-0.50	
M3PFHxS	64620.27	3.21025	62,457.00	3.21025	103	50 - 150	0.0000	+/-0.50	
M4PFHpA	467093.2	3.186933	444,956.00	3.178867	105	50 - 150	0.0081	+/-0.50	
M8PFOA	511369.5	3.445833	476,397.00	3.445833	107	50 - 150	0.0000	+/-0.50	
M8PFOS	70717.46	3.6362	64,373.00	3.636183	110	50 - 150	0.0000	+/-0.50	
M9PFNA	464092.4	3.637233	430,665.00	3.637233	108	50 - 150	0.0000	+/-0.50	
MPFDoA	398422.9	4.088666	399,805.00	4.080667	100	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	95809.08	3.953517	100,493.00	3.953517	95	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	108059.6	3.873783	109,665.00	3.873783	99	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B343979-MS1) Lab File ID: B343979-MS1.d Analyzed: 06/27/23 10:31									
M8FOSA	114819.2	3.9726	184,692.00	3.9726	62	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	15118.65	2.5461	28,725.00	2.5461	53	50 - 150	0.0000	+/-0.50	
M2PFTA	286373.3	4.3297	475,121.00	4.3297	60	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	25179.34	3.794833	43,601.00	3.794833	58	50 - 150	0.0000	+/-0.50	
MPFBA	138743.4	1.058467	237,855.00	1.058467	58	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	57003	2.872033	113,844.00	2.872033	50	50 - 150	0.0000	+/-0.50	
M6PFDA	248855.3	3.795367	433,493.00	3.795367	57	50 - 150	0.0000	+/-0.50	
M3PFBS	58792.91	1.9364	94,783.00	1.928117	62	50 - 150	0.0083	+/-0.50	
M7PFUnA	250634.1	3.94605	465,869.00	3.94605	54	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	19508.77	3.4373	30,967.00	3.4373	63	50 - 150	0.0000	+/-0.50	
M5PFPeA	142232.4	1.749417	255,163.00	1.749433	56	50 - 150	0.0000	+/-0.50	
M5PFHxA	245223.1	2.638533	431,214.00	2.638533	57	50 - 150	0.0000	+/-0.50	
M3PFHxS	35366.2	3.218333	62,457.00	3.21025	57	50 - 150	0.0081	+/-0.50	
M4PFHpA	252322.3	3.186933	444,956.00	3.178867	57	50 - 150	0.0081	+/-0.50	
M8PFOA	261925.7	3.453817	476,397.00	3.445833	55	50 - 150	0.0080	+/-0.50	
M8PFOS	34575.91	3.6362	64,373.00	3.636183	54	50 - 150	0.0000	+/-0.50	
M9PFNA	253929.8	3.637233	430,665.00	3.637233	59	50 - 150	0.0000	+/-0.50	
MPFDoA	235737.1	4.088666	399,805.00	4.080667	59	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	63622.29	3.953517	100,493.00	3.953517	63	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	68728.99	3.873783	109,665.00	3.873783	63	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B343979-MSD1)			Lab File ID: B343979-MSD1.d			Analyzed: 06/27/23 10:38			
M8FOSA	148742.2	3.980567	184,692.00	3.9726	81	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	21035.41	2.5543	28,725.00	2.5461	73	50 - 150	0.0082	+/-0.50	
M2PFTA	318937	4.329683	475,121.00	4.3297	67	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	32007.55	3.794833	43,601.00	3.794833	73	50 - 150	0.0000	+/-0.50	
MPFBA	178704.5	1.058467	237,855.00	1.058467	75	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	70987.05	2.880217	113,844.00	2.872033	62	50 - 150	0.0082	+/-0.50	
M6PFDA	352641.5	3.79535	433,493.00	3.795367	81	50 - 150	0.0000	+/-0.50	
M3PFBS	76429.86	1.9364	94,783.00	1.928117	81	50 - 150	0.0083	+/-0.50	
M7PFUnA	343728.9	3.946033	465,869.00	3.94605	74	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	24665.3	3.4373	30,967.00	3.4373	80	50 - 150	0.0000	+/-0.50	
M5PFPeA	186436.1	1.749417	255,163.00	1.749433	73	50 - 150	0.0000	+/-0.50	
M5PFHxA	327461.8	2.646767	431,214.00	2.638533	76	50 - 150	0.0082	+/-0.50	
M3PFHxS	49108.16	3.218333	62,457.00	3.21025	79	50 - 150	0.0081	+/-0.50	
M4PFHpA	327484.1	3.186933	444,956.00	3.178867	74	50 - 150	0.0081	+/-0.50	
M8PFOA	351181.8	3.453817	476,397.00	3.445833	74	50 - 150	0.0080	+/-0.50	
M8PFOS	46730.46	3.636183	64,373.00	3.636183	73	50 - 150	0.0000	+/-0.50	
M9PFNA	323252.1	3.637217	430,665.00	3.637233	75	50 - 150	0.0000	+/-0.50	
MPFDoA	294581	4.08865	399,805.00	4.080667	74	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	73335.51	3.9535	100,493.00	3.953517	73	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	81838.57	3.873767	109,665.00	3.873783	75	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B343981-BLK1)		Lab File ID: B343981-BLK1.d				Analyzed: 06/30/23 09:39			
M8FOSA	226669.4	3.964583	220,650.00	3.964583	103	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	32699.26	2.51325	31,950.00	2.505033	102	50 - 150	0.0082	+/-0.50	
M2PFTA	480950.9	4.313416	513,432.00	4.313416	94	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	51615.04	3.778883	49,893.00	3.778883	103	50 - 150	0.0000	+/-0.50	
MPFBA	280398.8	1.050167	271,664.00	1.050167	103	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	143161.7	2.8393	137,474.00	2.8393	104	50 - 150	0.0000	+/-0.50	
M6PFDA	550444.4	3.779417	536,748.00	3.779417	103	50 - 150	0.0000	+/-0.50	
M3PFBS	127883	1.90325	110,268.00	1.894967	116	50 - 150	0.0083	+/-0.50	
M7PFUnA	547667.6	3.93005	494,958.00	3.93005	111	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	41959	3.4205	32,993.00	3.4205	127	50 - 150	0.0000	+/-0.50	
M5PFPeA	311271.1	1.7231	315,157.00	1.7231	99	50 - 150	0.0000	+/-0.50	
M5PFHxA	542316.8	2.596967	531,003.00	2.596983	102	50 - 150	0.0000	+/-0.50	
M3PFHxS	73792.96	3.193817	69,708.00	3.193817	106	50 - 150	0.0000	+/-0.50	
M4PFHpA	543142.2	3.1627	529,559.00	3.1627	103	50 - 150	0.0000	+/-0.50	
M8PFOA	587054.1	3.437833	552,603.00	3.42985	106	50 - 150	0.0080	+/-0.50	
M8PFOS	78849.77	3.620217	73,446.00	3.620217	107	50 - 150	0.0000	+/-0.50	
M9PFNA	531396.4	3.62125	512,846.00	3.62125	104	50 - 150	0.0000	+/-0.50	
MPFDoA	455862.1	4.07265	450,031.00	4.064667	101	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	118620.6	3.937517	122,552.00	3.937517	97	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	134948.2	3.85765	135,935.00	3.85765	99	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B343981-BS1)			Lab File ID: B343981-BS1.d			Analyzed: 06/30/23 09:32			
M8FOSA	242721.8	3.964583	220,650.00	3.964583	110	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	39970.41	2.51325	31,950.00	2.505033	125	50 - 150	0.0082	+/-0.50	
M2PFTA	537075.8	4.313416	513,432.00	4.313416	105	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	60047.09	3.778883	49,893.00	3.778883	120	50 - 150	0.0000	+/-0.50	
MPFBA	313510.6	1.050167	271,664.00	1.050167	115	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	141987.2	2.847483	137,474.00	2.8393	103	50 - 150	0.0082	+/-0.50	
M6PFDA	593921.1	3.779417	536,748.00	3.779417	111	50 - 150	0.0000	+/-0.50	
M3PFBS	141314.5	1.90325	110,268.00	1.894967	128	50 - 150	0.0083	+/-0.50	
M7PFUnA	593254.1	3.93005	494,958.00	3.93005	120	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	42539.07	3.4205	32,993.00	3.4205	129	50 - 150	0.0000	+/-0.50	
M5PFPeA	349257.7	1.7231	315,157.00	1.7231	111	50 - 150	0.0000	+/-0.50	
M5PFHxA	610939.8	2.596983	531,003.00	2.596983	115	50 - 150	0.0000	+/-0.50	
M3PFHxS	81250.39	3.193817	69,708.00	3.193817	117	50 - 150	0.0000	+/-0.50	
M4PFHpA	599884.3	3.1627	529,559.00	3.1627	113	50 - 150	0.0000	+/-0.50	
M8PFOA	668006.3	3.42985	552,603.00	3.42985	121	50 - 150	0.0000	+/-0.50	
M8PFOS	91452.7	3.620217	73,446.00	3.620217	125	50 - 150	0.0000	+/-0.50	
M9PFNA	600568.4	3.62125	512,846.00	3.62125	117	50 - 150	0.0000	+/-0.50	
MPFDoA	496787.4	4.064667	450,031.00	4.064667	110	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	127076.3	3.937517	122,552.00	3.937517	104	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	144810.4	3.85765	135,935.00	3.85765	107	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B343981-MS1) Lab File ID: B343981-MS1.d Analyzed: 06/30/23 09:46									
M8FOSA	180151.7	3.964583	220,650.00	3.964583	82	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	30632.21	2.51325	31,950.00	2.505033	96	50 - 150	0.0082	+/-0.50	
M2PFTA	413351.8	4.313416	513,432.00	4.313416	81	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	50878.45	3.778883	49,893.00	3.778883	102	50 - 150	0.0000	+/-0.50	
MPFBA	229561.6	1.050167	271,664.00	1.050167	85	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	113383.2	2.847483	137,474.00	2.8393	82	50 - 150	0.0082	+/-0.50	
M6PFDA	454846.9	3.779417	536,748.00	3.779417	85	50 - 150	0.0000	+/-0.50	
M3PFBS	105970.1	1.90325	110,268.00	1.894967	96	50 - 150	0.0083	+/-0.50	
M7PFUnA	465042.7	3.93005	494,958.00	3.93005	94	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	32955.52	3.4205	32,993.00	3.4205	100	50 - 150	0.0000	+/-0.50	
M5PFPeA	257928.6	1.7231	315,157.00	1.7231	82	50 - 150	0.0000	+/-0.50	
M5PFHxA	452081	2.596983	531,003.00	2.596983	85	50 - 150	0.0000	+/-0.50	
M3PFHxS	63223.05	3.193817	69,708.00	3.193817	91	50 - 150	0.0000	+/-0.50	
M4PFHpA	452558.8	3.1627	529,559.00	3.1627	85	50 - 150	0.0000	+/-0.50	
M8PFOA	500016.3	3.437833	552,603.00	3.42985	90	50 - 150	0.0080	+/-0.50	
M8PFOS	67533.66	3.620217	73,446.00	3.620217	92	50 - 150	0.0000	+/-0.50	
M9PFNA	443815.7	3.62125	512,846.00	3.62125	87	50 - 150	0.0000	+/-0.50	
MPFDoA	383953.7	4.07265	450,031.00	4.064667	85	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	96695.26	3.937517	122,552.00	3.937517	79	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	116060.1	3.85765	135,935.00	3.85765	85	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B343981-MSD1)			Lab File ID: B343981-MSD1.d			Analyzed: 06/30/23 09:54			
M8FOSA	211274.1	3.964583	220,650.00	3.964583	96	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	31863.95	2.51325	31,950.00	2.505033	100	50 - 150	0.0082	+/-0.50	
M2PFTA	481747.5	4.313416	513,432.00	4.313416	94	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	65474.29	3.778883	49,893.00	3.778883	131	50 - 150	0.0000	+/-0.50	
MPFBA	259100.6	1.050167	271,664.00	1.050167	95	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	105507.2	2.8393	137,474.00	2.8393	77	50 - 150	0.0000	+/-0.50	
M6PFDA	539168.3	3.779417	536,748.00	3.779417	100	50 - 150	0.0000	+/-0.50	
M3PFBS	117050.4	1.90325	110,268.00	1.894967	106	50 - 150	0.0083	+/-0.50	
M7PFUnA	518676.9	3.93005	494,958.00	3.93005	105	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	35457.98	3.4205	32,993.00	3.4205	107	50 - 150	0.0000	+/-0.50	
M5PFPeA	282908.9	1.7231	315,157.00	1.7231	90	50 - 150	0.0000	+/-0.50	
M5PFHxA	498574.3	2.596983	531,003.00	2.596983	94	50 - 150	0.0000	+/-0.50	
M3PFHxS	67910.93	3.193817	69,708.00	3.193817	97	50 - 150	0.0000	+/-0.50	
M4PFHpA	499768.5	3.1627	529,559.00	3.1627	94	50 - 150	0.0000	+/-0.50	
M8PFOA	551667.8	3.437833	552,603.00	3.42985	100	50 - 150	0.0080	+/-0.50	
M8PFOS	75889.45	3.620217	73,446.00	3.620217	103	50 - 150	0.0000	+/-0.50	
M9PFNA	509052.1	3.62125	512,846.00	3.62125	99	50 - 150	0.0000	+/-0.50	
MPFDoA	454776.8	4.064667	450,031.00	4.064667	101	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	110850.5	3.937517	122,552.00	3.937517	90	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	125558.5	3.85765	135,935.00	3.85765	92	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B344462-BLK1)			Lab File ID: B344462-BLK1.d			Analyzed: 06/28/23 12:58			
M8FOSA	214386.3	3.972583	181,872.00	3.972583	118	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	30512.34	2.52145	26,816.00	2.52145	114	50 - 150	0.0000	+/-0.50	
M2PFTA	474731.4	4.32155	492,243.00	4.321567	96	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	46837.25	3.786867	37,439.00	3.78685	125	50 - 150	0.0000	+/-0.50	
MPFBA	290299.5	1.050167	240,397.00	1.050167	121	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	133940.1	2.855667	113,218.00	2.855667	118	50 - 150	0.0000	+/-0.50	
M6PFDA	526316.4	3.787383	454,843.00	3.787383	116	50 - 150	0.0000	+/-0.50	
M3PFBS	122311.6	1.911533	97,680.00	1.911533	125	50 - 150	0.0000	+/-0.50	
M7PFUnA	539437.4	3.938033	446,056.00	3.93805	121	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	36678.64	3.429317	27,636.00	3.4293	133	50 - 150	0.0000	+/-0.50	
M5PFPeA	295979.8	1.731383	259,176.00	1.731383	114	50 - 150	0.0000	+/-0.50	
M5PFHxA	527251.3	2.6134	442,985.00	2.6134	119	50 - 150	0.0000	+/-0.50	
M3PFHxS	78863.75	3.201883	65,348.00	3.201883	121	50 - 150	0.0000	+/-0.50	
M4PFHpA	529762.1	3.170783	453,645.00	3.170783	117	50 - 150	0.0000	+/-0.50	
M8PFOA	592727.3	3.437833	506,837.00	3.437833	117	50 - 150	0.0000	+/-0.50	
M8PFOS	84335.88	3.6282	61,723.00	3.6282	137	50 - 150	0.0000	+/-0.50	
M9PFNA	526985.9	3.629233	450,390.00	3.629233	117	50 - 150	0.0000	+/-0.50	
MPFDoA	450870.4	4.072667	416,449.00	4.072667	108	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	111356	3.945517	105,961.00	3.945517	105	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	127203.8	3.865617	114,882.00	3.865617	111	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B344462-BS1)			Lab File ID: B344462-BS1.d			Analyzed: 06/28/23 12:51			
M8FOSA	224689	3.972583	181,872.00	3.972583	124	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	32718.64	2.529667	26,816.00	2.52145	122	50 - 150	0.0082	+/-0.50	
M2PFTA	496690.9	4.321567	492,243.00	4.321567	101	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	50936.53	3.786867	37,439.00	3.78685	136	50 - 150	0.0000	+/-0.50	
MPFBA	300584.4	1.050167	240,397.00	1.050167	125	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	154587	2.855667	113,218.00	2.855667	137	50 - 150	0.0000	+/-0.50	
M6PFDA	527141.3	3.787383	454,843.00	3.787383	116	50 - 150	0.0000	+/-0.50	
M3PFBS	127481.6	1.911533	97,680.00	1.911533	131	50 - 150	0.0000	+/-0.50	
M7PFUnA	540667.6	3.93805	446,056.00	3.93805	121	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	42008.96	3.429317	27,636.00	3.4293	152	50 - 150	0.0000	+/-0.50	*
M5PFPeA	305586.6	1.731383	259,176.00	1.731383	118	50 - 150	0.0000	+/-0.50	
M5PFHxA	540072.8	2.6134	442,985.00	2.6134	122	50 - 150	0.0000	+/-0.50	
M3PFHxS	75800.96	3.2019	65,348.00	3.201883	116	50 - 150	0.0000	+/-0.50	
M4PFHpA	545292.8	3.170783	453,645.00	3.170783	120	50 - 150	0.0000	+/-0.50	
M8PFOA	591257.9	3.43785	506,837.00	3.437833	117	50 - 150	0.0000	+/-0.50	
M8PFOS	86154.31	3.6282	61,723.00	3.6282	140	50 - 150	0.0000	+/-0.50	
M9PFNA	560013.6	3.62925	450,390.00	3.629233	124	50 - 150	0.0000	+/-0.50	
MPFDoA	462483.8	4.072667	416,449.00	4.072667	111	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	113826.1	3.945517	105,961.00	3.945517	107	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	136929.2	3.865617	114,882.00	3.865617	119	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B344462-MS1) Lab File ID: B344462-MS1.d Analyzed: 06/28/23 13:05									
M8FOSA	195013.5	3.972583	181,872.00	3.972583	107	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	31324.96	2.529667	26,816.00	2.52145	117	50 - 150	0.0082	+/-0.50	
M2PFTA	442691	4.321567	492,243.00	4.321567	90	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	56240.37	3.786867	37,439.00	3.78685	150	50 - 150	0.0000	+/-0.50	
MPFBA	240665.9	1.058467	240,397.00	1.050167	100	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	126227.1	2.855667	113,218.00	2.855667	111	50 - 150	0.0000	+/-0.50	
M6PFDA	464581.9	3.787383	454,843.00	3.787383	102	50 - 150	0.0000	+/-0.50	
M3PFBS	109481.6	1.919817	97,680.00	1.911533	112	50 - 150	0.0083	+/-0.50	
M7PFUnA	453546.7	3.93805	446,056.00	3.93805	102	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	43565.79	3.429317	27,636.00	3.4293	158	50 - 150	0.0000	+/-0.50	*
M5PFPeA	255699.1	1.731383	259,176.00	1.731383	99	50 - 150	0.0000	+/-0.50	
M5PFHxA	452336.5	2.6134	442,985.00	2.6134	102	50 - 150	0.0000	+/-0.50	
M3PFHxS	66794.63	3.201883	65,348.00	3.201883	102	50 - 150	0.0000	+/-0.50	
M4PFHpA	470589.7	3.170783	453,645.00	3.170783	104	50 - 150	0.0000	+/-0.50	
M8PFOA	520205	3.43785	506,837.00	3.437833	103	50 - 150	0.0000	+/-0.50	
M8PFOS	71708.96	3.6282	61,723.00	3.6282	116	50 - 150	0.0000	+/-0.50	
M9PFNA	478300.3	3.62925	450,390.00	3.629233	106	50 - 150	0.0000	+/-0.50	
MPFDoA	412380.4	4.072667	416,449.00	4.072667	99	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	103397.8	3.945517	105,961.00	3.945517	98	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	125476.6	3.865617	114,882.00	3.865617	109	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B344462-MSD1) Lab File ID: B344462-MSD1.d Analyzed: 06/28/23 13:13									
M8FOSA	210976.9	3.972583	181,872.00	3.972583	116	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	34489.48	2.529667	26,816.00	2.52145	129	50 - 150	0.0082	+/-0.50	
M2PFTA	508150.1	4.321567	492,243.00	4.321567	103	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	60361.39	3.786867	37,439.00	3.78685	161	50 - 150	0.0000	+/-0.50	*
MPFBA	265757.6	1.050167	240,397.00	1.050167	111	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	145734.7	2.855667	113,218.00	2.855667	129	50 - 150	0.0000	+/-0.50	
M6PFDA	506875.5	3.787383	454,843.00	3.787383	111	50 - 150	0.0000	+/-0.50	
M3PFBS	120054.4	1.911533	97,680.00	1.911533	123	50 - 150	0.0000	+/-0.50	
M7PFUnA	524405.4	3.93805	446,056.00	3.93805	118	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	53744.53	3.429317	27,636.00	3.4293	194	50 - 150	0.0000	+/-0.50	*
M5PFPeA	282944.7	1.731383	259,176.00	1.731383	109	50 - 150	0.0000	+/-0.50	
M5PFHxA	510947.3	2.6134	442,985.00	2.6134	115	50 - 150	0.0000	+/-0.50	
M3PFHxS	72731.97	3.2019	65,348.00	3.201883	111	50 - 150	0.0000	+/-0.50	
M4PFHpA	518267.7	3.170783	453,645.00	3.170783	114	50 - 150	0.0000	+/-0.50	
M8PFOA	590215.4	3.43785	506,837.00	3.437833	116	50 - 150	0.0000	+/-0.50	
M8PFOS	80554.09	3.6282	61,723.00	3.6282	131	50 - 150	0.0000	+/-0.50	
M9PFNA	504820.2	3.629233	450,390.00	3.629233	112	50 - 150	0.0000	+/-0.50	
MPFDoA	476452.3	4.072667	416,449.00	4.072667	114	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	121825.1	3.945517	105,961.00	3.945517	115	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	137721.5	3.865617	114,882.00	3.865617	120	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B344574-BLK1)			Lab File ID: B344574-BLK1.d			Analyzed: 06/30/23 13:42			
M8FOSA	144583.2	3.964583	220,650.00	3.964583	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	26241.7	2.51325	31,950.00	2.505033	82	50 - 150	0.0082	+/-0.50	
M2PFTA	342233.8	4.313416	513,432.00	4.313416	67	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	36810.44	3.778883	49,893.00	3.778883	74	50 - 150	0.0000	+/-0.50	
MPFBA	209727.5	1.050167	271,664.00	1.050167	77	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	150749.5	2.847483	137,474.00	2.8393	110	50 - 150	0.0082	+/-0.50	
M6PFDA	394231.5	3.779417	536,748.00	3.779417	73	50 - 150	0.0000	+/-0.50	
M3PFBS	95165.32	1.90325	110,268.00	1.894967	86	50 - 150	0.0083	+/-0.50	
M7PFUnA	358497.2	3.93005	494,958.00	3.93005	72	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	29610.72	3.4205	32,993.00	3.4205	90	50 - 150	0.0000	+/-0.50	
M5PFPeA	237520.5	1.7231	315,157.00	1.714833	75	50 - 150	0.0083	+/-0.50	
M5PFHxA	411428.7	2.596967	531,003.00	2.588767	77	50 - 150	0.0082	+/-0.50	
M3PFHxS	55629.86	3.193817	69,708.00	3.193817	80	50 - 150	0.0000	+/-0.50	
M4PFHpA	404392.3	3.1627	529,559.00	3.1627	76	50 - 150	0.0000	+/-0.50	
M8PFOA	445492.8	3.437833	552,603.00	3.42985	81	50 - 150	0.0080	+/-0.50	
M8PFOS	55427.23	3.620217	73,446.00	3.620217	75	50 - 150	0.0000	+/-0.50	
M9PFNA	405101.1	3.629233	512,846.00	3.62125	79	50 - 150	0.0080	+/-0.50	
MPFDoA	314250.3	4.07265	450,031.00	4.064667	70	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	79792.44	3.937517	122,552.00	3.937517	65	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	94518.84	3.85765	135,935.00	3.85765	70	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B344574-BS1)			Lab File ID: B344574-BS1.d			Analyzed: 06/30/23 13:35			
M8FOSA	178645.1	3.964583	220,650.00	3.964583	81	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	32877.82	2.51325	31,950.00	2.505033	103	50 - 150	0.0082	+/-0.50	
M2PFTA	421831.9	4.313416	513,432.00	4.313416	82	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	47746.01	3.778883	49,893.00	3.778883	96	50 - 150	0.0000	+/-0.50	
MPFBA	260868.8	1.050167	271,664.00	1.050167	96	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	154633.6	2.847483	137,474.00	2.8393	112	50 - 150	0.0082	+/-0.50	
M6PFDA	496118.3	3.779417	536,748.00	3.779417	92	50 - 150	0.0000	+/-0.50	
M3PFBS	121146.6	1.90325	110,268.00	1.894967	110	50 - 150	0.0083	+/-0.50	
M7PFUnA	462396	3.93005	494,958.00	3.93005	93	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	37785.32	3.4205	32,993.00	3.4205	115	50 - 150	0.0000	+/-0.50	
M5PFPeA	293869.4	1.7231	315,157.00	1.714833	93	50 - 150	0.0083	+/-0.50	
M5PFHxA	514712.6	2.605183	531,003.00	2.588767	97	50 - 150	0.0164	+/-0.50	
M3PFHxS	71768.84	3.193817	69,708.00	3.193817	103	50 - 150	0.0000	+/-0.50	
M4PFHpA	513871.7	3.1627	529,559.00	3.1627	97	50 - 150	0.0000	+/-0.50	
M8PFOA	580506.2	3.437833	552,603.00	3.42985	105	50 - 150	0.0080	+/-0.50	
M8PFOS	68637.63	3.620217	73,446.00	3.620217	93	50 - 150	0.0000	+/-0.50	
M9PFNA	504858.8	3.629233	512,846.00	3.62125	98	50 - 150	0.0080	+/-0.50	
MPFDoA	378656.8	4.072667	450,031.00	4.064667	84	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	95329.46	3.937517	122,552.00	3.937517	78	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	116703.7	3.85765	135,935.00	3.85765	86	50 - 150	0.0000	+/-0.50	

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorobutanoic acid (PFBA)	NH-P,PA
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA
Perfluorohexanoic acid (PFHxA)	NH-P,PA
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA
Perfluorododecanoic acid (PFDoA)	NH-P,PA
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanedisulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA
Perfluorooctanoic acid (PFOA)	NH-P,PA
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA
Perfluorononanoic acid (PFNA)	NH-P,PA
<i>SOP-466 PFAS in Soil</i>	
Perfluorobutanoic acid (PFBA)	NH-P,PA
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA
Perfluorohexanoic acid (PFHxA)	NH-P,PA
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA
Perfluorododecanoic acid (PFDoA)	NH-P,PA

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-466 PFAS in Soil</i>	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanesulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA
Perfluorooctanoic acid (PFOA)	NH-P,PA
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA
Perfluorononanoic acid (PFNA)	NH-P,PA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024



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

Barnstable County
3195 Main St. PO Box 427

Project Name: BFTA
Project Location: Barnstable, MA
Project Number: 6206
Project Manager: Roger Thibault

Con-Test Quote Name/Number: Pricilla Ellis - pettise@barnstablecounty.org

Invoice Recipient: Pricilla Ellis - pettise@barnstablecounty.org

Sampled By: *Chris Owen*

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
1	Duplicate 1	6/15/23	9:20	GRAB	S	U					
2	SS-207	6/15/23	10:15	GRAB	S	U					
3	SS-208	6/15/23	10:20	GRAB	S	U					
4	SS-209	6/15/23	10:30	GRAB	S	U					
5	SS-206	6/15/23	10:40	GRAB	S	U					
6	SS-2140-6"	6/15/23	10:50	GRAB	S	U					
7	SS-214 16-20"	6/15/23	11:00	GRAB	S	U					
8	SS-2040-6"	6/15/23	11:10	GRAB	S	U					
9	SS-204 16-20"	6/15/23	11:20	GRAB	S	U					
10	SS-203	6/15/23	11:30	GRAB	S	U					

Client Comments:

Relinquished by: (signature) *Chris Owen* Date/Time: 6/15/23 16:00
Received by: (signature) *BETA* Date/Time: 6/15/23 16:00
Relinquished by: (signature) *Beta Frange* Date/Time: 6/19/23 14:42
Received by: (signature) *Teresa Frange* Date/Time: 6/19/23 14:41
Relinquished by: (signature) *Teresa Frange* Date/Time: 6/19/23 16:35
Received by: (signature) *Teresa Frange* Date/Time: 6/19/23 16:35
Relinquished by: (signature) *Teresa Frange* Date/Time: 6/19/23 16:35
Received by: (signature) *Teresa Frange* Date/Time: 6/19/23 16:35

Lab Comments:

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

ANALYSIS REQUESTED

Requested Turnaround Time: ☐ 7-Day ☐ 10 Day ☐ Field Filtered Lab to Filter
PFAS 15-Day (std) ☒ Due Date:
Rush-Approval Required: ☐
1-Day ☐ 3-Day ☐ Field Filtered Lab to Filter
2-Day ☐ 4-Day ☐
Format: PDF ☒ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To:
Fax To #:

Preservation Code:
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)

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
1	Duplicate 1	6/15/23	9:20	GRAB	S	U						
2	SS-207	6/15/23	10:15	GRAB	S	U						
3	SS-208	6/15/23	10:20	GRAB	S	U						
4	SS-209	6/15/23	10:30	GRAB	S	U						
5	SS-206	6/15/23	10:40	GRAB	S	U						
6	SS-2140-6"	6/15/23	10:50	GRAB	S	U						
7	SS-214 16-20"	6/15/23	11:00	GRAB	S	U						
8	SS-2040-6"	6/15/23	11:10	GRAB	S	U						
9	SS-204 16-20"	6/15/23	11:20	GRAB	S	U						
10	SS-203	6/15/23	11:30	GRAB	S	U						

Special Requirements:
MA MCP Required
MCP Certification Form Required
CT RCP Required
RCP Certification Form Required
MA State BW 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:
Municipality:
Government:
Federal:
City:
Project Entity:
Municipality:
Government:
Federal:
City:
MAWRA:
School:
MBTA:
WRMA:
Chromatogram:
AIHA-LAP, LLC:
Other:
NELAP and AIHA-LAP, LLC Accredited

[illegible]

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

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.pacelabs.com

ENV-FRM-ELON-0001 V05__ Sample Receiving Checklist

Log In Back-Sheet

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



Client Burnstable CWN
Project BF-TA
MCP/RCP Required NA
Deliverable Package Requirement NA
Location Burnstable, MA
PWSID# (When Applicable) NA
Arrival Method:
Courier ☒ Fed Ex ☐ Walk In ☐ Other ☐
Received By / Date / Time MEM 6/19/23 1538
Back-Sheet By / Date / Time LA 6/20/23 909
Temperature Method gun # 5
Temp ☒ < 6° C Actual Temperature 4.9
Rush Samples: Yes / ☒ No Notify
Short Hold: Yes / ☒ No Notify

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☒	☒ <u>LA</u>
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☒	IDs ☒	Collection Date/Time ☒
All Samples Proper pH: <u>N/A</u> ☐ ☐		

Notes regarding Samples/COC outside of SOP:

Sample 11 IS Requesting
MS/MSD ONV Received
Double Volume.

Additional Container Notes

21
22

Sample	Soils Jars				Ambers				Plastics				VOA Vials				Other / Fill in			
	(Circle Amb/Clear)																			
1	16oz Amb/Clear				Unpreserved				Unpreserved				Unpreserved				Unpreserved			
2	8oz Amb/Clear				HCL				Sulfuric				HCL				HCL			
3	4oz Amb/Clear				Sulfuric				Phosphoric				NaOH				MeOH			
4	2oz Amb/Clear				Phosphoric				HCL				NaOH/Zinc				D.I. Water			
5					Unpreserved				Unpreserved				Unpreserved				BiSulfate			
6									Sulfuric								Col/Bact			
7									Unpreserved								Other			
8									Trizma											
9									Sulfuric											
10									Nitric											
11									NaOH											
12									NaOH/Zinc											
13									Unpreserved											
14																				
15																				
16																				
17																				
18																				
19																				
20																				

2

August 2, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: BARNSTABLE, MA
Client Job Number:
Project Number: 6206
Laboratory Work Order Number: 23G2795

Enclosed are results of analyses for samples as received by the laboratory on July 19, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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

Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 8/2/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23G2795

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

PROJECT LOCATION: BARNSTABLE, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PC-39D 28-20'	23G2795-01	Soil		SM 2540G SOP-466 PFAS	
MW-401D 50-52'	23G2795-02	Soil		SM 2540G SOP-466 PFAS	
MW-402D 34-35'	23G2795-03	Soil		SM 2540G SOP-466 PFAS	
MW-403D 18-20'	23G2795-04	Soil		SM 2540G SOP-466 PFAS	
DWD-water	23G2795-05	Drinking Water		SOP-454 PFAS	

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.

SM 2540G**Qualifications:**

H-03

Sample received after recommended holding time was exceeded.

Analyte & Samples(s) Qualified:**% Solids**

23G2795-01[PC-39D 28-20'], 23G2795-02[MW-401D 50-52'], 23G2795-03[MW-402D 34-35']

SOP-454 PFAS**Qualifications:**

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:**M2-6:2FTS**

23G2795-05RE1[DWD-water]

PF-18

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:**M2PFTA**

23G2795-05RE1[DWD-water]

S-29

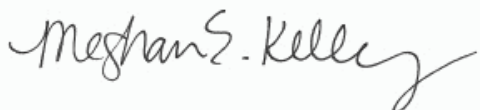
Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:**MPFDoA**

23G2795-05RE1[DWD-water]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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.



Meghan E. Kelley
Reporting Specialist

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: PC-39D 28-20'

Sampled: 7/10/2023 10:45

Sample ID: 23G2795-01

Sample Matrix: Soil

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	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorodecanoic acid (PFDA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorooctanoic acid (PFOA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorononanoic acid (PFNA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: PC-39D 28-20'

Sampled: 7/10/2023 10:45

Sample ID: 23G2795-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	87.2		% Wt	1	H-03	SM 2540G	7/21/23	7/21/23 13:05	BMV

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-401D 50-52'

Sampled: 7/11/2023 12:00

Sample ID: 23G2795-02

Sample Matrix: Soil

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	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorodecanoic acid (PFDA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorooctanoic acid (PFOA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorononanoic acid (PFNA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-401D 50-52'

Sampled: 7/11/2023 12:00

Sample ID: 23G2795-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	81.3		% Wt	1	H-03	SM 2540G	7/21/23	7/21/23 13:05	BMV

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-402D 34-35'

Sampled: 7/12/2023 11:00

Sample ID: 23G2795-03

Sample Matrix: Soil

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	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorodecanoic acid (PFDA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorooctanoic acid (PFOA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorononanoic acid (PFNA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-402D 34-35'

Sampled: 7/12/2023 11:00

Sample ID: 23G2795-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	83.9		% Wt	1	H-03	SM 2540G	7/21/23	7/21/23 13:05	BMV

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-403D 18-20'

Sampled: 7/14/2023 10:30

Sample ID: 23G2795-04

Sample Matrix: Soil

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	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorodecanoic acid (PFDA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorooctanoic acid (PFOA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorononanoic acid (PFNA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-403D 18-20'

Sampled: 7/14/2023 10:30

Sample ID: 23G2795-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	98.1		% Wt	1		SM 2540G	7/21/23	7/21/23 13:05	BMV

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: DWD-water

Sampled: 7/11/2023 09:00

Sample ID: 23G2795-05

Sample Matrix: Drinking 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)	3.0	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method:**% Solids **Analytical Method:**SM 2540G

Lab Number [Field ID]	Batch	Date
23G2795-01 [PC-39D 28-20']	B346724	07/21/23
23G2795-02 [MW-401D 50-52']	B346724	07/21/23
23G2795-03 [MW-402D 34-35']	B346724	07/21/23
23G2795-04 [MW-403D 18-20']	B346724	07/21/23

Prep Method:SOP 454-PFAAS **Analytical Method:**SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23G2795-05RE1 [DWD-water]	B347285	273	1.00	07/28/23

Prep Method:SOP 466-PFAAS **Analytical Method:**SOP-466 PFAS

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23G2795-01 [PC-39D 28-20']	B346744	5.66	5.00	07/25/23
23G2795-02 [MW-401D 50-52']	B346744	5.64	5.00	07/25/23
23G2795-03 [MW-402D 34-35']	B346744	5.65	5.00	07/25/23
23G2795-04 [MW-403D 18-20']	B346744	5.67	5.00	07/25/23

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 B346744 - SOP 466-PFAAS
Blank (B346744-BLK1)

Prepared: 07/25/23 Analyzed: 07/27/23

Perfluorobutanoic acid (PFBA)	ND	0.44	µg/kg wet
Perfluorobutanesulfonic acid (PFBS)	ND	0.44	µg/kg wet
Perfluoropentanoic acid (PFPeA)	ND	0.44	µg/kg wet
Perfluorohexanoic acid (PFHxA)	ND	0.44	µg/kg wet
11Cl-PF3OUdS (F53B Major)	ND	0.44	µg/kg wet
9Cl-PF3ONS (F53B Minor)	ND	0.44	µg/kg wet
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.44	µg/kg wet
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.44	µg/kg wet
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.44	µg/kg wet
Perfluorodecanoic acid (PFDA)	ND	0.44	µg/kg wet
Perfluorododecanoic acid (PFDoA)	ND	0.44	µg/kg wet
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.44	µg/kg wet
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.44	µg/kg wet
N-EtFOSAA (NEtFOSAA)	ND	0.44	µg/kg wet
N-MeFOSAA (NMeFOSAA)	ND	0.44	µg/kg wet
Perfluorotetradecanoic acid (PFTA)	ND	0.44	µg/kg wet
Perfluorotridecanoic acid (PFTrDA)	ND	0.44	µg/kg wet
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.44	µg/kg wet
Perfluorodecanesulfonic acid (PFDS)	ND	0.44	µg/kg wet
Perfluorooctanesulfonamide (FOSA)	ND	0.44	µg/kg wet
Perfluorononanesulfonic acid (PFNS)	ND	0.44	µg/kg wet
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.44	µg/kg wet
Perfluoro-1-butanefulfonamide (FBSA)	ND	0.44	µg/kg wet
Perfluorohexanesulfonic acid (PFHxS)	ND	0.44	µg/kg wet
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.44	µg/kg wet
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.44	µg/kg wet
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.44	µg/kg wet
Perfluoropentanesulfonic acid (PFPeS)	ND	0.44	µg/kg wet
Perfluoroundecanoic acid (PFUnA)	ND	0.44	µg/kg wet
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.44	µg/kg wet
Perfluoroheptanoic acid (PFHpA)	ND	0.44	µg/kg wet
Perfluorooctanoic acid (PFOA)	ND	0.44	µg/kg wet
Perfluorooctanesulfonic acid (PFOS)	ND	0.44	µg/kg wet
Perfluorononanoic acid (PFNA)	ND	0.44	µg/kg wet

LCS (B346744-BS1)

Prepared: 07/25/23 Analyzed: 07/27/23

Perfluorobutanoic acid (PFBA)	2.08	0.44	µg/kg wet	2.21	94.3	71-135
Perfluorobutanesulfonic acid (PFBS)	1.83	0.44	µg/kg wet	1.95	93.6	72-128
Perfluoropentanoic acid (PFPeA)	2.07	0.44	µg/kg wet	2.21	94.0	69-132
Perfluorohexanoic acid (PFHxA)	2.03	0.44	µg/kg wet	2.21	92.0	70-132
11Cl-PF3OUdS (F53B Major)	1.73	0.44	µg/kg wet	2.08	83.0	41.8-128
9Cl-PF3ONS (F53B Minor)	1.79	0.44	µg/kg wet	2.06	86.9	51.1-141
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.98	0.44	µg/kg wet	2.08	95.4	55.2-122
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.96	0.44	µg/kg wet	2.21	88.9	27.6-137
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.18	0.44	µg/kg wet	2.12	103	65-137
Perfluorodecanoic acid (PFDA)	2.27	0.44	µg/kg wet	2.21	103	69-133
Perfluorododecanoic acid (PFDoA)	1.90	0.44	µg/kg wet	2.21	86.1	69-135
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	1.75	0.44	µg/kg wet	1.96	89.2	56.7-133

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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 B346744 - SOP 466-PFAAS
LCS (B346744-BS1)

Prepared: 07/25/23 Analyzed: 07/27/23

Perfluoroheptanesulfonic acid (PFHpS)	2.09	0.44	µg/kg wet	2.11		99.3	70-132			
N-EtFOSAA (NEtFOSAA)	1.89	0.44	µg/kg wet	2.21		85.5	61-139			
N-MeFOSAA (NMeFOSAA)	1.98	0.44	µg/kg wet	2.21		89.8	63-144			
Perfluorotetradecanoic acid (PFTA)	2.17	0.44	µg/kg wet	2.21		98.3	69-133			
Perfluorotridecanoic acid (PFTTrDA)	2.34	0.44	µg/kg wet	2.21		106	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	1.90	0.44	µg/kg wet	2.07		92.1	62-145			
Perfluorodecanesulfonic acid (PFDS)	1.59	0.44	µg/kg wet	2.13		74.6	59-134			
Perfluorooctanesulfonamide (FOSA)	2.20	0.44	µg/kg wet	2.21		99.7	67-137			
Perfluorononanesulfonic acid (PFNS)	1.90	0.44	µg/kg wet	2.12		89.5	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	1.87	0.44	µg/kg wet	2.21		84.8	51.4-142			
Perfluoro-1-butanefulfonamide (FBSA)	1.73	0.44	µg/kg wet	2.21		78.4	53.5-129			
Perfluorohexanesulfonic acid (PFHxS)	1.85	0.44	µg/kg wet	2.02		91.3	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	2.09	0.44	µg/kg wet	2.21		94.8	57.8-127			
Perfluoro-5-oxahexanoic acid (PFMBA)	2.04	0.44	µg/kg wet	2.21		92.5	56.5-132			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1.80	0.44	µg/kg wet	2.10		85.9	64-140			
Perfluoropentanesulfonic acid (PFPeS)	2.06	0.44	µg/kg wet	2.07		99.3	73-123			
Perfluoroundecanoic acid (PFUnA)	2.19	0.44	µg/kg wet	2.21		99.0	64-136			
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	2.13	0.44	µg/kg wet	2.21		96.3	54.5-128			
Perfluoroheptanoic acid (PFHpA)	2.08	0.44	µg/kg wet	2.21		94.3	71-131			
Perfluorooctanoic acid (PFOA)	2.04	0.44	µg/kg wet	2.21		92.5	69-133			
Perfluorooctanesulfonic acid (PFOS)	1.97	0.44	µg/kg wet	2.04		96.8	68-136			
Perfluorononanoic acid (PFNA)	2.27	0.44	µg/kg wet	2.21		103	72-129			

Batch B347285 - SOP 454-PFAAS
Blank (B347285-BLK1)

Prepared: 07/28/23 Analyzed: 08/01/23

Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.9	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L							
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L							
Perfluoro-1-butanefulfonamide (FBSA)	ND	1.9	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L							

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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 B347285 - SOP 454-PFAAS
Blank (B347285-BLK1)

Prepared: 07/28/23 Analyzed: 08/01/23

Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L

LCS (B347285-BS1)

Prepared: 07/28/23 Analyzed: 08/01/23

Perfluorobutanoic acid (PFBA)	10.3	2.0	ng/L	9.95	104	73-129
Perfluorobutanesulfonic acid (PFBS)	9.09	2.0	ng/L	8.80	103	72-130
Perfluoropentanoic acid (PFPeA)	10.2	2.0	ng/L	9.95	103	72-129
Perfluorohexanoic acid (PFHxA)	10.5	2.0	ng/L	9.95	105	72-129
11Cl-PF3OUdS (F53B Major)	7.39	2.0	ng/L	9.37	78.9	55.1-141
9Cl-PF3ONS (F53B Minor)	8.45	2.0	ng/L	9.27	91.2	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.92	2.0	ng/L	9.37	95.2	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.97	2.0	ng/L	9.95	90.2	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.2	2.0	ng/L	9.55	107	67-138
Perfluorodecanoic acid (PFDA)	10.8	2.0	ng/L	9.95	109	71-129
Perfluorododecanoic acid (PFDoA)	10.7	2.0	ng/L	9.95	108	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	7.54	2.0	ng/L	8.85	85.2	49.4-154
Perfluoroheptanesulfonic acid (PFHpS)	11.4	2.0	ng/L	9.50	120	69-134
N-EtFOSAA (NEtFOSAA)	11.0	2.0	ng/L	9.95	111	61-135
N-MeFOSAA (NMeFOSAA)	10.9	2.0	ng/L	9.95	110	65-136
Perfluorotetradecanoic acid (PFTA)	11.3	2.0	ng/L	9.95	114	71-132
Perfluorotridecanoic acid (PFTrDA)	12.1	2.0	ng/L	9.95	122	65-144
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.49	2.0	ng/L	9.30	102	63-143
Perfluorodecanesulfonic acid (PFDS)	6.50	2.0	ng/L	9.60	67.8	53-142
Perfluorooctanesulfonamide (FOSA)	10.8	2.0	ng/L	9.95	108	67-137
Perfluorononanesulfonic acid (PFNS)	10.6	2.0	ng/L	9.55	111	69-127
Perfluoro-1-hexanesulfonamide (FHxSA)	9.30	2.0	ng/L	9.95	93.5	61.7-156
Perfluoro-1-butanedisulfonamide (FBSA)	7.82	2.0	ng/L	9.95	78.6	61.3-145
Perfluorohexanesulfonic acid (PFHxS)	9.55	2.0	ng/L	9.10	105	68-131
Perfluoro-4-oxapentanoic acid (PFMPA)	9.86	2.0	ng/L	9.95	99.1	59.8-147
Perfluoro-5-oxahexanoic acid (PFMBA)	9.09	2.0	ng/L	9.95	91.4	59.5-146
6:2 Fluorotelomersulfonic acid (6:2FTS A)	10.0	2.0	ng/L	9.45	106	64-140
Perfluoropentanesulfonic acid (PFPeS)	10.4	2.0	ng/L	9.35	112	71-127
Perfluoroundecanoic acid (PFUnA)	11.4	2.0	ng/L	9.95	115	69-133
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	9.94	2.0	ng/L	9.95	100	58.5-143
Perfluoroheptanoic acid (PFHpA)	10.8	2.0	ng/L	9.95	108	72-130
Perfluorooctanoic acid (PFOA)	10.4	2.0	ng/L	9.95	105	71-133
Perfluorooctanesulfonic acid (PFOS)	9.16	2.0	ng/L	9.20	99.6	65-140
Perfluorononanoic acid (PFNA)	10.9	2.0	ng/L	9.95	110	69-130

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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 B347285 - SOP 454-PFAAS
LCS Dup (B347285-BSI1)

Prepared: 07/28/23 Analyzed: 08/01/23

Perfluorobutanoic acid (PFBA)	10.3	1.9	ng/L	9.58		108	73-129	0.0761	30	
Perfluorobutanesulfonic acid (PFBS)	9.20	1.9	ng/L	8.48		108	72-130	1.21	30	
Perfluoropentanoic acid (PFPeA)	10.1	1.9	ng/L	9.58		105	72-129	1.46	30	
Perfluorohexanoic acid (PFHxA)	10.2	1.9	ng/L	9.58		106	72-129	2.67	30	
11Cl-PF3OUdS (F53B Major)	7.43	1.9	ng/L	9.03		82.3	55.1-141	0.525	30	
9Cl-PF3ONS (F53B Minor)	8.31	1.9	ng/L	8.93		93.0	59.6-146	1.76	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.73	1.9	ng/L	9.03		96.7	60.3-131	2.21	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.50	1.9	ng/L	9.58		78.3	37.6-167	17.9	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.7	1.9	ng/L	9.20		116	67-138	4.36	30	
Perfluorodecanoic acid (PFDA)	10.6	1.9	ng/L	9.58		111	71-129	1.69	30	
Perfluorododecanoic acid (PFDoA)	10.8	1.9	ng/L	9.58		113	72-134	0.926	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	7.49	1.9	ng/L	8.53		87.8	49.4-154	0.784	30	
Perfluoroheptanesulfonic acid (PFHpS)	11.8	1.9	ng/L	9.15		129	69-134	2.94	30	
N-EtFOSAA (NEtFOSAA)	10.5	1.9	ng/L	9.58		110	61-135	4.92	30	
N-MeFOSAA (NMeFOSAA)	10.5	1.9	ng/L	9.58		110	65-136	3.86	30	
Perfluorotetradecanoic acid (PFTA)	10.9	1.9	ng/L	9.58		114	71-132	3.57	30	
Perfluorotridecanoic acid (PFTrDA)	11.6	1.9	ng/L	9.58		121	65-144	4.45	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.60	1.9	ng/L	8.96		107	63-143	1.13	30	
Perfluorodecanesulfonic acid (PFDS)	6.26	1.9	ng/L	9.25		67.7	53-142	3.84	30	
Perfluorooctanesulfonamide (FOSA)	11.0	1.9	ng/L	9.58		115	67-137	2.55	30	
Perfluorononanesulfonic acid (PFNS)	10.3	1.9	ng/L	9.20		112	69-127	2.75	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	8.89	1.9	ng/L	9.58		92.8	61.7-156	4.47	30	
Perfluoro-1-butanefulfonamide (FBSA)	7.60	1.9	ng/L	9.58		79.3	61.3-145	2.80	30	
Perfluorohexanesulfonic acid (PFHxS)	9.37	1.9	ng/L	8.77		107	68-131	1.99	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	9.99	1.9	ng/L	9.58		104	59.8-147	1.28	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	8.78	1.9	ng/L	9.58		91.6	59.5-146	3.44	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.90	1.9	ng/L	9.10		109	64-140	1.41	30	
Perfluoropentanesulfonic acid (PFPeS)	10.2	1.9	ng/L	9.01		113	71-127	2.57	30	
Perfluoroundecanoic acid (PFUnA)	11.4	1.9	ng/L	9.58		119	69-133	0.471	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.52	1.9	ng/L	9.58		99.4	58.5-143	4.29	30	
Perfluoroheptanoic acid (PFHpA)	10.4	1.9	ng/L	9.58		109	72-130	3.31	30	
Perfluorooctanoic acid (PFOA)	10.3	1.9	ng/L	9.58		108	71-133	1.01	30	
Perfluorooctanesulfonic acid (PFOS)	9.98	1.9	ng/L	8.86		113	65-140	8.48	30	
Perfluorononanoic acid (PFNA)	10.8	1.9	ng/L	9.58		113	69-130	0.663	30	

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.
H-03	Sample received after recommended holding time was exceeded.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
S-29	Extracted Internal Standard is outside of control limits.

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-39D 28-20' (23G2795-01) Lab File ID: 23G2795-01.d Analyzed: 07/27/23 14:36									
M8FOSA	142824	3.972583	173,172.00	3.9726	82	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	27405.55	2.488617	35,286.00	2.4886	78	50 - 150	0.0000	+/-0.50	
M2PFTA	283949.3	4.313433	396,536.00	4.31345	72	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	46176.4	3.786867	52,323.00	3.786883	88	50 - 150	0.0000	+/-0.50	
MPFBA	236924.5	1.050167	321,479.00	1.050167	74	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	90217.13	2.822933	131,776.00	2.82295	68	50 - 150	0.0000	+/-0.50	
M6PFDA	368361.7	3.787383	509,919.00	3.7874	72	50 - 150	0.0000	+/-0.50	
M3PFBS	111605.6	1.8701	151,443.00	1.8701	74	50 - 150	0.0000	+/-0.50	
M7PFUnA	325886.8	3.93805	446,146.00	3.938067	73	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	27994.42	3.4205	36,064.00	3.429317	78	50 - 150	-0.0088	+/-0.50	
M5PFPeA	225516	1.698283	313,781.00	1.698283	72	50 - 150	0.0000	+/-0.50	
M5PFHxA	385863.8	2.57235	526,776.00	2.572333	73	50 - 150	0.0000	+/-0.50	
M3PFHxS	59858.81	3.193817	84,466.00	3.193833	71	50 - 150	0.0000	+/-0.50	
M4PFHpA	372117.6	3.154633	517,640.00	3.162717	72	50 - 150	-0.0081	+/-0.50	
M8PFOA	378645.8	3.43785	524,568.00	3.43785	72	50 - 150	0.0000	+/-0.50	
M8PFOS	56379.98	3.6282	80,573.00	3.628217	70	50 - 150	0.0000	+/-0.50	
M9PFNA	347839.4	3.62925	457,863.00	3.62925	76	50 - 150	0.0000	+/-0.50	
MPFDoA	293970.5	4.072667	378,912.00	4.072683	78	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	75895.87	3.937517	102,579.00	3.945533	74	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	85227.19	3.865617	106,856.00	3.865633	80	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-401D 50-52' (23G2795-02) Lab File ID: 23G2795-02.d Analyzed: 07/27/23 14:43									
M8FOSA	161680.5	3.972583	173,172.00	3.9726	93	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	34497.97	2.488617	35,286.00	2.4886	98	50 - 150	0.0000	+/-0.50	
M2PFTA	325308.4	4.313433	396,536.00	4.31345	82	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	58242.31	3.786867	52,323.00	3.786883	111	50 - 150	0.0000	+/-0.50	
MPFBA	303475.7	1.050167	321,479.00	1.050167	94	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	120444.9	2.82295	131,776.00	2.82295	91	50 - 150	0.0000	+/-0.50	
M6PFDA	458059	3.787383	509,919.00	3.7874	90	50 - 150	0.0000	+/-0.50	
M3PFBS	146199.7	1.8701	151,443.00	1.8701	97	50 - 150	0.0000	+/-0.50	
M7PFUnA	408667	3.93805	446,146.00	3.938067	92	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	36767.24	3.429317	36,064.00	3.429317	102	50 - 150	0.0000	+/-0.50	
M5PFPeA	293890.8	1.698283	313,781.00	1.698283	94	50 - 150	0.0000	+/-0.50	
M5PFHxA	492642.2	2.57235	526,776.00	2.572333	94	50 - 150	0.0000	+/-0.50	
M3PFHxS	82728.55	3.193817	84,466.00	3.193833	98	50 - 150	0.0000	+/-0.50	
M4PFHpA	496894.7	3.162717	517,640.00	3.162717	96	50 - 150	0.0000	+/-0.50	
M8PFOA	502683.3	3.43785	524,568.00	3.43785	96	50 - 150	0.0000	+/-0.50	
M8PFOS	78951.93	3.6282	80,573.00	3.628217	98	50 - 150	0.0000	+/-0.50	
M9PFNA	461975.5	3.62925	457,863.00	3.62925	101	50 - 150	0.0000	+/-0.50	
MPFDoA	340492.6	4.072667	378,912.00	4.072683	90	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	96823.88	3.937517	102,579.00	3.945533	94	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	102512.8	3.865617	106,856.00	3.865633	96	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-402D 34-35' (23G2795-03) Lab File ID: 23G2795-03.d Analyzed: 07/27/23 14:50									
M8FOSA	107871.7	3.972583	173,172.00	3.9726	62	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	24444.98	2.4804	35,286.00	2.4886	69	50 - 150	-0.0082	+/-0.50	
M2PFTA	228511.6	4.313433	396,536.00	4.31345	58	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	40303.93	3.7789	52,323.00	3.786883	77	50 - 150	-0.0080	+/-0.50	
MPFBA	224417.9	1.050167	321,479.00	1.050167	70	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	86150.68	2.831133	131,776.00	2.82295	65	50 - 150	0.0082	+/-0.50	
M6PFDA	315623.7	3.787383	509,919.00	3.7874	62	50 - 150	0.0000	+/-0.50	
M3PFBS	105855	1.870117	151,443.00	1.8701	70	50 - 150	0.0000	+/-0.50	
M7PFUnA	285374.7	3.93805	446,146.00	3.938067	64	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	26127.13	3.429317	36,064.00	3.429317	72	50 - 150	0.0000	+/-0.50	
M5PFPeA	216794.8	1.6983	313,781.00	1.698283	69	50 - 150	0.0000	+/-0.50	
M5PFHxA	357047.5	2.564133	526,776.00	2.572333	68	50 - 150	-0.0082	+/-0.50	
M3PFHxS	55417.3	3.193817	84,466.00	3.193833	66	50 - 150	0.0000	+/-0.50	
M4PFHpA	343803	3.162717	517,640.00	3.162717	66	50 - 150	0.0000	+/-0.50	
M8PFOA	343923	3.43785	524,568.00	3.43785	66	50 - 150	0.0000	+/-0.50	
M8PFOS	51553.86	3.6282	80,573.00	3.628217	64	50 - 150	0.0000	+/-0.50	
M9PFNA	315593.6	3.62925	457,863.00	3.62925	69	50 - 150	0.0000	+/-0.50	
MPFDoA	227434.8	4.072667	378,912.00	4.072683	60	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	64901.68	3.937533	102,579.00	3.945533	63	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	71371.47	3.865617	106,856.00	3.865633	67	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-403D 18-20' (23G2795-04) Lab File ID: 23G2795-04.d Analyzed: 07/27/23 14:57									
M8FOSA	88701.73	3.972583	173,172.00	3.9726	51	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	19937.68	2.4886	35,286.00	2.4886	57	50 - 150	0.0000	+/-0.50	
M2PFTA	205755.1	4.313433	396,536.00	4.31345	52	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	33727.16	3.7789	52,323.00	3.786883	64	50 - 150	-0.0080	+/-0.50	
MPFBA	178644.7	1.050167	321,479.00	1.050167	56	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	69509.86	2.822933	131,776.00	2.82295	53	50 - 150	0.0000	+/-0.50	
M6PFDA	255865.6	3.787383	509,919.00	3.7874	50	50 - 150	0.0000	+/-0.50	
M3PFBS	83185.09	1.8701	151,443.00	1.8701	55	50 - 150	0.0000	+/-0.50	
M7PFUnA	231688.7	3.93005	446,146.00	3.938067	52	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	19713.83	3.4205	36,064.00	3.429317	55	50 - 150	-0.0088	+/-0.50	
M5PFPeA	171475	1.698283	313,781.00	1.698283	55	50 - 150	0.0000	+/-0.50	
M5PFHxA	284933.9	2.572333	526,776.00	2.572333	54	50 - 150	0.0000	+/-0.50	
M3PFHxS	47165.79	3.193817	84,466.00	3.193833	56	50 - 150	0.0000	+/-0.50	
M4PFHpA	274100.2	3.154633	517,640.00	3.162717	53	50 - 150	-0.0081	+/-0.50	
M8PFOA	281448.2	3.437833	524,568.00	3.43785	54	50 - 150	0.0000	+/-0.50	
M8PFOS	40319.2	3.6282	80,573.00	3.628217	50	50 - 150	0.0000	+/-0.50	
M9PFNA	245434.8	3.62925	457,863.00	3.62925	54	50 - 150	0.0000	+/-0.50	
MPFDoA	210357.2	4.072667	378,912.00	4.072683	56	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	73331.42	3.937517	102,579.00	3.945533	71	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	81568.8	3.865617	106,856.00	3.865633	76	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
DWD-water (23G2795-05RE1) Lab File ID: 23G2795-05RE1.d Analyzed: 08/01/23 10:02									
M8FOSA	131192.8	3.980567	175,743.00	3.972583	75	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	48361.13	2.505033	32,860.00	2.4886	147	50 - 150	0.0164	+/-0.50	
M2PFTA	17832.97	4.32155	345,519.00	4.32155	05	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	96705.48	3.78685	75,011.00	3.78685	129	50 - 150	0.0000	+/-0.50	
MPFBA	234538.7	1.066783	299,247.00	1.050167	78	50 - 150	0.0166	+/-0.50	
M3HFPO-DA	126556.4	2.847483	133,783.00	2.831117	95	50 - 150	0.0164	+/-0.50	
M6PFDA	459263.1	3.79535	497,256.00	3.787383	92	50 - 150	0.0080	+/-0.50	
M3PFBS	155729.7	1.894967	139,532.00	1.878383	112	50 - 150	0.0166	+/-0.50	
M7PFUnA	294937.2	3.946033	398,840.00	3.938033	74	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	55130.58	3.4373	27,514.00	3.4293	200	50 - 150	0.0080	+/-0.50	*
M5PFPeA	306853.1	1.7231	291,484.00	1.706567	105	50 - 150	0.0165	+/-0.50	
M5PFHxA	530286.9	2.596983	483,550.00	2.58055	110	50 - 150	0.0164	+/-0.50	
M3PFHxS	89581.47	3.21025	77,799.00	3.201883	115	50 - 150	0.0084	+/-0.50	
M4PFHpA	519352	3.178867	455,929.00	3.170783	114	50 - 150	0.0081	+/-0.50	
M8PFOA	542391.8	3.445833	463,792.00	3.445833	117	50 - 150	0.0000	+/-0.50	
M8PFOS	76504.64	3.636183	73,413.00	3.636183	104	50 - 150	0.0000	+/-0.50	
M9PFNA	492222.3	3.637217	418,339.00	3.637217	118	50 - 150	0.0000	+/-0.50	
MPFDoA	104512.7	4.08065	327,148.00	4.072667	32	50 - 150	0.0080	+/-0.50	*
D5-NEtFOSAA	71454.39	3.945517	105,476.00	3.945517	68	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	97930.95	3.873767	123,578.00	3.865617	79	50 - 150	0.0082	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B346744-BLK1)			Lab File ID: B346744-BLK1.d			Analyzed: 07/27/23 12:11			
M8FOSA	167368	3.972583	173,172.00	3.972583	97	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	30540.05	2.496817	35,286.00	2.496817	87	50 - 150	0.0000	+/-0.50	
M2PFTA	286751.3	4.32155	396,536.00	4.321567	72	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	49459.97	3.786867	52,323.00	3.786867	95	50 - 150	0.0000	+/-0.50	
MPFBA	275075.8	1.058467	321,479.00	1.050167	86	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	91358.95	2.8393	131,776.00	2.831133	69	50 - 150	0.0082	+/-0.50	
M6PFDA	426390.1	3.787383	509,919.00	3.787383	84	50 - 150	0.0000	+/-0.50	
M3PFBS	132231	1.886667	151,443.00	1.878383	87	50 - 150	0.0083	+/-0.50	
M7PFUnA	382948.9	3.93805	446,146.00	3.93805	86	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	31975.64	3.429317	36,064.00	3.429317	89	50 - 150	0.0000	+/-0.50	
M5PFPeA	270711.1	1.706567	313,781.00	1.706567	86	50 - 150	0.0000	+/-0.50	
M5PFHxA	457667.3	2.58055	526,776.00	2.58055	87	50 - 150	0.0000	+/-0.50	
M3PFHxS	71886.15	3.193817	84,466.00	3.2019	85	50 - 150	-0.0081	+/-0.50	
M4PFHpA	437792.8	3.1627	517,640.00	3.162717	85	50 - 150	0.0000	+/-0.50	
M8PFOA	455822.9	3.445833	524,568.00	3.445833	87	50 - 150	0.0000	+/-0.50	
M8PFOS	70933	3.636183	80,573.00	3.6362	88	50 - 150	0.0000	+/-0.50	
M9PFNA	407414.2	3.637217	457,863.00	3.637233	89	50 - 150	0.0000	+/-0.50	
MPFDoA	300409.4	4.08065	378,912.00	4.080667	79	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	81815.52	3.945517	102,579.00	3.945517	80	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	93968.6	3.865617	106,856.00	3.865617	88	50 - 150	0.0000	+/-0.50	

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

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B346744-BS1)			Lab File ID: B346744-BS1.d			Analyzed: 07/27/23 12:03			
M8FOSA	179360.1	3.9726	173,172.00	3.972583	104	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	34908.59	2.4886	35,286.00	2.496817	99	50 - 150	-0.0082	+/-0.50	
M2PFTA	351927.6	4.321583	396,536.00	4.321567	89	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	54029.79	3.786883	52,323.00	3.786867	103	50 - 150	0.0000	+/-0.50	
MPFBA	313709.3	1.050167	321,479.00	1.050167	98	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	115234.9	2.8393	131,776.00	2.831133	87	50 - 150	0.0082	+/-0.50	
M6PFDA	493630.7	3.7874	509,919.00	3.787383	97	50 - 150	0.0000	+/-0.50	
M3PFBS	151182.7	1.878383	151,443.00	1.878383	100	50 - 150	0.0000	+/-0.50	
M7PFUnA	441487.3	3.938067	446,146.00	3.93805	99	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	38670.25	3.429317	36,064.00	3.429317	107	50 - 150	0.0000	+/-0.50	
M5PFPeA	308467.4	1.706567	313,781.00	1.706567	98	50 - 150	0.0000	+/-0.50	
M5PFHxA	522324.8	2.58055	526,776.00	2.58055	99	50 - 150	0.0000	+/-0.50	
M3PFHxS	84094.32	3.201883	84,466.00	3.2019	100	50 - 150	0.0000	+/-0.50	
M4PFHpA	504298.1	3.1627	517,640.00	3.162717	97	50 - 150	0.0000	+/-0.50	
M8PFOA	529601.9	3.445833	524,568.00	3.445833	101	50 - 150	0.0000	+/-0.50	
M8PFOS	81211.45	3.6362	80,573.00	3.6362	101	50 - 150	0.0000	+/-0.50	
M9PFNA	484003.3	3.637233	457,863.00	3.637233	106	50 - 150	0.0000	+/-0.50	
MPFDoA	383978.5	4.080683	378,912.00	4.080667	101	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	97046.07	3.945533	102,579.00	3.945517	95	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	113214.2	3.865633	106,856.00	3.865617	106	50 - 150	0.0000	+/-0.50	

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

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B347285-BLK1)			Lab File ID: B347285-BLK1.d			Analyzed: 08/01/23 09:55			
M8FOSA	162850.7	3.980567	175,743.00	3.972583	93	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	38005.79	2.505033	32,860.00	2.4886	116	50 - 150	0.0164	+/-0.50	
M2PFtA	315772.3	4.32155	345,519.00	4.32155	91	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	76057.55	3.78685	75,011.00	3.78685	101	50 - 150	0.0000	+/-0.50	
MPFBA	296763.5	1.058467	299,247.00	1.050167	99	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	152389.3	2.8393	133,783.00	2.831117	114	50 - 150	0.0082	+/-0.50	
M6PFDA	446845.7	3.79535	497,256.00	3.787383	90	50 - 150	0.0080	+/-0.50	
M3PFBS	148322.5	1.894967	139,532.00	1.878383	106	50 - 150	0.0166	+/-0.50	
M7PFUnA	355108	3.938033	398,840.00	3.938033	89	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	31584.63	3.4373	27,514.00	3.4293	115	50 - 150	0.0080	+/-0.50	
M5PFPeA	301449	1.714833	291,484.00	1.706567	103	50 - 150	0.0083	+/-0.50	
M5PFHxA	500648.8	2.588767	483,550.00	2.58055	104	50 - 150	0.0082	+/-0.50	
M3PFHxS	77498.7	3.21025	77,799.00	3.201883	100	50 - 150	0.0084	+/-0.50	
M4PFHpA	474302.1	3.178867	455,929.00	3.170783	104	50 - 150	0.0081	+/-0.50	
M8PFOA	493565.3	3.445833	463,792.00	3.445833	106	50 - 150	0.0000	+/-0.50	
M8PFOS	65760.05	3.636183	73,413.00	3.636183	90	50 - 150	0.0000	+/-0.50	
M9PFNA	431830.5	3.637217	418,339.00	3.637217	103	50 - 150	0.0000	+/-0.50	
MPFDaA	294156.9	4.08065	327,148.00	4.072667	90	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	99410.72	3.9535	105,476.00	3.945517	94	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	108945.1	3.873767	123,578.00	3.865617	88	50 - 150	0.0082	+/-0.50	

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

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B347285-BS1)			Lab File ID: B347285-BS1.d			Analyzed: 08/01/23 09:40			
M8FOSA	167145.6	3.980583	175,743.00	3.972583	95	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	42917.71	2.505033	32,860.00	2.4886	131	50 - 150	0.0164	+/-0.50	
M2PFTA	340085.2	4.32155	345,519.00	4.32155	98	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	85405.85	3.786867	75,011.00	3.78685	114	50 - 150	0.0000	+/-0.50	
MPFBA	311512.1	1.058467	299,247.00	1.050167	104	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	122183.8	2.847483	133,783.00	2.831117	91	50 - 150	0.0164	+/-0.50	
M6PFDA	489172.2	3.79535	497,256.00	3.787383	98	50 - 150	0.0080	+/-0.50	
M3PFBS	156638.5	1.894967	139,532.00	1.878383	112	50 - 150	0.0166	+/-0.50	
M7PFUnA	384661.3	3.93805	398,840.00	3.938033	96	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	35849.81	3.4373	27,514.00	3.4293	130	50 - 150	0.0080	+/-0.50	
M5PFPeA	318488.8	1.714833	291,484.00	1.706567	109	50 - 150	0.0083	+/-0.50	
M5PFHxA	523219.7	2.588767	483,550.00	2.58055	108	50 - 150	0.0082	+/-0.50	
M3PFHxS	82536.83	3.21025	77,799.00	3.201883	106	50 - 150	0.0084	+/-0.50	
M4PFHpA	494215.7	3.170783	455,929.00	3.170783	108	50 - 150	0.0000	+/-0.50	
M8PFOA	518751.3	3.445833	463,792.00	3.445833	112	50 - 150	0.0000	+/-0.50	
M8PFOS	68737.43	3.636183	73,413.00	3.636183	94	50 - 150	0.0000	+/-0.50	
M9PFNA	439823	3.637217	418,339.00	3.637217	105	50 - 150	0.0000	+/-0.50	
MPFDoA	317115.8	4.08065	327,148.00	4.072667	97	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	97076.91	3.945517	105,476.00	3.945517	92	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	118638	3.873767	123,578.00	3.865617	96	50 - 150	0.0082	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS Dup (B347285-BSD1) Lab File ID: B347285-BSD1.d Analyzed: 08/01/23 09:48									
M8FOSA	157357.9	3.980583	175,743.00	3.972583	90	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	42159.36	2.505033	32,860.00	2.4886	128	50 - 150	0.0164	+/-0.50	
M2PFTA	333156.6	4.321567	345,519.00	4.32155	96	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	80900.92	3.786867	75,011.00	3.78685	108	50 - 150	0.0000	+/-0.50	
MPFBA	295075.7	1.058467	299,247.00	1.050167	99	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	139510	2.8393	133,783.00	2.831117	104	50 - 150	0.0082	+/-0.50	
M6PFDA	466482.4	3.79535	497,256.00	3.787383	94	50 - 150	0.0080	+/-0.50	
M3PFBS	149218.4	1.894967	139,532.00	1.878383	107	50 - 150	0.0166	+/-0.50	
M7PFUnA	377054.4	3.93805	398,840.00	3.938033	95	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	32742.52	3.4373	27,514.00	3.4293	119	50 - 150	0.0080	+/-0.50	
M5PFPeA	304871.9	1.7231	291,484.00	1.706567	105	50 - 150	0.0165	+/-0.50	
M5PFHxA	514007.7	2.588767	483,550.00	2.58055	106	50 - 150	0.0082	+/-0.50	
M3PFHxS	78622.48	3.21025	77,799.00	3.201883	101	50 - 150	0.0084	+/-0.50	
M4PFHpA	482739.7	3.170783	455,929.00	3.170783	106	50 - 150	0.0000	+/-0.50	
M8PFOA	510361.4	3.445833	463,792.00	3.445833	110	50 - 150	0.0000	+/-0.50	
M8PFOS	67272.4	3.636183	73,413.00	3.636183	92	50 - 150	0.0000	+/-0.50	
M9PFNA	436693.3	3.637217	418,339.00	3.637217	104	50 - 150	0.0000	+/-0.50	
MPFDoA	311711.2	4.08065	327,148.00	4.072667	95	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	96124.79	3.945517	105,476.00	3.945517	91	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	113115.2	3.865617	123,578.00	3.865617	92	50 - 150	0.0000	+/-0.50	

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorobutanoic acid (PFBA)	NH-P,PA
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA
Perfluorohexanoic acid (PFHxA)	NH-P,PA
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA
Perfluorododecanoic acid (PFDoA)	NH-P,PA
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanefulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA
Perfluorooctanoic acid (PFOA)	NH-P,PA
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA
Perfluorononanoic acid (PFNA)	NH-P,PA
<i>SOP-466 PFAS in Soil</i>	
Perfluorobutanoic acid (PFBA)	NH-P,PA
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA
Perfluorohexanoic acid (PFHxA)	NH-P,PA
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA
Perfluorododecanoic acid (PFDoA)	NH-P,PA

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

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-466 PFAS in Soil</i>	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanefulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA
Perfluorooctanoic acid (PFOA)	NH-P,PA
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA
Perfluorononanoic acid (PFNA)	NH-P,PA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024



Phone: 413-525-2332
Fax: 413-525-6405

Email: info@contestlabs.com

Company Name: BETA Group, Inc.
Address: 701 George Washington Hwy, Lincoln, RI
Phone:

Project Name: BFTA
Project Location: Barnstable, MA
Project Number: 6206
Project Manager: Roger Thibault

Con-Test Quote Name/Number:
Invoice Recipient: Stacy Wildanger - SWildanger@BETA-Inc.com
Sampled By: Chris Olen, Amanda Ray

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

Doc # 381 Rev 2_06262019

39 Spruce Street
East Longmeadow, MA 01028

Requested Turnaround Time

7-Day ☐ 10-Day ☐ Due Date: ☐
PFAS 15-Day (std) ☒ Field Filtered Lab to Filter

1-Day ☐ 3-Day ☐ Due Date: ☐
2-Day ☐ 4-Day ☐ Field Filtered Lab to Filter

Orthophosphate Samples

Format: PDF ☒ EXCEL ☒
Other: ☐

CLP Like Data Pkg Required: ☐ SOXHLET ☐
Email To: ☐ NON SOXHLET ☐
Fax To #: ☐

PCB ONLY

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

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)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

Glassware in the fridge? Y / N

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ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

PFAS

Glassware in the fridge? Y / N

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ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

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PLASTIC

BACTERIA

ENCORE

PFAS

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X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

PFAS

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:
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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)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

PFAS

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
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O = Other (please define)

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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)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

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Glassware in the fridge? Y / N

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X = Sodium Hydroxide
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O = Other (please define)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

PFAS

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)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

PFAS

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X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

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N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

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PLASTIC

BACTERIA

ENCORE

PFAS

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B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

PFAS

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

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SL = Sludge
SOL = Solid
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2 Preservation Codes:
I = Iced
H = HCL
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S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

PFAS

Glassware in the fridge? Y / N

Glassware in freezer? Y / N

Prepackaged Cooler? Y / N

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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)

ANALYSIS REQUESTED

Preservation Code

Courier Use Only

Total Number Of:

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

PFAS

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

Qualtrax ID: 120836

Page 2 of 2

Sample	Soils Jars				Ambers				Plastics								VOA Vials						Other / Fill in																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	(Circle Amb/Clear)				1 Liter		250mL		100mL	1 Liter		500mL	250mL					Unpreserved	HCl	MeOH	D.I. Water	Bisulfate	Col/Bact																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	16oz Amb/Clear	8oz Amb/Clear	4oz Amb/Clear	2oz Amb/Clear	Unpreserved	HCL	Sulfuric	Sulfuric	Phosphoric	HCl	Unpreserved	Sulfuric	Unpreserved	Sulfuric	Unpreserved	Trizma	Sulfuric	Nitric	NaOH	Ammonium Acetate	NaOH/Zinc	Unpreserved																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Appendix G - Soil Boring / Monitoring Well Logs & Laboratory Report of Drilling Water

		BORING/ MONITORING WELL LOG				BORING ID: PC-39D				
Page 1 of 2										
PROJECT: FMR FTA Site					BETA JOB NUMBER: 6206.02					
					FIELD REP: Chris Oien, Peter Newton					
LOCATION: 0 South Flintrock Pond Rd/Parcel: 313008B00- SE of FTA & N of 180-200 Airport Way					CLIENT: Barnstable County					
Consultant: BETA/ Bristol Engineering					DRILLER: Desmond Well Drilling Sean, Tommy Desmond					
		SAMPLER	CASING	CORE BARREL	DEPTH TO GROUNDWATER		SUMMARY			
TYPE		Split spoon	NA	NA	DATE 7/10/2023		Overburden (feet): 52			
SIZE (ID)		2"	NA	NA	TIME		Rock Cored (feet): --			
HAMMER WEIGHT		140 lb	NA	---	DEPTH ~29'		# of samples: 10.00			
HAMMER FALL		30"	NA	---	SURFACE ELEV:		Well set (feet): 50'			
SAMPLING INTERVALS					DESCRIPTION OF MATERIALS (Burmister Soil Classification System)				Monitoring Well Construction Details	
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" --/--/--	PID (ppmv)	Ground-water					
1					Augered to 29 feet no split spoon soil samples collected as directed by PM					
	0-28'	N/A	N/A							
27										
28										
29	28-30'	12/24	3/4/4/5		▽	Wet tan fine to medium SAND, some silt, little gravel. Layers fine to coarse SAND, rusty layering				
30										
31						Wet tan fine to coarse SAND, little silt, trace 1/2" gravel				
32										
33										
34	33-35'	9/24	2/4/4/5							
35										
36										
37						Wet gray fine to coarse SAND, some silt				
38										
39	38-40'	10/24	2/3/5/5							
40										
41										
42										
DRILLING RIG TYPE: CME45-Hollow Stem Auger					MONITORING WELL INSTALLED:		2-inch Diameter, Sch 40 PVC			
SURFACE ELEVATION:					RISER FROM: 0' TO 46'		Screen From:		46-51	
START DATE: 7/10/2023					Filter Sand: Holliston		Sand Pack Intervals		41-57	
END DATE: 7/11/2023					4" Steel Well Protector: +2.5' TO		Bentonite Seal Interval		36-41	
							Native Backfill		0-36	
PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)				
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003	
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003	
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003	
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19			
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08			
				30+	Hard	Medium Sand	.08-.02			

**BETA****BORING/ MONITORING WELL LOG**

BORING ID: MW-401-D

Page 1 of 2

PROJECT: FMR FTA Site

BETA JOB NUMBER: 6206.02
FIELD REP: Chris Oien, Peter Newton

LOCATION: 629 Mary Dunn Road, Barnstable, MA

CLIENT: Barnstable County

Consultant: BETA/ Bristol Engineering

DRILLER: Desmond Well Drilling
Sean, Tommy Desmond

	SAMPLER	CASING	CORE BARREL	DEPTH TO GROUNDWATER	SUMMARY
TYPE	Split spoon	NA	NA	DATE 7/11/2023	Overburden (feet): 52
SIZE (ID)	2"	NA	NA	TIME 2:00 PM	Rock Cored (feet): --
HAMMER WEIGHT	140 lb	NA	---	DEPTH ~18'	# of samples: 10.00
HAMMER FALL	30"	NA	---	SURFACE ELEV:	Well set (feet): 50'

SAMPLING INTERVALS					Ground-water	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" '--/--/--	PID (ppmv)			
1						Augered to 18 feet on 7/10, no split spoon soil samples collected as directed by PM	
	0-18'	N/A	N/A				
17						Wet, medium to coarse SAND, some fine sand, little silt	
18							
19	18-20'	15/24	4/3/3/2				
20							
21							
22							
23							
24	23-25'	13/24	2/2/3/3				
25							
26							
27							
28							
29	28-30	14/24	2/2/4/3			Wet, tan fine to medium SAND, some coarse sand, little silt, trace fine gravel	
30							
31							
32							

DRILLING RIG TYPE: CME45-Hollow Stem Auger

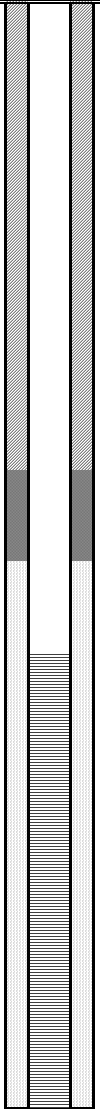
MONITORING WELL INSTALLED:
RISER FROM: 0' TO 45'
Filter Sand: Holliston
4" Steel Well Protector: +2.5' TO 2.5'2-inch Diameter, Sch 40 PVC
Screen From: 45-50
Sand Pack Intervals 45-50
Bentonite Seal Interval 35-40
Native Backfill 0-35

PROPORTIONS USED	RELATIVE DENSITY	CONSISTENCY	SOIL CLASSIFICATION (inches)
trace 0-10%	0-4 Very Loose	0-2 Very Soft	Boulders >11.8
little 10-20%	4-10 Loose	2-4 Soft	Cobbles 11.8-2.9
some 20-35%	10-30 Medium Dense	4-8 Medium Stiff	Coarse Gravel 2.9-.75
and 35-50%	30-50 Dense	8-15 Stiff	Fine Gravel .75-.19
	50+ Very Dense	15-30 Very Stiff	Coarse Sand .19-.08
		30+ Hard	Medium Sand .08-.02

		BORING/ MONITORING WELL LOG				BORING ID: MW-401-D					
		Page 2 of 2									
PROJECT: FMR FTA Site					BETA JOB NUMBER: 6206.02						
					FIELD REP: Chris Oien, Peter Newton						
LOCATION: 629 Mary Dunn Road, Barnstable, MA					CLIENT: Barnstable County						
Consultant: BETA/ Bristol Engineering					DRILLER: Desmond Well Drilling Sean, Tommy Desmond						
		SAMPLER	CASING	CORE BARREL		DEPTH TO GROUNDWATER		SUMMARY			
TYPE		Split spoon	NA	NA		DATE 7/11/2023		Overburden (feet): 52			
SIZE (ID)		2"	NA	NA		TIME 2:00 PM		Rock Cored (feet): --			
HAMMER WEIGHT		140 lb	NA	---		DEPTH ~18'		# of samples: 10.00			
HAMMER FALL		30"	NA	---		SURFACE ELEV:		Well set (feet): 49'			
SAMPLING INTERVALS					DESCRIPTION OF MATERIALS (Burmister Soil Classification System)					Monitoring Well Construction Details	
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" '--/--/--	PID (ppmv)	Groundwater						
33						Wet, tan fine to medium SAND, little silt, little coarse sand					
34	33-35'	11/24	2/3/3/3								
35											
36						Wet, tan fine to medium SAND, little silt, trace coarse gravel					
37											
38											
39	38-40'	13/24	3/4/4/6			Wet, tan fine to coarse SAND, little silt					
40											
41	40-42	11/24	3/3/5/7								
42											
43	42-44'	13/24	3/4/4/5			Wet, tan fine to coarse SAND, little silt, little fine gravel					
44											
45	44-46'	10/24	3/3/4/4								Wet tan fine to coarse SAND, little silt, little fine gravel
46											
47	46-48'	9/24	3/6/6/12			Wet, tan fine to coarse SAND, little fine gravel, little silt, medium gravel at end of spoon					
48											
49											Gray clay
50											
51	50/52		9/8/11/8								
52											
DRILLING RIG TYPE: CME45-Hollow Stem Auger					MONITORING WELL INSTALLED:					2-inch Diameter, Sch 40 PVC	
SURFACE ELEVATION:					RISER FROM: 0' TO 45'					Screen From: 45-50	
START DATE: 7/10/2023					Filter Sand: Holliston					Sand Pack Intervals 35-50	
END DATE: 7/11/2023					4" Steel Well Protector: +2.5' TO 2.5'					Bentonite Seal Interval 35-40	
										Native Backfill 0-35	
PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)					
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003		
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003		
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003		
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19				
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08				
				30+	Hard	Medium Sand	.08-.02				

		BORING/ MONITORING WELL LOG				BORING ID: MW-401-S Page 1 of 1	
PROJECT: FMR FTA Site				BETA JOB NUMBER: 6206.02 FIELD REP: Peter Newton			
LOCATION: 629 Mary Dunn Road, Barnstable, MA				CLIENT: Barnstable County			
CONSULTANT: BETA/ Bristol Engineering				DRILLER: Maher Drilling - Jake			

	SAMPLER	CASING	CORE BARREL	DEPTH TO GROUNDWATER	SUMMARY	
TYPE	Split spoon	NA	NA	DATE	Overburden (feet):	24
SIZE (ID)	2"	NA	NA	TIME	Rock Cored (feet):	--
HAMMER WEIGHT	140 lb	NA	---	DEPTH 18.00	# of samples:	--
HAMMER FALL	30"	NA	---	SURFACE ELEV:	Well set (feet):	24

SAMPLING INTERVALS					Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" "-/-/-/-	PID (ppmv)			
1					No samples collected; Augered to 24' and set well		
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
					END OF BORING AT 24'		
					WELL SET AT 24'		

DRILLING RIG TYPE: CME45-Hollow Stem Auger		MONITORING WELL INSTALLED: 2-inch Diameter, Sch 40 PVC	
SURFACE ELEVATION:		RISER FROM: 0' TO 14'	
START DATE: 9/27/2022		Filter Sand: Holliston	
END DATE: 9/27/2022		4" Steel Well Protector: +2.5' TO 2.5'	
		Screen From: 14-24	
		Sand Pack Intervals: 14-24	
		Bentonite Seal Interval: 10-12'	
		Native Backfill: 0-10	

PROPORTIONS USED	RELATIVE DENSITY	CONSISTENCY	SOIL CLASSIFICATION (inches)
trace 0-10%	0-4 Very Loose	0-2 Very Soft	Boulders >11.8
little 10-20%	4-10 Loose	2-4 Soft	Cobbles 11.8-2.9
some 20-35%	10-30 Medium Dense	4-8 Medium Stiff	Coarse Gravel 2.9-.75
and 35-50%	30-50 Dense	8-15 Stiff	Fine Gravel .75-.19
	50+ Very Dense	15-30 Very Stiff	Coarse Sand .19-.08
		30+ Hard	Medium Sand .08-.02

**BETA****BORING/ MONITORING WELL LOG**

BORING ID: MW-402-D

Page 1 of 2

PROJECT: FMR FTA Site

BETA JOB NUMBER: 6206.02

FIELD REP: Chris Oien, Amanda Ray

LOCATION: 0 South Flintrock Pond Rd/Parcel:
313008B00- South of FTA & NE of 180-200
Airport Way

CLIENT: Barnstable County

Consultant: BETA/ Bristol Engineering

DRILLER: Desmond Well Drilling
Sean, Tommy Desmond

	SAMPLER	CASING	CORE BARREL	DEPTH TO GROUNDWATER	SUMMARY
TYPE	Split spoon	NA	NA	DATE 7/11/2023	Overburden (feet): 56
SIZE (ID)	2"	NA	NA	TIME 2:00 PM	Rock Cored (feet): --
HAMMER WEIGHT	140 lb	NA	---	DEPTH ~18'	# of samples: 10.00
HAMMER FALL	30"	NA	---	SURFACE ELEV:	Well set (feet): 56

SAMPLING INTERVALS					Ground-water	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" '--/--/--'	PID (ppmv)			
1						Augered to 23 feet, no split spoon soil samples collected as directed by PM	
	0-18'	N/A	N/A				
22							
23							
24	23-25	17/24	6/9/16/16			Dry, fine to medium tan SAND, little fine gravel, trace coarse gravel, trace silt	
25							
26							
27							
28							
29	28-30	13/24	4/12/12/12			Dry fine to medium tan SAND, little coarse sand, little silt, little fine gravel	
30							
31							
32							
33							
34	33-35	18/24	6/13/12/13			Saturated tan fine to medium SAND, little coarse sand, little silt, trace fine gravel	
35							
36							
37							

DRILLING RIG TYPE: CME45-Hollow Stem Auger

MONITORING WELL INSTALLED:

2-inch Diameter, Sch 40 PVC

SURFACE ELEVATION:

RISER FROM: 0' TO 51'

Screen From:

START DATE:

7/10/2023

Filter Sand: Holliston

Sand Pack Intervals

END DATE:

7/11/2023

4" Steel Well Protector: +2.5' TO 2.5'

Bentonite Seal Interval

Native Backfill

51-56

41-56

41-46

0-41



PROPORTIONS USED	RELATIVE DENSITY	CONSISTENCY	SOIL CLASSIFICATION (inches)
trace 0-10%	0-4 Very Loose	0-2 Very Soft	Boulders >11.8
little 10-20%	4-10 Loose	2-4 Soft	Cobbles 11.8-2.9
some 20-35%	10-30 Medium Dense	4-8 Medium Stiff	Coarse Gravel 2.9-.75
and 35-50%	30-50 Dense	8-15 Stiff	Fine Gravel .75-.19
	50+ Very Dense	15-30 Very Stiff	Coarse Sand .19-.08
		30+ Hard	Medium Sand .08-.02
			Fine Sand .02-.003
			Silt <.003
			Clay <.003

**BETA****BORING/ MONITORING WELL LOG**

BORING ID: MW-402-D

Page 2 of 2

PROJECT:	FMR FTA Site	BETA JOB NUMBER:	6206.02
		FIELD REP:	Chris Oien, Amanda Ray
LOCATION:	0 South Flintrock Pond Rd/Parcel: 313008B00- South of FTA & NE of 180-200 Airport Way	CLIENT:	Barnstable County
Consultant:	BETA/ Bristol Engineering	DRILLER:	Desmond Well Drilling Sean, Tommy Desmond

	SAMPLER	CASING	CORE BARREL	DEPTH TO GROUNDWATER	SUMMARY
TYPE	Split spoon	NA	NA	DATE 7/11/2023	Overburden (feet): 56
SIZE (ID)	2"	NA	NA	TIME 2:00 PM	Rock Cored (feet): --
HAMMER WEIGHT	140 lb	NA	---	DEPTH ~18'	# of samples: 10.00
HAMMER FALL	30"	NA	---	SURFACE ELEV:	Well set (feet): 49'

SAMPLING INTERVALS					Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `-/-/--/-/-	PID (ppmv)			
38							
39	38-40	14/24	2/5/7/12			Saturated tan fine to coarse SAND, trace fine to medium gravel	
40							
41							
42							
43							
44	43-45	5/2	4/7/7/8			Saturated tan fine to coarse SAND, little fine gravel, little silt	
45							
46							
47							
48							
49	48-50	16/24	4/8/10/13			Saturated fine to coarse SAND, little fine to medium gravel, little silt	
50							
51	50-52	15/24	3/10/8/80				
52						Saturated tan fine to coarse SAND, some fine gravel, little silt	
53	52-54	0/24	8/10/11/12				
54							
55	54-56	15/24	3/10/8/80			11" Saturated fine to coarse SAND, some fine gravel, little gravel	
56							
57							
						4" Gray clay	

DRILLING RIG TYPE:	CME45-Hollow Stem Auger	MONITORING WELL INSTALLED:	2-inch Diameter, Sch 40 PVC
SURFACE ELEVATION:		RISER FROM: 0' TO 51'	Screen From: 51-56
START DATE:	7/10/2023	Filter Sand: Holliston	Sand Pack Intervals 41-56
END DATE:	7/11/2023	4" Steel Well Protector: +2.5' TO 2.5'	Bentonite Seal Interval 41-46
			Native Backfill 0-41
PROPORTIONS USED	RELATIVE DENSITY	CONSISTENCY	SOIL CLASSIFICATION (inches)
trace 0-10%	0-4 Very Loose	0-2 Very Soft	Boulders >11.8
little 10-20%	4-10 Loose	2-4 Soft	Cobbles 11.8-2.9
some 20-35%	10-30 Medium Dense	4-8 Medium Stiff	Coarse Gravel 2.9-.75
and 35-50%	30-50 Dense	8-15 Stiff	Fine Gravel .75-.19
	50+ Very Dense	15-30 Very Stiff	Coarse Sand .19-.08
		30+ Hard	Medium Sand .08-.02
			Fine Sand .02-.003
			Silt <.003
			Clay <.003

**BETA****BORING/ MONITORING WELL LOG**

BORING ID: MW-402S

Page 1 of 1

PROJECT: FMR FTA Site

BETA JOB NUMBER: 6206.02

FIELD REP: Roger Thibault, Laura Bouley

LOCATION: 0 South Flintrock Pond Rd/Parcel:
313008B00- South of FTA & NE of 180-200
Airport Way

CLIENT: Barnstable County

Consultant: BETA

DRILLER: Desmond Well Drilling
Sean, Tommy Desmond

	SAMPLER	CASING	CORE BARREL	DEPTH TO GROUNDWATER	SUMMARY	
TYPE	Split spoon	NA	NA	DATE 7/11/2023	Overburden (feet): 39	
SIZE (ID)	2"	NA	NA	TIME 2:00 PM	Rock Cored (feet): --	
HAMMER WEIGHT	140 lb	NA	---	DEPTH ~18'	# of samples:	
HAMMER FALL	30"	NA	---	SURFACE ELEV:	Well set (feet): 39	

SAMPLING INTERVALS					Ground-water	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `-/-/-/-/-	PID (ppmv)			
1		N/A	N/A				
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

No samples collected; Augered to 40' and set well

DRILLING RIG TYPE: CME45-Hollow Stem Auger

MONITORING WELL INSTALLED:

2-inch Diameter, Sch 40 PVC

SURFACE ELEVATION:

RISER FROM: 0' TO 29.5'

Screen From: 29.5-39.5

START DATE:

7/10/2023

Filter Sand: Holliston

Sand Pack Intervals

39.5-29.5

END DATE:

7/11/2023

4" Steel Well Protector: +2.5' TO 2.5'

Bentonite Seal Interval

23-25

Native Backfill

0-23

PROPORTIONS USED	RELATIVE DENSITY	CONSISTENCY	SOIL CLASSIFICATION (inches)	
trace 0-10%	0-4 Very Loose	0-2 Very Soft	Boulders >11.8	Fine Sand .02-.003
little 10-20%	4-10 Loose	2-4 Soft	Cobbles 11.8-2.9	Silt <.003
some 20-35%	10-30 Medium Dense	4-8 Medium Stiff	Coarse Gravel 2.9-.75	Clay <.003
and 35-50%	30-50 Dense	8-15 Stiff	Fine Gravel .75-.19	
	50+ Very Dense	15-30 Very Stiff	Coarse Sand .19-.08	
		30+ Hard	Medium Sand .08-.02	

**BETA**

BORING/ MONITORING WELL LOG

BORING ID: MW-403-D

Page 1 of 3

PROJECT: FMR FTA Site

BETA JOB NUMBER: 6206.02
FIELD REP: Amanda Ray, Jack Perriello
Peter Newton

LOCATION: North shoulder of Airport Way

CLIENT: Barnstable County

Consultant: BETA/ Bristol Engineering

DRILLER: Desmond Well Drilling
Sean, Tommy Desmond

	SAMPLER	CASING	CORE BARREL	DEPTH TO GROUNDWATER	SUMMARY	
TYPE	Split spoon	NA	NA	DATE 7/11/2023	Overburden (feet): 55	
SIZE (ID)	2"	NA	NA	TIME 2:00 PM	Rock Cored (feet): --	
HAMMER WEIGHT	140 lb	NA	---	DEPTH ~18'	# of samples: 10.00	
HAMMER FALL	30"	NA	---	SURFACE ELEV:	Well set (feet): 48	

SAMPLING INTERVALS					Ground-water	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" '-/-/-/-	PID (ppmv)			
1	0-5'	N/A	N/A			Vactored to 5 feet, no soil samples collected as directed by PM	
2							
3							
4							
5							
6	5-18'	N/A	N/A			Augered to 18 feet, no split spoon soil samples collected as directed by PM	
18	18-20'	19/24	3/5/8/9			Dry fine to medium tan SAND, little medium gravel, 2-1/2" of iron banding	
19							
20							
21							
22							
23	23-25	12/24	2/4/5/5			Wet fine to coarse tan SAND, little silt, trace medium gravel	
24							
25							
26							
27							
28	28-30	11/24	4/7/8/12			Wet fine to medium tan SAND	
29							
30							

DRILLING RIG TYPE: CME45-Hollow Stem Auger

MONITORING WELL INSTALLED:
RISER FROM: 0' TO 43'
Filter Sand: Holliston
4" Steel Well Protector: +2.5' TO 2.5'2-inch Diameter, Sch 40 PVC
Screen From: 43-48
Sand Pack Intervals 48-38
Bentonite Seal Interval 33-38
Native Backfill 0-33

PROPORTIONS USED	RELATIVE DENSITY	CONSISTENCY	SOIL CLASSIFICATION (inches)
trace 0-10%	0-4 Very Loose	0-2 Very Soft	Boulders >11.8
little 10-20%	4-10 Loose	2-4 Soft	Cobbles 11.8-2.9
some 20-35%	10-30 Medium Dense	4-8 Medium Stiff	Coarse Gravel 2.9-.75
and 35-50%	30-50 Dense	8-15 Stiff	Fine Gravel .75-.19
	50+ Very Dense	15-30 Very Stiff	Coarse Sand .19-.08
		30+ Hard	Medium Sand .08-.02



BORING/ MONITORING WELL LOG

BORING ID: MW-403-D

Page 2 of 3

PROJECT:	FMR FTA Site	BETA JOB NUMBER:	6206.02
		FIELD REP:	Chris Oien, Peter Newton
LOCATION:	North shoulder of Airport Way	CLIENT:	Barnstable County
Consultant:	BETA/ Bristol Engineering	DRILLER:	Desmond Well Drilling Sean, Tommy Desmond

	SAMPLER	CASING	CORE BARREL	DEPTH TO GROUNDWATER	SUMMARY	
TYPE	Split spoon	NA	NA	DATE 7/11/2023	Overburden (feet): 55	
SIZE (ID)	2"	NA	NA	TIME 2:00 PM	Rock Cored (feet): --	
HAMMER WEIGHT	140 lb	NA	---	DEPTH ~18'	# of samples: 10.00	
HAMMER FALL	30"	NA	---	SURFACE ELEV:	Well set (feet): 49'	

SAMPLING INTERVALS					Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" '--/-'--/-'--	PID (ppmv)			
30							
31							
32							
33							
34	33-35'	13/24	3/3/4/5			Wet medium to coarse tan SAND, some fine sand, little silt	
35							
36	35-37	7/24	3/5/5/6			wet medium to coarse tan SAND, little fine sand	
37							
38	37-39	9/24	4/7/8/12			Wet medium to coarse tan SAND	
39							
40	39-41	8/24	8/6/7/9			Wet medium to coarse tan SAND, little fine sand, little medium gravel	
41							
42							
43	42-44	10/24	5/7/8/11			Wet medium to coarse tan SAND, little fine sand	
44							
45	44-46	12/24	4/5/8/12			Wet medium to coarse tan Sand, little fine gravel	
46							
47	46-48	9/24	5/8/14/21			Wet medium to coarse tan Sand, little fine gravel	
48							

DRILLING RIG TYPE:	CME45-Hollow Stem Auger	MONITORING WELL INSTALLED:	2-inch Diameter, Sch 40 PVC
SURFACE ELEVATION:		RISER FROM: 0' TO 43'	Screen From: 43-48
START DATE:	7/10/2023	Filter Sand: Holliston	Sand Pack Intervals 48-38
END DATE:	7/11/2023	4" Steel Well Protector: +2.5' TO 2.5'	Bentonite Seal Interval 33-38
			Native Backfill 0-33

PROPORTIONS USED	RELATIVE DENSITY	CONSISTENCY	SOIL CLASSIFICATION (inches)	
trace 0-10%	0-4 Very Loose	0-2 Very Soft	Boulders >11.8	Fine Sand .02-.003
little 10-20%	4-10 Loose	2-4 Soft	Cobbles 11.8-2.9	Silt <.003
some 20-35%	10-30 Medium Dense	4-8 Medium Stiff	Coarse Gravel 2.9-.75	Clay <.003
and 35-50%	30-50 Dense	8-15 Stiff	Fine Gravel .75-.19	
	50+ Very Dense	15-30 Very Stiff	Coarse Sand .19-.08	
		30+ Hard	Medium Sand .08-.02	

**BETA****BORING/ MONITORING WELL LOG**

BORING ID: MW-403S

Page 1 of 1

PROJECT: FMR FTA Site

BETA JOB NUMBER: 6206.02
FIELD REP: Roger Thibault, Laura Bouley

LOCATION: North shoulder of Airport Way

CLIENT: Barnstable County

Consultant: BETA

DRILLER: Desmond Well Drilling
Sean, Tommy Desmond

	SAMPLER	CASING	CORE BARREL	DEPTH TO GROUNDWATER	SUMMARY
TYPE	Split spoon	NA	NA	DATE	Overburden (feet): 29
SIZE (ID)	2"	NA	NA	TIME	Rock Cored (feet): --
HAMMER WEIGHT	140 lb	NA	---	DEPTH 21.00	# of samples:
HAMMER FALL	30"	NA	---	SURFACE ELEV:	Well set (feet): 28.5

SAMPLING INTERVALS					Ground-water	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" '-/-/-/-/-	PID (ppmv)			
1		N/A	N/A				
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							

No samples collected; Augered to 29' and set well

DRILLING RIG TYPE: CME45-Hollow Stem Auger

MONITORING WELL INSTALLED:
RISER FROM: 0' TO 35'
Filter Sand: Holliston
4" Steel Well Protector: +2.5' TO 2.5'2-inch Diameter, Sch 40 PVC
Screen From: 18.5-28.5
Sand Pack Intervals 16-28.5
Bentonite Seal Interval 14-16
Native Backfill 0-14SURFACE ELEVATION:
START DATE: 7/10/2023
END DATE: 7/11/2023

PROPORTIONS USED	RELATIVE DENSITY	CONSISTENCY	SOIL CLASSIFICATION (inches)
trace 0-10%	0-4 Very Loose	0-2 Very Soft	Boulders >11.8
little 10-20%	4-10 Loose	2-4 Soft	Cobbles 11.8-2.9
some 20-35%	10-30 Medium Dense	4-8 Medium Stiff	Coarse Gravel 2.9-.75
and 35-50%	30-50 Dense	8-15 Stiff	Fine Gravel .75-.19
	50+ Very Dense	15-30 Very Stiff	Coarse Sand .19-.08
		30+ Hard	Medium Sand .08-.02

August 2, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: BARNSTABLE, MA
Client Job Number:
Project Number: 6206
Laboratory Work Order Number: 23G2795

Enclosed are results of analyses for samples as received by the laboratory on July 19, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 8/2/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23G2795

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

PROJECT LOCATION: BARNSTABLE, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PC-39D 28-20'	23G2795-01	Soil		SM 2540G SOP-466 PFAS	
MW-401D 50-52'	23G2795-02	Soil		SM 2540G SOP-466 PFAS	
MW-402D 34-35'	23G2795-03	Soil		SM 2540G SOP-466 PFAS	
MW-403D 18-20'	23G2795-04	Soil		SM 2540G SOP-466 PFAS	
DWD-water	23G2795-05	Drinking Water		SOP-454 PFAS	

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.

SM 2540G**Qualifications:**

H-03

Sample received after recommended holding time was exceeded.

Analyte & Samples(s) Qualified:**% Solids**

23G2795-01[PC-39D 28-20'], 23G2795-02[MW-401D 50-52'], 23G2795-03[MW-402D 34-35']

SOP-454 PFAS**Qualifications:**

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:**M2-6:2FTS**

23G2795-05RE1[DWD-water]

PF-18

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:**M2PFTA**

23G2795-05RE1[DWD-water]

S-29

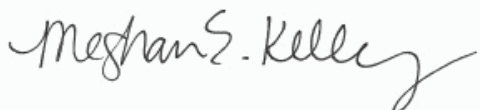
Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:**MPFDoA**

23G2795-05RE1[DWD-water]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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.



Meghan E. Kelley
Reporting Specialist

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: PC-39D 28-20'

Sampled: 7/10/2023 10:45

Sample ID: 23G2795-01

Sample Matrix: Soil

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	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorodecanoic acid (PFDA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoro-1-butanefulfonamide (FBSA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorooctanoic acid (PFOA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW
Perfluorononanoic acid (PFNA)	ND	0.50	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:36	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: PC-39D 28-20'

Sampled: 7/10/2023 10:45

Sample ID: 23G2795-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	87.2		% Wt	1	H-03	SM 2540G	7/21/23	7/21/23 13:05	BMV

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-401D 50-52'

Sampled: 7/11/2023 12:00

Sample ID: 23G2795-02

Sample Matrix: Soil

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	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorodecanoic acid (PFDA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorooctanoic acid (PFOA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW
Perfluorononanoic acid (PFNA)	ND	0.54	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:43	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-401D 50-52'

Sampled: 7/11/2023 12:00

Sample ID: 23G2795-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	81.3		% Wt	1	H-03	SM 2540G	7/21/23	7/21/23 13:05	BMV

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-402D 34-35'

Sampled: 7/12/2023 11:00

Sample ID: 23G2795-03

Sample Matrix: Soil

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	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorodecanoic acid (PFDA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorooctanoic acid (PFOA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW
Perfluorononanoic acid (PFNA)	ND	0.52	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:50	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-402D 34-35'

Sampled: 7/12/2023 11:00

Sample ID: 23G2795-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	83.9		% Wt	1	H-03	SM 2540G	7/21/23	7/21/23 13:05	BMV

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-403D 18-20'

Sampled: 7/14/2023 10:30

Sample ID: 23G2795-04

Sample Matrix: Soil

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	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoropentanoic acid (PFPeA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorohexanoic acid (PFHxA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
11Cl-PF3OUdS (F53B Major)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
9Cl-PF3ONS (F53B Minor)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorodecanoic acid (PFDA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorododecanoic acid (PFDoA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
N-EtFOSAA (NEtFOSAA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
N-MeFOSAA (NMeFOSAA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorotetradecanoic acid (PFTA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorooctanesulfonamide (FOSA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorononanesulfonic acid (PFNS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoro-1-butanefulfonamide (FBSA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoroundecanoic acid (PFUnA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluoroheptanoic acid (PFHpA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorooctanoic acid (PFOA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW
Perfluorononanoic acid (PFNA)	ND	0.45	µg/kg dry	1		SOP-466 PFAS	7/25/23	7/27/23 14:57	QNW

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Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: MW-403D 18-20'

Sampled: 7/14/2023 10:30

Sample ID: 23G2795-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	98.1		% Wt	1		SM 2540G	7/21/23	7/21/23 13:05	BMV

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Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G2795

Date Received: 7/19/2023

Field Sample #: DWD-water

Sampled: 7/11/2023 09:00

Sample ID: 23G2795-05

Sample Matrix: Drinking 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)	3.0	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	7/28/23	8/1/23 10:02	QNW

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Prep Method:**% Solids **Analytical Method:**SM 2540G

Lab Number [Field ID]	Batch	Date
23G2795-01 [PC-39D 28-20']	B346724	07/21/23
23G2795-02 [MW-401D 50-52']	B346724	07/21/23
23G2795-03 [MW-402D 34-35']	B346724	07/21/23
23G2795-04 [MW-403D 18-20']	B346724	07/21/23

Prep Method:SOP 454-PFAAS **Analytical Method:**SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23G2795-05RE1 [DWD-water]	B347285	273	1.00	07/28/23

Prep Method:SOP 466-PFAAS **Analytical Method:**SOP-466 PFAS

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23G2795-01 [PC-39D 28-20']	B346744	5.66	5.00	07/25/23
23G2795-02 [MW-401D 50-52']	B346744	5.64	5.00	07/25/23
23G2795-03 [MW-402D 34-35']	B346744	5.65	5.00	07/25/23
23G2795-04 [MW-403D 18-20']	B346744	5.67	5.00	07/25/23

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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 B346744 - SOP 466-PFAAS
Blank (B346744-BLK1)

Prepared: 07/25/23 Analyzed: 07/27/23

Perfluorobutanoic acid (PFBA)	ND	0.44	µg/kg wet
Perfluorobutanesulfonic acid (PFBS)	ND	0.44	µg/kg wet
Perfluoropentanoic acid (PFPeA)	ND	0.44	µg/kg wet
Perfluorohexanoic acid (PFHxA)	ND	0.44	µg/kg wet
11Cl-PF3OUdS (F53B Major)	ND	0.44	µg/kg wet
9Cl-PF3ONS (F53B Minor)	ND	0.44	µg/kg wet
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.44	µg/kg wet
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.44	µg/kg wet
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.44	µg/kg wet
Perfluorodecanoic acid (PFDA)	ND	0.44	µg/kg wet
Perfluorododecanoic acid (PFDoA)	ND	0.44	µg/kg wet
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.44	µg/kg wet
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.44	µg/kg wet
N-EtFOSAA (NEtFOSAA)	ND	0.44	µg/kg wet
N-MeFOSAA (NMeFOSAA)	ND	0.44	µg/kg wet
Perfluorotetradecanoic acid (PFTA)	ND	0.44	µg/kg wet
Perfluorotridecanoic acid (PFTrDA)	ND	0.44	µg/kg wet
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.44	µg/kg wet
Perfluorodecanesulfonic acid (PFDS)	ND	0.44	µg/kg wet
Perfluorooctanesulfonamide (FOSA)	ND	0.44	µg/kg wet
Perfluorononanesulfonic acid (PFNS)	ND	0.44	µg/kg wet
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.44	µg/kg wet
Perfluoro-1-butanefulfonamide (FBSA)	ND	0.44	µg/kg wet
Perfluorohexanesulfonic acid (PFHxS)	ND	0.44	µg/kg wet
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.44	µg/kg wet
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.44	µg/kg wet
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.44	µg/kg wet
Perfluoropentanesulfonic acid (PFPeS)	ND	0.44	µg/kg wet
Perfluoroundecanoic acid (PFUnA)	ND	0.44	µg/kg wet
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.44	µg/kg wet
Perfluoroheptanoic acid (PFHpA)	ND	0.44	µg/kg wet
Perfluorooctanoic acid (PFOA)	ND	0.44	µg/kg wet
Perfluorooctanesulfonic acid (PFOS)	ND	0.44	µg/kg wet
Perfluorononanoic acid (PFNA)	ND	0.44	µg/kg wet

LCS (B346744-BS1)

Prepared: 07/25/23 Analyzed: 07/27/23

Perfluorobutanoic acid (PFBA)	2.08	0.44	µg/kg wet	2.21	94.3	71-135
Perfluorobutanesulfonic acid (PFBS)	1.83	0.44	µg/kg wet	1.95	93.6	72-128
Perfluoropentanoic acid (PFPeA)	2.07	0.44	µg/kg wet	2.21	94.0	69-132
Perfluorohexanoic acid (PFHxA)	2.03	0.44	µg/kg wet	2.21	92.0	70-132
11Cl-PF3OUdS (F53B Major)	1.73	0.44	µg/kg wet	2.08	83.0	41.8-128
9Cl-PF3ONS (F53B Minor)	1.79	0.44	µg/kg wet	2.06	86.9	51.1-141
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.98	0.44	µg/kg wet	2.08	95.4	55.2-122
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.96	0.44	µg/kg wet	2.21	88.9	27.6-137
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.18	0.44	µg/kg wet	2.12	103	65-137
Perfluorodecanoic acid (PFDA)	2.27	0.44	µg/kg wet	2.21	103	69-133
Perfluorododecanoic acid (PFDoA)	1.90	0.44	µg/kg wet	2.21	86.1	69-135
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	1.75	0.44	µg/kg wet	1.96	89.2	56.7-133

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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 B346744 - SOP 466-PFAAS
LCS (B346744-BS1)

Prepared: 07/25/23 Analyzed: 07/27/23

Perfluoroheptanesulfonic acid (PFHpS)	2.09	0.44	µg/kg wet	2.11		99.3	70-132			
N-EtFOSAA (NEtFOSAA)	1.89	0.44	µg/kg wet	2.21		85.5	61-139			
N-MeFOSAA (NMeFOSAA)	1.98	0.44	µg/kg wet	2.21		89.8	63-144			
Perfluorotetradecanoic acid (PFTA)	2.17	0.44	µg/kg wet	2.21		98.3	69-133			
Perfluorotridecanoic acid (PFTTrDA)	2.34	0.44	µg/kg wet	2.21		106	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	1.90	0.44	µg/kg wet	2.07		92.1	62-145			
Perfluorodecanesulfonic acid (PFDS)	1.59	0.44	µg/kg wet	2.13		74.6	59-134			
Perfluorooctanesulfonamide (FOSA)	2.20	0.44	µg/kg wet	2.21		99.7	67-137			
Perfluorononanesulfonic acid (PFNS)	1.90	0.44	µg/kg wet	2.12		89.5	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	1.87	0.44	µg/kg wet	2.21		84.8	51.4-142			
Perfluoro-1-butanefulfonamide (FBSA)	1.73	0.44	µg/kg wet	2.21		78.4	53.5-129			
Perfluorohexanesulfonic acid (PFHxS)	1.85	0.44	µg/kg wet	2.02		91.3	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	2.09	0.44	µg/kg wet	2.21		94.8	57.8-127			
Perfluoro-5-oxahexanoic acid (PFMBA)	2.04	0.44	µg/kg wet	2.21		92.5	56.5-132			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1.80	0.44	µg/kg wet	2.10		85.9	64-140			
Perfluoropentanesulfonic acid (PFPeS)	2.06	0.44	µg/kg wet	2.07		99.3	73-123			
Perfluoroundecanoic acid (PFUnA)	2.19	0.44	µg/kg wet	2.21		99.0	64-136			
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	2.13	0.44	µg/kg wet	2.21		96.3	54.5-128			
Perfluoroheptanoic acid (PFHpA)	2.08	0.44	µg/kg wet	2.21		94.3	71-131			
Perfluorooctanoic acid (PFOA)	2.04	0.44	µg/kg wet	2.21		92.5	69-133			
Perfluorooctanesulfonic acid (PFOS)	1.97	0.44	µg/kg wet	2.04		96.8	68-136			
Perfluorononanoic acid (PFNA)	2.27	0.44	µg/kg wet	2.21		103	72-129			

Batch B347285 - SOP 454-PFAAS
Blank (B347285-BLK1)

Prepared: 07/28/23 Analyzed: 08/01/23

Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.9	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L							
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L							
Perfluoro-1-butanefulfonamide (FBSA)	ND	1.9	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L							

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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 B347285 - SOP 454-PFAAS
Blank (B347285-BLK1)

Prepared: 07/28/23 Analyzed: 08/01/23

Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L

LCS (B347285-BS1)

Prepared: 07/28/23 Analyzed: 08/01/23

Perfluorobutanoic acid (PFBA)	10.3	2.0	ng/L	9.95	104	73-129
Perfluorobutanesulfonic acid (PFBS)	9.09	2.0	ng/L	8.80	103	72-130
Perfluoropentanoic acid (PFPeA)	10.2	2.0	ng/L	9.95	103	72-129
Perfluorohexanoic acid (PFHxA)	10.5	2.0	ng/L	9.95	105	72-129
11Cl-PF3OUdS (F53B Major)	7.39	2.0	ng/L	9.37	78.9	55.1-141
9Cl-PF3ONS (F53B Minor)	8.45	2.0	ng/L	9.27	91.2	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.92	2.0	ng/L	9.37	95.2	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.97	2.0	ng/L	9.95	90.2	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.2	2.0	ng/L	9.55	107	67-138
Perfluorodecanoic acid (PFDA)	10.8	2.0	ng/L	9.95	109	71-129
Perfluorododecanoic acid (PFDoA)	10.7	2.0	ng/L	9.95	108	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	7.54	2.0	ng/L	8.85	85.2	49.4-154
Perfluoroheptanesulfonic acid (PFHpS)	11.4	2.0	ng/L	9.50	120	69-134
N-EtFOSAA (NEtFOSAA)	11.0	2.0	ng/L	9.95	111	61-135
N-MeFOSAA (NMeFOSAA)	10.9	2.0	ng/L	9.95	110	65-136
Perfluorotetradecanoic acid (PFTA)	11.3	2.0	ng/L	9.95	114	71-132
Perfluorotridecanoic acid (PFTrDA)	12.1	2.0	ng/L	9.95	122	65-144
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.49	2.0	ng/L	9.30	102	63-143
Perfluorodecanesulfonic acid (PFDS)	6.50	2.0	ng/L	9.60	67.8	53-142
Perfluorooctanesulfonamide (FOSA)	10.8	2.0	ng/L	9.95	108	67-137
Perfluorononanesulfonic acid (PFNS)	10.6	2.0	ng/L	9.55	111	69-127
Perfluoro-1-hexanesulfonamide (FHxSA)	9.30	2.0	ng/L	9.95	93.5	61.7-156
Perfluoro-1-butanessulfonamide (FBSA)	7.82	2.0	ng/L	9.95	78.6	61.3-145
Perfluorohexanesulfonic acid (PFHxS)	9.55	2.0	ng/L	9.10	105	68-131
Perfluoro-4-oxapentanoic acid (PFMPA)	9.86	2.0	ng/L	9.95	99.1	59.8-147
Perfluoro-5-oxahexanoic acid (PFMBA)	9.09	2.0	ng/L	9.95	91.4	59.5-146
6:2 Fluorotelomersulfonic acid (6:2FTS A)	10.0	2.0	ng/L	9.45	106	64-140
Perfluoropentanesulfonic acid (PFPeS)	10.4	2.0	ng/L	9.35	112	71-127
Perfluoroundecanoic acid (PFUnA)	11.4	2.0	ng/L	9.95	115	69-133
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.94	2.0	ng/L	9.95	100	58.5-143
Perfluoroheptanoic acid (PFHpA)	10.8	2.0	ng/L	9.95	108	72-130
Perfluorooctanoic acid (PFOA)	10.4	2.0	ng/L	9.95	105	71-133
Perfluorooctanesulfonic acid (PFOS)	9.16	2.0	ng/L	9.20	99.6	65-140
Perfluorononanoic acid (PFNA)	10.9	2.0	ng/L	9.95	110	69-130

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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 B347285 - SOP 454-PFAAS										
LCS Dup (B347285-BS1)										
Prepared: 07/28/23 Analyzed: 08/01/23										
Perfluorobutanoic acid (PFBA)	10.3	1.9	ng/L	9.58		108	73-129	0.0761	30	
Perfluorobutanesulfonic acid (PFBS)	9.20	1.9	ng/L	8.48		108	72-130	1.21	30	
Perfluoropentanoic acid (PFPeA)	10.1	1.9	ng/L	9.58		105	72-129	1.46	30	
Perfluorohexanoic acid (PFHxA)	10.2	1.9	ng/L	9.58		106	72-129	2.67	30	
11Cl-PF3OUdS (F53B Major)	7.43	1.9	ng/L	9.03		82.3	55.1-141	0.525	30	
9Cl-PF3ONS (F53B Minor)	8.31	1.9	ng/L	8.93		93.0	59.6-146	1.76	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.73	1.9	ng/L	9.03		96.7	60.3-131	2.21	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.50	1.9	ng/L	9.58		78.3	37.6-167	17.9	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.7	1.9	ng/L	9.20		116	67-138	4.36	30	
Perfluorodecanoic acid (PFDA)	10.6	1.9	ng/L	9.58		111	71-129	1.69	30	
Perfluorododecanoic acid (PFDoA)	10.8	1.9	ng/L	9.58		113	72-134	0.926	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	7.49	1.9	ng/L	8.53		87.8	49.4-154	0.784	30	
Perfluoroheptanesulfonic acid (PFHpS)	11.8	1.9	ng/L	9.15		129	69-134	2.94	30	
N-EtFOSAA (NEtFOSAA)	10.5	1.9	ng/L	9.58		110	61-135	4.92	30	
N-MeFOSAA (NMeFOSAA)	10.5	1.9	ng/L	9.58		110	65-136	3.86	30	
Perfluorotetradecanoic acid (PFTA)	10.9	1.9	ng/L	9.58		114	71-132	3.57	30	
Perfluorotridecanoic acid (PFTrDA)	11.6	1.9	ng/L	9.58		121	65-144	4.45	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.60	1.9	ng/L	8.96		107	63-143	1.13	30	
Perfluorodecanesulfonic acid (PFDS)	6.26	1.9	ng/L	9.25		67.7	53-142	3.84	30	
Perfluorooctanesulfonamide (FOSA)	11.0	1.9	ng/L	9.58		115	67-137	2.55	30	
Perfluorononanesulfonic acid (PFNS)	10.3	1.9	ng/L	9.20		112	69-127	2.75	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	8.89	1.9	ng/L	9.58		92.8	61.7-156	4.47	30	
Perfluoro-1-butanefulfonamide (FBSA)	7.60	1.9	ng/L	9.58		79.3	61.3-145	2.80	30	
Perfluorohexanesulfonic acid (PFHxS)	9.37	1.9	ng/L	8.77		107	68-131	1.99	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	9.99	1.9	ng/L	9.58		104	59.8-147	1.28	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	8.78	1.9	ng/L	9.58		91.6	59.5-146	3.44	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.90	1.9	ng/L	9.10		109	64-140	1.41	30	
Perfluoropentanesulfonic acid (PFPeS)	10.2	1.9	ng/L	9.01		113	71-127	2.57	30	
Perfluoroundecanoic acid (PFUnA)	11.4	1.9	ng/L	9.58		119	69-133	0.471	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.52	1.9	ng/L	9.58		99.4	58.5-143	4.29	30	
Perfluoroheptanoic acid (PFHpA)	10.4	1.9	ng/L	9.58		109	72-130	3.31	30	
Perfluorooctanoic acid (PFOA)	10.3	1.9	ng/L	9.58		108	71-133	1.01	30	
Perfluorooctanesulfonic acid (PFOS)	9.98	1.9	ng/L	8.86		113	65-140	8.48	30	
Perfluorononanoic acid (PFNA)	10.8	1.9	ng/L	9.58		113	69-130	0.663	30	

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.
H-03	Sample received after recommended holding time was exceeded.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
S-29	Extracted Internal Standard is outside of control limits.

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-39D 28-20' (23G2795-01) Lab File ID: 23G2795-01.d Analyzed: 07/27/23 14:36									
M8FOSA	142824	3.972583	173,172.00	3.9726	82	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	27405.55	2.488617	35,286.00	2.4886	78	50 - 150	0.0000	+/-0.50	
M2PFTA	283949.3	4.313433	396,536.00	4.31345	72	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	46176.4	3.786867	52,323.00	3.786883	88	50 - 150	0.0000	+/-0.50	
MPFBA	236924.5	1.050167	321,479.00	1.050167	74	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	90217.13	2.822933	131,776.00	2.82295	68	50 - 150	0.0000	+/-0.50	
M6PFDA	368361.7	3.787383	509,919.00	3.7874	72	50 - 150	0.0000	+/-0.50	
M3PFBS	111605.6	1.8701	151,443.00	1.8701	74	50 - 150	0.0000	+/-0.50	
M7PFUnA	325886.8	3.93805	446,146.00	3.938067	73	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	27994.42	3.4205	36,064.00	3.429317	78	50 - 150	-0.0088	+/-0.50	
M5PFPeA	225516	1.698283	313,781.00	1.698283	72	50 - 150	0.0000	+/-0.50	
M5PFHxA	385863.8	2.57235	526,776.00	2.572333	73	50 - 150	0.0000	+/-0.50	
M3PFHxS	59858.81	3.193817	84,466.00	3.193833	71	50 - 150	0.0000	+/-0.50	
M4PFHpA	372117.6	3.154633	517,640.00	3.162717	72	50 - 150	-0.0081	+/-0.50	
M8PFOA	378645.8	3.43785	524,568.00	3.43785	72	50 - 150	0.0000	+/-0.50	
M8PFOS	56379.98	3.6282	80,573.00	3.628217	70	50 - 150	0.0000	+/-0.50	
M9PFNA	347839.4	3.62925	457,863.00	3.62925	76	50 - 150	0.0000	+/-0.50	
MPFDoA	293970.5	4.072667	378,912.00	4.072683	78	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	75895.87	3.937517	102,579.00	3.945533	74	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	85227.19	3.865617	106,856.00	3.865633	80	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-401D 50-52' (23G2795-02) Lab File ID: 23G2795-02.d Analyzed: 07/27/23 14:43									
M8FOSA	161680.5	3.972583	173,172.00	3.9726	93	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	34497.97	2.488617	35,286.00	2.4886	98	50 - 150	0.0000	+/-0.50	
M2PFTA	325308.4	4.313433	396,536.00	4.31345	82	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	58242.31	3.786867	52,323.00	3.786883	111	50 - 150	0.0000	+/-0.50	
MPFBA	303475.7	1.050167	321,479.00	1.050167	94	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	120444.9	2.82295	131,776.00	2.82295	91	50 - 150	0.0000	+/-0.50	
M6PFDA	458059	3.787383	509,919.00	3.7874	90	50 - 150	0.0000	+/-0.50	
M3PFBS	146199.7	1.8701	151,443.00	1.8701	97	50 - 150	0.0000	+/-0.50	
M7PFUnA	408667	3.93805	446,146.00	3.938067	92	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	36767.24	3.429317	36,064.00	3.429317	102	50 - 150	0.0000	+/-0.50	
M5PFPeA	293890.8	1.698283	313,781.00	1.698283	94	50 - 150	0.0000	+/-0.50	
M5PFHxA	492642.2	2.57235	526,776.00	2.572333	94	50 - 150	0.0000	+/-0.50	
M3PFHxS	82728.55	3.193817	84,466.00	3.193833	98	50 - 150	0.0000	+/-0.50	
M4PFHpA	496894.7	3.162717	517,640.00	3.162717	96	50 - 150	0.0000	+/-0.50	
M8PFOA	502683.3	3.43785	524,568.00	3.43785	96	50 - 150	0.0000	+/-0.50	
M8PFOS	78951.93	3.6282	80,573.00	3.628217	98	50 - 150	0.0000	+/-0.50	
M9PFNA	461975.5	3.62925	457,863.00	3.62925	101	50 - 150	0.0000	+/-0.50	
MPFDoA	340492.6	4.072667	378,912.00	4.072683	90	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	96823.88	3.937517	102,579.00	3.945533	94	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	102512.8	3.865617	106,856.00	3.865633	96	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-402D 34-35' (23G2795-03)			Lab File ID: 23G2795-03.d			Analyzed: 07/27/23 14:50			
M8FOSA	107871.7	3.972583	173,172.00	3.9726	62	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	24444.98	2.4804	35,286.00	2.4886	69	50 - 150	-0.0082	+/-0.50	
M2PFTA	228511.6	4.313433	396,536.00	4.31345	58	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	40303.93	3.7789	52,323.00	3.786883	77	50 - 150	-0.0080	+/-0.50	
MPFBA	224417.9	1.050167	321,479.00	1.050167	70	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	86150.68	2.831133	131,776.00	2.82295	65	50 - 150	0.0082	+/-0.50	
M6PFDA	315623.7	3.787383	509,919.00	3.7874	62	50 - 150	0.0000	+/-0.50	
M3PFBS	105855	1.870117	151,443.00	1.8701	70	50 - 150	0.0000	+/-0.50	
M7PFUnA	285374.7	3.93805	446,146.00	3.938067	64	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	26127.13	3.429317	36,064.00	3.429317	72	50 - 150	0.0000	+/-0.50	
M5PFPeA	216794.8	1.6983	313,781.00	1.698283	69	50 - 150	0.0000	+/-0.50	
M5PFHxA	357047.5	2.564133	526,776.00	2.572333	68	50 - 150	-0.0082	+/-0.50	
M3PFHxS	55417.3	3.193817	84,466.00	3.193833	66	50 - 150	0.0000	+/-0.50	
M4PFHpA	343803	3.162717	517,640.00	3.162717	66	50 - 150	0.0000	+/-0.50	
M8PFOA	343923	3.43785	524,568.00	3.43785	66	50 - 150	0.0000	+/-0.50	
M8PFOS	51553.86	3.6282	80,573.00	3.628217	64	50 - 150	0.0000	+/-0.50	
M9PFNA	315593.6	3.62925	457,863.00	3.62925	69	50 - 150	0.0000	+/-0.50	
MPFDoA	227434.8	4.072667	378,912.00	4.072683	60	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	64901.68	3.937533	102,579.00	3.945533	63	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	71371.47	3.865617	106,856.00	3.865633	67	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-403D 18-20' (23G2795-04) Lab File ID: 23G2795-04.d Analyzed: 07/27/23 14:57									
M8FOSA	88701.73	3.972583	173,172.00	3.9726	51	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	19937.68	2.4886	35,286.00	2.4886	57	50 - 150	0.0000	+/-0.50	
M2PFTA	205755.1	4.313433	396,536.00	4.31345	52	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	33727.16	3.7789	52,323.00	3.786883	64	50 - 150	-0.0080	+/-0.50	
MPFBA	178644.7	1.050167	321,479.00	1.050167	56	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	69509.86	2.822933	131,776.00	2.82295	53	50 - 150	0.0000	+/-0.50	
M6PFDA	255865.6	3.787383	509,919.00	3.7874	50	50 - 150	0.0000	+/-0.50	
M3PFBS	83185.09	1.8701	151,443.00	1.8701	55	50 - 150	0.0000	+/-0.50	
M7PFUnA	231688.7	3.93005	446,146.00	3.938067	52	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	19713.83	3.4205	36,064.00	3.429317	55	50 - 150	-0.0088	+/-0.50	
M5PFPeA	171475	1.698283	313,781.00	1.698283	55	50 - 150	0.0000	+/-0.50	
M5PFHxA	284933.9	2.572333	526,776.00	2.572333	54	50 - 150	0.0000	+/-0.50	
M3PFHxS	47165.79	3.193817	84,466.00	3.193833	56	50 - 150	0.0000	+/-0.50	
M4PFHpA	274100.2	3.154633	517,640.00	3.162717	53	50 - 150	-0.0081	+/-0.50	
M8PFOA	281448.2	3.437833	524,568.00	3.43785	54	50 - 150	0.0000	+/-0.50	
M8PFOS	40319.2	3.6282	80,573.00	3.628217	50	50 - 150	0.0000	+/-0.50	
M9PFNA	245434.8	3.62925	457,863.00	3.62925	54	50 - 150	0.0000	+/-0.50	
MPFDoA	210357.2	4.072667	378,912.00	4.072683	56	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	73331.42	3.937517	102,579.00	3.945533	71	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	81568.8	3.865617	106,856.00	3.865633	76	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
DWD-water (23G2795-05RE1) Lab File ID: 23G2795-05RE1.d Analyzed: 08/01/23 10:02									
M8FOSA	131192.8	3.980567	175,743.00	3.972583	75	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	48361.13	2.505033	32,860.00	2.4886	147	50 - 150	0.0164	+/-0.50	
M2PFTA	17832.97	4.32155	345,519.00	4.32155	05	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	96705.48	3.78685	75,011.00	3.78685	129	50 - 150	0.0000	+/-0.50	
MPFBA	234538.7	1.066783	299,247.00	1.050167	78	50 - 150	0.0166	+/-0.50	
M3HFPO-DA	126556.4	2.847483	133,783.00	2.831117	95	50 - 150	0.0164	+/-0.50	
M6PFDA	459263.1	3.79535	497,256.00	3.787383	92	50 - 150	0.0080	+/-0.50	
M3PFBS	155729.7	1.894967	139,532.00	1.878383	112	50 - 150	0.0166	+/-0.50	
M7PFUnA	294937.2	3.946033	398,840.00	3.938033	74	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	55130.58	3.4373	27,514.00	3.4293	200	50 - 150	0.0080	+/-0.50	*
M5PFPeA	306853.1	1.7231	291,484.00	1.706567	105	50 - 150	0.0165	+/-0.50	
M5PFHxA	530286.9	2.596983	483,550.00	2.58055	110	50 - 150	0.0164	+/-0.50	
M3PFHxS	89581.47	3.21025	77,799.00	3.201883	115	50 - 150	0.0084	+/-0.50	
M4PFHpA	519352	3.178867	455,929.00	3.170783	114	50 - 150	0.0081	+/-0.50	
M8PFOA	542391.8	3.445833	463,792.00	3.445833	117	50 - 150	0.0000	+/-0.50	
M8PFOS	76504.64	3.636183	73,413.00	3.636183	104	50 - 150	0.0000	+/-0.50	
M9PFNA	492222.3	3.637217	418,339.00	3.637217	118	50 - 150	0.0000	+/-0.50	
MPFDoA	104512.7	4.08065	327,148.00	4.072667	32	50 - 150	0.0080	+/-0.50	*
D5-NEtFOSAA	71454.39	3.945517	105,476.00	3.945517	68	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	97930.95	3.873767	123,578.00	3.865617	79	50 - 150	0.0082	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B346744-BLK1)			Lab File ID: B346744-BLK1.d			Analyzed: 07/27/23 12:11			
M8FOSA	167368	3.972583	173,172.00	3.972583	97	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	30540.05	2.496817	35,286.00	2.496817	87	50 - 150	0.0000	+/-0.50	
M2PFTA	286751.3	4.32155	396,536.00	4.321567	72	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	49459.97	3.786867	52,323.00	3.786867	95	50 - 150	0.0000	+/-0.50	
MPFBA	275075.8	1.058467	321,479.00	1.050167	86	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	91358.95	2.8393	131,776.00	2.831133	69	50 - 150	0.0082	+/-0.50	
M6PFDA	426390.1	3.787383	509,919.00	3.787383	84	50 - 150	0.0000	+/-0.50	
M3PFBS	132231	1.886667	151,443.00	1.878383	87	50 - 150	0.0083	+/-0.50	
M7PFUnA	382948.9	3.93805	446,146.00	3.93805	86	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	31975.64	3.429317	36,064.00	3.429317	89	50 - 150	0.0000	+/-0.50	
M5PFPeA	270711.1	1.706567	313,781.00	1.706567	86	50 - 150	0.0000	+/-0.50	
M5PFHxA	457667.3	2.58055	526,776.00	2.58055	87	50 - 150	0.0000	+/-0.50	
M3PFHxS	71886.15	3.193817	84,466.00	3.2019	85	50 - 150	-0.0081	+/-0.50	
M4PFHpA	437792.8	3.1627	517,640.00	3.162717	85	50 - 150	0.0000	+/-0.50	
M8PFOA	455822.9	3.445833	524,568.00	3.445833	87	50 - 150	0.0000	+/-0.50	
M8PFOS	70933	3.636183	80,573.00	3.6362	88	50 - 150	0.0000	+/-0.50	
M9PFNA	407414.2	3.637217	457,863.00	3.637233	89	50 - 150	0.0000	+/-0.50	
MPFDoA	300409.4	4.08065	378,912.00	4.080667	79	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	81815.52	3.945517	102,579.00	3.945517	80	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	93968.6	3.865617	106,856.00	3.865617	88	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B346744-BS1) Lab File ID: B346744-BS1.d Analyzed: 07/27/23 12:03									
M8FOSA	179360.1	3.9726	173,172.00	3.972583	104	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	34908.59	2.4886	35,286.00	2.496817	99	50 - 150	-0.0082	+/-0.50	
M2PFTA	351927.6	4.321583	396,536.00	4.321567	89	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	54029.79	3.786883	52,323.00	3.786867	103	50 - 150	0.0000	+/-0.50	
MPFBA	313709.3	1.050167	321,479.00	1.050167	98	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	115234.9	2.8393	131,776.00	2.831133	87	50 - 150	0.0082	+/-0.50	
M6PFDA	493630.7	3.7874	509,919.00	3.787383	97	50 - 150	0.0000	+/-0.50	
M3PFBS	151182.7	1.878383	151,443.00	1.878383	100	50 - 150	0.0000	+/-0.50	
M7PFUnA	441487.3	3.938067	446,146.00	3.93805	99	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	38670.25	3.429317	36,064.00	3.429317	107	50 - 150	0.0000	+/-0.50	
M5PFPeA	308467.4	1.706567	313,781.00	1.706567	98	50 - 150	0.0000	+/-0.50	
M5PFHxA	522324.8	2.58055	526,776.00	2.58055	99	50 - 150	0.0000	+/-0.50	
M3PFHxS	84094.32	3.201883	84,466.00	3.2019	100	50 - 150	0.0000	+/-0.50	
M4PFHpA	504298.1	3.1627	517,640.00	3.162717	97	50 - 150	0.0000	+/-0.50	
M8PFOA	529601.9	3.445833	524,568.00	3.445833	101	50 - 150	0.0000	+/-0.50	
M8PFOS	81211.45	3.6362	80,573.00	3.6362	101	50 - 150	0.0000	+/-0.50	
M9PFNA	484003.3	3.637233	457,863.00	3.637233	106	50 - 150	0.0000	+/-0.50	
MPFDoA	383978.5	4.080683	378,912.00	4.080667	101	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	97046.07	3.945533	102,579.00	3.945517	95	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	113214.2	3.865633	106,856.00	3.865617	106	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B347285-BLK1)			Lab File ID: B347285-BLK1.d			Analyzed: 08/01/23 09:55			
M8FOSA	162850.7	3.980567	175,743.00	3.972583	93	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	38005.79	2.505033	32,860.00	2.4886	116	50 - 150	0.0164	+/-0.50	
M2PFtA	315772.3	4.32155	345,519.00	4.32155	91	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	76057.55	3.78685	75,011.00	3.78685	101	50 - 150	0.0000	+/-0.50	
MPFBA	296763.5	1.058467	299,247.00	1.050167	99	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	152389.3	2.8393	133,783.00	2.831117	114	50 - 150	0.0082	+/-0.50	
M6PFDA	446845.7	3.79535	497,256.00	3.787383	90	50 - 150	0.0080	+/-0.50	
M3PFBS	148322.5	1.894967	139,532.00	1.878383	106	50 - 150	0.0166	+/-0.50	
M7PFUnA	355108	3.938033	398,840.00	3.938033	89	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	31584.63	3.4373	27,514.00	3.4293	115	50 - 150	0.0080	+/-0.50	
M5PFPeA	301449	1.714833	291,484.00	1.706567	103	50 - 150	0.0083	+/-0.50	
M5PFHxA	500648.8	2.588767	483,550.00	2.58055	104	50 - 150	0.0082	+/-0.50	
M3PFHxS	77498.7	3.21025	77,799.00	3.201883	100	50 - 150	0.0084	+/-0.50	
M4PFHpA	474302.1	3.178867	455,929.00	3.170783	104	50 - 150	0.0081	+/-0.50	
M8PFOA	493565.3	3.445833	463,792.00	3.445833	106	50 - 150	0.0000	+/-0.50	
M8PFOS	65760.05	3.636183	73,413.00	3.636183	90	50 - 150	0.0000	+/-0.50	
M9PFNA	431830.5	3.637217	418,339.00	3.637217	103	50 - 150	0.0000	+/-0.50	
MPFDaA	294156.9	4.08065	327,148.00	4.072667	90	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	99410.72	3.9535	105,476.00	3.945517	94	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	108945.1	3.873767	123,578.00	3.865617	88	50 - 150	0.0082	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B347285-BS1)		Lab File ID: B347285-BS1.d				Analyzed: 08/01/23 09:40			
M8FOSA	167145.6	3.980583	175,743.00	3.972583	95	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	42917.71	2.505033	32,860.00	2.4886	131	50 - 150	0.0164	+/-0.50	
M2PFTA	340085.2	4.32155	345,519.00	4.32155	98	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	85405.85	3.786867	75,011.00	3.78685	114	50 - 150	0.0000	+/-0.50	
MPFBA	311512.1	1.058467	299,247.00	1.050167	104	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	122183.8	2.847483	133,783.00	2.831117	91	50 - 150	0.0164	+/-0.50	
M6PFDA	489172.2	3.79535	497,256.00	3.787383	98	50 - 150	0.0080	+/-0.50	
M3PFBS	156638.5	1.894967	139,532.00	1.878383	112	50 - 150	0.0166	+/-0.50	
M7PFUnA	384661.3	3.93805	398,840.00	3.938033	96	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	35849.81	3.4373	27,514.00	3.4293	130	50 - 150	0.0080	+/-0.50	
M5PFPeA	318488.8	1.714833	291,484.00	1.706567	109	50 - 150	0.0083	+/-0.50	
M5PFHxA	523219.7	2.588767	483,550.00	2.58055	108	50 - 150	0.0082	+/-0.50	
M3PFHxS	82536.83	3.21025	77,799.00	3.201883	106	50 - 150	0.0084	+/-0.50	
M4PFHpA	494215.7	3.170783	455,929.00	3.170783	108	50 - 150	0.0000	+/-0.50	
M8PFOA	518751.3	3.445833	463,792.00	3.445833	112	50 - 150	0.0000	+/-0.50	
M8PFOS	68737.43	3.636183	73,413.00	3.636183	94	50 - 150	0.0000	+/-0.50	
M9PFNA	439823	3.637217	418,339.00	3.637217	105	50 - 150	0.0000	+/-0.50	
MPFDoA	317115.8	4.08065	327,148.00	4.072667	97	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	97076.91	3.945517	105,476.00	3.945517	92	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	118638	3.873767	123,578.00	3.865617	96	50 - 150	0.0082	+/-0.50	

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

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS Dup (B347285-BSD1) Lab File ID: B347285-BSD1.d Analyzed: 08/01/23 09:48									
M8FOSA	157357.9	3.980583	175,743.00	3.972583	90	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	42159.36	2.505033	32,860.00	2.4886	128	50 - 150	0.0164	+/-0.50	
M2PFTA	333156.6	4.321567	345,519.00	4.32155	96	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	80900.92	3.786867	75,011.00	3.78685	108	50 - 150	0.0000	+/-0.50	
MPFBA	295075.7	1.058467	299,247.00	1.050167	99	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	139510	2.8393	133,783.00	2.831117	104	50 - 150	0.0082	+/-0.50	
M6PFDA	466482.4	3.79535	497,256.00	3.787383	94	50 - 150	0.0080	+/-0.50	
M3PFBS	149218.4	1.894967	139,532.00	1.878383	107	50 - 150	0.0166	+/-0.50	
M7PFUnA	377054.4	3.93805	398,840.00	3.938033	95	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	32742.52	3.4373	27,514.00	3.4293	119	50 - 150	0.0080	+/-0.50	
M5PFPeA	304871.9	1.7231	291,484.00	1.706567	105	50 - 150	0.0165	+/-0.50	
M5PFHxA	514007.7	2.588767	483,550.00	2.58055	106	50 - 150	0.0082	+/-0.50	
M3PFHxS	78622.48	3.21025	77,799.00	3.201883	101	50 - 150	0.0084	+/-0.50	
M4PFHpA	482739.7	3.170783	455,929.00	3.170783	106	50 - 150	0.0000	+/-0.50	
M8PFOA	510361.4	3.445833	463,792.00	3.445833	110	50 - 150	0.0000	+/-0.50	
M8PFOS	67272.4	3.636183	73,413.00	3.636183	92	50 - 150	0.0000	+/-0.50	
M9PFNA	436693.3	3.637217	418,339.00	3.637217	104	50 - 150	0.0000	+/-0.50	
MPFDoA	311711.2	4.08065	327,148.00	4.072667	95	50 - 150	0.0080	+/-0.50	
D5-NEtFOSAA	96124.79	3.945517	105,476.00	3.945517	91	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	113115.2	3.865617	123,578.00	3.865617	92	50 - 150	0.0000	+/-0.50	

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorobutanoic acid (PFBA)	NH-P,PA
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA
Perfluorohexanoic acid (PFHxA)	NH-P,PA
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA
Perfluorododecanoic acid (PFDoA)	NH-P,PA
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanedisulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA
Perfluorooctanoic acid (PFOA)	NH-P,PA
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA
Perfluorononanoic acid (PFNA)	NH-P,PA
<i>SOP-466 PFAS in Soil</i>	
Perfluorobutanoic acid (PFBA)	NH-P,PA
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA
Perfluorohexanoic acid (PFHxA)	NH-P,PA
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA
Perfluorododecanoic acid (PFDoA)	NH-P,PA

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

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-466 PFAS in Soil</i>	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanefulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA
Perfluorooctanoic acid (PFOA)	NH-P,PA
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA
Perfluorononanoic acid (PFNA)	NH-P,PA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024



Phone: 413-525-2332
Fax: 413-525-6405

Email: info@contestlabs.com

Company Name: BETA Group, Inc.
Address: 701 George Washington Hwy, Lincoln, RI
Phone:

Project Name: BFTA
Project Location: Barnstable, MA
Project Number: 6206
Project Manager: Roger Thibault

Con-Test Quote Name/Number:
Invoice Recipient: Stacy Wildanger - SWildanger@BETA-Inc.com
Sampled By: Chris Olen, Amanda Ray

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

Doc # 381 Rev 2_06262019

39 Spruce Street
East Longmeadow, MA 01028

Requested Turnaround Time
7-Day ☐ 10-Day ☐ Due Date:
PFAS 15-Day (std) ☐ Lab to Filter
Rush-Approval Required
1-Day ☐ 3-Day ☐ Field Filtered
2-Day ☐ 4-Day ☐ Lab to Filter

Orthophosphate Samples
Data Delivery
Format: PDF ☒ EXCEL ☒
Other: SOXHLET ☐
PCB ONLY
CLP Like Data Pkg Required: ☐
Email To: info@beta-inc.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
1	PC-39D 28'30"	7/10/23 10:45	7/10/23 10:45	Grab	S	L						X
2	MW-401D 50-52'	7/11/23 12:00	7/11/23 12:00	Grab	S	L						X
3	MW-402D 34-35'	7/12/23 11:00	7/12/23 11:00	Grab	S	L						X
4	MW-403D 18-20'	7/14/23 10:30	7/14/23 10:30	Grab	S	L						X
5	PWD-Water	7/11/23 9:00	7/11/23 9:00	Grab	DW	L						X

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)

3 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)

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

Special Requirements
MA MCP Required ☒
MCP Certification Form Required ☐
CT RCP Required ☐
RCP Certification Form Required ☐
MA State DW Required ☐
PW/SID #

Project Entity
Government ☐ Municipality ☐ WRTA ☐
Federal ☐ 21 J ☐ MWRA ☐
City ☐ Brownfield ☐ School ☐ MBTA ☐
Other ☐ Chromatogram ☐
Other ☐ AIHA-LAP, LLC

Relinquished by: (signature) Date/Time: 7/17/23 9:00
Received by: (signature) Date/Time: 7/18/23 10:05
Relinquished by: (signature) Date/Time: 7/18/23 12:00
Received by: (signature) Date/Time: 7/19/23 9:00
Relinquished by: (signature) Date/Time: 7/19/23 9:00
Received by: (signature) Date/Time: 7/19/23 9:00
Relinquished by: (signature) Date/Time: 7/19/23 9:00
Received by: (signature) Date/Time: 7/19/23 9:00

Lab Comments:

Client Comments:
Sample confirmation and report to Rthibault@BETA-Inc.com & Lboulley@BETA-Inc.com.

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

Qualtrax ID: 120836

Page 2 of 2

Sample	Soils Jars				Ambers				Plastics								VOA Vials						Other / Fill in																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	(Circle Amb/Clear)				1 Liter		250mL		100mL	1 Liter		500mL	250mL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	16oz Amb/Clear	8oz Amb/Clear	4oz Amb/Clear	2oz Amb/Clear	Unpreserved	HCL	Sulfuric	Sulfuric	Phosphoric	HCl	Unpreserved	Sulfuric	Unpreserved	Sulfuric	Unpreserved	Trizma	Sulfuric	Nitric	NaOH	Ammonium Acetate	NaOH/Zinc	Unpreserved	HCl	MeOH	D.I. Water	Bisulfate	Col/Bact																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Appendix H - Laboratory Reports - Quarterly Groundwater Monitoring

February 17, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: Barnstable, MA
Client Job Number:
Project Number: 6206
Laboratory Work Order Number: 23B0760

Enclosed are results of analyses for samples as received by the laboratory on February 6, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 2/17/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23B0760

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

PROJECT LOCATION: Barnstable, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PFW-1	23B0760-01	Ground Water		SOP-454 PFAS	
PFW-2	23B0760-02	Ground Water		SOP-454 PFAS	
PFW-5	23B0760-03	Ground Water		SOP-454 PFAS	
OW-8A	23B0760-04	Ground Water		SOP-454 PFAS	
MW-3S	23B0760-05	Ground Water		SOP-454 PFAS	
MW-12S	23B0760-06	Ground Water		SOP-454 PFAS	
MW-22	23B0760-07	Ground Water		SOP-454 PFAS	
PC-1	23B0760-08	Ground Water		SOP-454 PFAS	
PC-6A	23B0760-09	Ground Water		SOP-454 PFAS	
PC-16D	23B0760-10	Ground Water		SOP-454 PFAS	
PC-28	23B0760-11	Ground Water		SOP-454 PFAS	
PC-30	23B0760-12	Ground Water		SOP-454 PFAS	
PC-34S	23B0760-13	Ground Water		SOP-454 PFAS	
PC-39	23B0760-14	Ground Water		SOP-454 PFAS	
Duplicate 1	23B0760-15	Ground Water		SOP-454 PFAS	
Equipment Blank 1	23B0760-16	Ground Water		SOP-454 PFAS	
Equipment Blank 2	23B0760-17	Ground Water		SOP-454 PFAS	

CASE NARRATIVE SUMMARY

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

SOP-454 PFAS

Qualifications:

E

Reported result is estimated. Value reported over verified calibration range.

Analyte & Samples(s) Qualified:

Perfluoro-1-hexanesulfonamide (FHxSA)

B330940-MS1, B330940-MSD1

Perfluorooctanesulfonic acid (PFOS)

B330940-MS1, B330940-MSD1

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:

N-EtFOSAA (NEtFOSAA)

B330940-BS1

N-MeFOSAA (NMeFOSAA)

B330940-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:

6:2 Fluorotelomersulfonic acid (6:2FTS A)

23B0760-01[PFW-1], 23B0760-02[PFW-2], 23B0760-04[OW-8A], 23B0760-05[MW-3S], 23B0760-06[MW-12S], 23B0760-08[PC-1], 23B0760-09[PC-6A], 23B0760-10[PC-16D], 23B0760-11[PC-28], 23B0760-12[PC-30], 23B0760-13[PC-34S], 23B0760-14[PC-39], 23B0760-15[Duplicate 1], B330940-BS1

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:

11Cl-PF3OUdS (F53B Major)

B330940-MS1, B330940-MSD1

8:2 Fluorotelomersulfonic acid (8:2FTS A)

23B0760-01[PFW-1], B330940-MS1, B330940-MSD1

9Cl-PF3ONS (F53B Minor)

B330940-MS1, B330940-MSD1

Perfluoroheptanesulfonic acid (PFHpS)

23B0760-01[PFW-1], B330940-MS1, B330940-MSD1

Perfluorononanesulfonic acid (PFNS)

23B0760-01[PFW-1], B330940-MS1, B330940-MSD1

Perfluorotetradecanoic acid (PFTA)

B330940-MS1, B330940-MSD1

MS-19

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

Analyte & Samples(s) Qualified:

Perfluorohexanesulfonic acid (PFHxS)

23B0760-01[PFW-1], B330940-MS1, B330940-MSD1

Perfluorooctanesulfonic acid (PFOS)

B330940-MS1, B330940-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:**6:2 Fluorotelomersulfonic acid (6:2FTS A)**

23B0760-01[PFW-1], B330940-MS1

N-EtFOSAA (NEtFOSAA)

B330940-MSD1

N-MeFOSAA (NMeFOSAA)

B330940-MS1

Perfluoro-1-hexanesulfonamide (FHxSA)

B330940-MS1

Perfluorodecanoic acid (PFDA)

23B0760-01[PFW-1], B330940-MS1

Perfluorohexanoic acid (PFHxA)

23B0760-01[PFW-1], B330940-MS1

Perfluorononanoic acid (PFNA)

23B0760-01[PFW-1], B330940-MS1

Perfluoropentanoic acid (PFPeA)

23B0760-01[PFW-1], B330940-MS1

Perfluoropetanesulfonic acid (PFPeS)

23B0760-01[PFW-1], B330940-MS1

PF-19

Sample re-analyzed at a dilution that was re-fortified with internal standard.

Analyte & Samples(s) Qualified:**Perfluoro-1-hexanesulfonamide (FHxSA)**

23B0760-01RE1[PFW-1]

Perfluorohexanesulfonic acid (PFHxS)

23B0760-04RE1[OW-8A]

Perfluorooctanesulfonic acid (PFOS)

23B0760-01RE1[PFW-1], 23B0760-06RE1[MW-12S], 23B0760-11RE1[PC-28], 23B0760-12RE1[PC-30], 23B0760-13RE1[PC-34S], 23B0760-15RE1[Duplicate 1]

PF-20

Quantifying ion signal to noise ratio is <10. Detection is suspect.

Analyte & Samples(s) Qualified:**Perfluorobutanoic acid (PFBA)**

23B0760-04[OW-8A], 23B0760-05[MW-3S]

Perfluorononanoic acid (PFNA)

23B0760-03[PFW-5]

Perfluoropentanoic acid (PFPeA)

23B0760-05[MW-3S]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:**M2-4:2FTS**

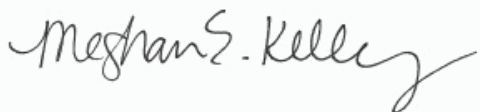
23B0760-09[PC-6A]

MPFBA

23B0760-04[OW-8A]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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.



Meghan E. Kelley
Reporting Specialist

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: PFW-1

Sampled: 1/31/2023 09:00

Sample ID: 23B0760-01

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)	170	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorobutanesulfonic acid (PFBS)	63	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluoropentanoic acid (PFPeA)	610	20	ng/L	1	MS-22	SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorohexanoic acid (PFHxA)	610	20	ng/L	1	MS-22	SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
11Cl-PF3OUdS (F53B Major)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
9Cl-PF3ONS (F53B Minor)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	1300	20	ng/L	1	MS-12	SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorodecanoic acid (PFDA)	78	20	ng/L	1	MS-22	SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorododecanoic acid (PFDoA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluoroheptanesulfonic acid (PFHpS)	150	20	ng/L	1	MS-12	SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
N-EtFOSAA (NEtFOSAA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
N-MeFOSAA (NMeFOSAA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorotetradecanoic acid (PFTA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorodecanesulfonic acid (PFDS)	20	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorooctanesulfonamide (FOSA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorononanesulfonic acid (PFNS)	85	20	ng/L	1	MS-12	SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	2600	200	ng/L	10	PF-19	SOP-454 PFAS	2/13/23	2/15/23 16:03	BLM
Perfluoro-1-butanefulfonamide (FBFA)	110	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorohexanesulfonic acid (PFHxS)	1500	20	ng/L	1	MS-19	SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	640	20	ng/L	1	L-05, MS-22	SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluoropentanesulfonic acid (PFPeS)	160	20	ng/L	1	MS-22	SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluoroundecanoic acid (PFUnA)	130	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluoroheptanoic acid (PFHpA)	370	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorooctanoic acid (PFOA)	330	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM
Perfluorooctanesulfonic acid (PFOS)	15000	200	ng/L	10	PF-19	SOP-454 PFAS	2/13/23	2/15/23 16:03	BLM
Perfluorononanoic acid (PFNA)	210	20	ng/L	1	MS-22	SOP-454 PFAS	2/13/23	2/15/23 11:05	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: PFW-2

Sampled: 1/31/2023 11:00

Sample ID: 23B0760-02

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)	130	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorobutanesulfonic acid (PFBS)	40	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluoropentanoic acid (PFPeA)	600	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorohexanoic acid (PFHxA)	630	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
11Cl-PF3OUdS (F53B Major)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
9Cl-PF3ONS (F53B Minor)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	160	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorodecanoic acid (PFDA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorododecanoic acid (PFDoA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
N-EtFOSAA (NEtFOSAA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
N-MeFOSAA (NMeFOSAA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorotetradecanoic acid (PFTA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorooctanesulfonamide (FOSA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorononanesulfonic acid (PFNS)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	150	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluoro-1-butanefulfonamide (FBFA)	87	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorohexanesulfonic acid (PFHxS)	620	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1500	20	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluoropentanesulfonic acid (PFPeS)	61	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluoroundecanoic acid (PFUnA)	200	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluoroheptanoic acid (PFHpA)	190	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorooctanoic acid (PFOA)	250	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorooctanesulfonic acid (PFOS)	1600	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM
Perfluorononanoic acid (PFNA)	64	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:12	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Sampled: 1/31/2023 09:15

Field Sample #: PFW-5

Sample ID: 23B0760-03

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)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorobutanesulfonic acid (PFBS)	23	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluoropentanoic acid (PFPeA)	43	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorohexanoic acid (PFHxA)	62	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
11Cl-PF3OUdS (F53B Major)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
9Cl-PF3ONS (F53B Minor)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorodecanoic acid (PFDA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorododecanoic acid (PFDoA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
N-EtFOSAA (NEtFOSAA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
N-MeFOSAA (NMeFOSAA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorotetradecanoic acid (PFTA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorooctanesulfonamide (FOSA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorononanesulfonic acid (PFNS)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	38	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluoro-1-butanefulfonamide (FBFA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorohexanesulfonic acid (PFHxS)	580	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluoropentanesulfonic acid (PFPeS)	49	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluoroundecanoic acid (PFUnA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluoroheptanoic acid (PFHpA)	48	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorooctanoic acid (PFOA)	110	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorooctanesulfonic acid (PFOS)	1100	20	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM
Perfluorononanoic acid (PFNA)	24	20	ng/L	1	PF-20	SOP-454 PFAS	2/13/23	2/15/23 11:19	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: OW-8A

Sampled: 1/31/2023 11:30

Sample ID: 23B0760-04

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)	63	10	ng/L	1	PF-20	SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorobutanesulfonic acid (PFBS)	87	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluoropentanoic acid (PFPeA)	240	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorohexanoic acid (PFHxA)	580	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluoroheptanesulfonic acid (PFHpS)	34	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1	PF-19	SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	21	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluoro-1-butanefulfonamide (FBFA)	12	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorohexanesulfonic acid (PFHxS)	2000	100	ng/L	10		SOP-454 PFAS	2/13/23	2/15/23 16:11	RRB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	15	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluoropentanesulfonic acid (PFPeS)	94	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluoroundecanoic acid (PFUnA)	11	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluoroheptanoic acid (PFHpA)	180	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorooctanoic acid (PFOA)	410	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorooctanesulfonic acid (PFOS)	480	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM
Perfluorononanoic acid (PFNA)	48	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:26	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: MW-3S

Sampled: 1/31/2023 10:30

Sample ID: 23B0760-05

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)	54	10	ng/L	1	PF-20	SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorobutanesulfonic acid (PFBS)	64	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluoropentanoic acid (PFPeA)	160	10	ng/L	1	PF-20	SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorohexanoic acid (PFHxA)	200	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluoroheptanesulfonic acid (PFHpS)	28	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	44	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorohexanesulfonic acid (PFHxS)	910	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	22	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluoropentanesulfonic acid (PFPeS)	71	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluoroheptanoic acid (PFHpA)	81	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorooctanoic acid (PFOA)	220	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorooctanesulfonic acid (PFOS)	830	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM
Perfluorononanoic acid (PFNA)	24	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:34	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: MW-12S

Sampled: 2/1/2023 09:20

Sample ID: 23B0760-06

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)	48	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorobutanesulfonic acid (PFBS)	18	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluoropentanoic acid (PFPeA)	160	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorohexanoic acid (PFHxA)	180	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluoroheptanesulfonic acid (PFHpS)	15	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorooctanesulfonamide (FOSA)	350	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	100	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluoro-1-butanefulfonamide (FBFA)	23	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorohexanesulfonic acid (PFHxS)	580	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	31	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluoropentanesulfonic acid (PFPeS)	24	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluoroundecanoic acid (PFUnA)	31	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluoroheptanoic acid (PFHpA)	66	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorooctanoic acid (PFOA)	190	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM
Perfluorooctanesulfonic acid (PFOS)	1100	100	ng/L	10	PF-19	SOP-454 PFAS	2/13/23	2/15/23 16:18	RRB
Perfluorononanoic acid (PFNA)	21	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:41	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: MW-22

Sampled: 2/1/2023 10:00

Sample ID: 23B0760-07

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)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorohexanesulfonic acid (PFHxS)	25	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorooctanesulfonic acid (PFOS)	42	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:48	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Sampled: 2/1/2023 13:30

Field Sample #: PC-1

Sample ID: 23B0760-08

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)	24	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluoropentanoic acid (PFPeA)	100	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorohexanoic acid (PFHxA)	91	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	24	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluoro-1-butanefulfonamide (FBFA)	15	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorohexanesulfonic acid (PFHxS)	110	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	220	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluoroheptanoic acid (PFHpA)	41	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorooctanoic acid (PFOA)	35	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorooctanesulfonic acid (PFOS)	78	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 11:55	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: PC-6A

Sampled: 2/1/2023 13:00

Sample ID: 23B0760-09

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)	17	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluoropentanoic acid (PFPeA)	45	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorohexanoic acid (PFHxA)	43	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorodecanoic acid (PFDA)	13	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	26	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorohexanesulfonic acid (PFHxS)	72	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	12	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluoroundecanoic acid (PFUnA)	63	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluoroheptanoic acid (PFHpA)	37	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorooctanoic acid (PFOA)	29	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorooctanesulfonic acid (PFOS)	640	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM
Perfluorononanoic acid (PFNA)	58	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:03	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: PC-16D

Sampled: 2/1/2023 11:00

Sample ID: 23B0760-10

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	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluoropentanoic acid (PFPeA)	36	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorohexanoic acid (PFHxA)	36	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	19	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorohexanesulfonic acid (PFHxS)	75	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	16	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluoroheptanoic acid (PFHpA)	19	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorooctanoic acid (PFOA)	16	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorooctanesulfonic acid (PFOS)	290	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM
Perfluorononanoic acid (PFNA)	18	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:10	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: PC-28

Sampled: 2/1/2023 11:00

Sample ID: 23B0760-11

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)	26	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluoropentanoic acid (PFPeA)	75	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorohexanoic acid (PFHxA)	82	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	11	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorodecanoic acid (PFDA)	18	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluoroheptanesulfonic acid (PFHpS)	10	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	47	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluoro-1-butanefulfonamide (FBFA)	11	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorohexanesulfonic acid (PFHxS)	120	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	28	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluoropentanesulfonic acid (PFPeS)	10	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluoroundecanoic acid (PFUnA)	72	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluoroheptanoic acid (PFHpA)	66	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorooctanoic acid (PFOA)	48	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM
Perfluorooctanesulfonic acid (PFOS)	1200	100	ng/L	10	PF-19	SOP-454 PFAS	2/13/23	2/15/23 16:25	RRB
Perfluorononanoic acid (PFNA)	95	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:32	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: PC-30

Sampled: 2/1/2023 09:30

Sample ID: 23B0760-12

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)	22	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluoropentanoic acid (PFPeA)	65	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorohexanoic acid (PFHxA)	80	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	11	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorodecanoic acid (PFDA)	16	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluoroheptanesulfonic acid (PFHpS)	14	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	46	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluoro-1-butanefulfonamide (FBFA)	11	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorohexanesulfonic acid (PFHxS)	110	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	29	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluoropentanesulfonic acid (PFPeS)	11	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluoroundecanoic acid (PFUnA)	35	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluoroheptanoic acid (PFHpA)	54	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorooctanoic acid (PFOA)	45	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM
Perfluorooctanesulfonic acid (PFOS)	1100	100	ng/L	10	PF-19	SOP-454 PFAS	2/13/23	2/15/23 16:32	RRB
Perfluorononanoic acid (PFNA)	110	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:39	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: PC-34S

Sampled: 1/31/2023 10:00

Sample ID: 23B0760-13

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)	46	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorobutanesulfonic acid (PFBS)	25	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluoropentanoic acid (PFPeA)	140	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorohexanoic acid (PFHxA)	190	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	13	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorodecanoic acid (PFDA)	17	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluoroheptanesulfonic acid (PFHpS)	25	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	61	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluoro-1-butanefulfonamide (FBFA)	19	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorohexanesulfonic acid (PFHxS)	210	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	65	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluoropentanesulfonic acid (PFPeS)	27	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluoroheptanoic acid (PFHpA)	110	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorooctanoic acid (PFOA)	94	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM
Perfluorooctanesulfonic acid (PFOS)	1500	100	ng/L	10	PF-19	SOP-454 PFAS	2/13/23	2/15/23 16:40	RRB
Perfluorononanoic acid (PFNA)	230	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:47	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: PC-39

Sampled: 2/1/2023 12:00

Sample ID: 23B0760-14

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	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorohexanesulfonic acid (PFHxS)	13	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	20	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluoroundecanoic acid (PFUnA)	11	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorooctanesulfonic acid (PFOS)	180	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 12:54	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: Duplicate 1

Sampled: 2/1/2023 09:00

Sample ID: 23B0760-15

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	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluoropentanoic acid (PFPeA)	59	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorohexanoic acid (PFHxA)	71	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorodecanoic acid (PFDA)	12	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluoroheptanesulfonic acid (PFHpS)	11	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	41	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorohexanesulfonic acid (PFHxS)	100	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	28	10	ng/L	1	L-05	SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluoroundecanoic acid (PFUnA)	26	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluoroheptanoic acid (PFHpA)	49	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorooctanoic acid (PFOA)	39	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM
Perfluorooctanesulfonic acid (PFOS)	1100	100	ng/L	10	PF-19	SOP-454 PFAS	2/13/23	2/15/23 16:47	RRB
Perfluorononanoic acid (PFNA)	89	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:01	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: Equipment Blank 1

Sampled: 1/31/2023 12:00

Sample ID: 23B0760-16

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	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:08	BLM

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23B0760

Date Received: 2/6/2023

Field Sample #: Equipment Blank 2

Sampled: 2/1/2023 12:30

Sample ID: 23B0760-17

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	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluoropentanoic acid (PFPeA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorohexanoic acid (PFHxA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluoroundecanoic acid (PFUnA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluoroheptanoic acid (PFHpA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorooctanoic acid (PFOA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM
Perfluorononanoic acid (PFNA)	ND	10	ng/L	1		SOP-454 PFAS	2/13/23	2/15/23 13:16	BLM

Sample Extraction Data

Prep Method: SOP 454-PFAAS Analytical Method: SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23B0760-01 [PFW-1]	B330940	25.0	1.00	02/13/23
23B0760-01RE1 [PFW-1]	B330940	25.0	1.00	02/13/23
23B0760-02 [PFW-2]	B330940	25.0	1.00	02/13/23
23B0760-03 [PFW-5]	B330940	25.0	1.00	02/13/23
23B0760-04 [OW-8A]	B330940	50.0	1.00	02/13/23
23B0760-04RE1 [OW-8A]	B330940	50.0	1.00	02/13/23
23B0760-05 [MW-3S]	B330940	47.9	1.00	02/13/23
23B0760-06 [MW-12S]	B330940	48.4	1.00	02/13/23
23B0760-06RE1 [MW-12S]	B330940	48.4	1.00	02/13/23
23B0760-07 [MW-22]	B330940	48.2	1.00	02/13/23
23B0760-08 [PC-1]	B330940	49.1	1.00	02/13/23
23B0760-09 [PC-6A]	B330940	49.4	1.00	02/13/23
23B0760-10 [PC-16D]	B330940	48.6	1.00	02/13/23
23B0760-11 [PC-28]	B330940	48.6	1.00	02/13/23
23B0760-11RE1 [PC-28]	B330940	48.6	1.00	02/13/23
23B0760-12 [PC-30]	B330940	49.1	1.00	02/13/23
23B0760-12RE1 [PC-30]	B330940	49.1	1.00	02/13/23
23B0760-13 [PC-34S]	B330940	48.8	1.00	02/13/23
23B0760-13RE1 [PC-34S]	B330940	48.8	1.00	02/13/23
23B0760-14 [PC-39]	B330940	48.8	1.00	02/13/23
23B0760-15 [Duplicate 1]	B330940	47.7	1.00	02/13/23
23B0760-15RE1 [Duplicate 1]	B330940	47.7	1.00	02/13/23
23B0760-16 [Equipment Blank 1]	B330940	48.9	1.00	02/13/23
23B0760-17 [Equipment Blank 2]	B330940	49.0	1.00	02/13/23

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 B330940 - SOP 454-PFAAS
Blank (B330940-BLK1)

Prepared: 02/13/23 Analyzed: 02/15/23

Perfluorobutanoic acid (PFBA)	ND	2.0	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L
11Cl-PF3OUdS (F53B Major)	ND	2.0	ng/L
9Cl-PF3ONS (F53B Minor)	ND	2.0	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	2.0	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	2.0	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	2.0	ng/L
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	2.0	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	ng/L
N-EtFOSAA (NEtFOSAA)	ND	2.0	ng/L
N-MeFOSAA (NMeFOSAA)	ND	2.0	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	2.0	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	2.0	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	2.0	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	2.0	ng/L
Perfluoro-1-butanefulfonamide (FBFA)	ND	2.0	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	2.0	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	2.0	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	2.0	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	2.0	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L

LCS (B330940-BS1)

Prepared: 02/13/23 Analyzed: 02/15/23

Perfluorobutanoic acid (PFBA)	11.5	1.9	ng/L	9.42	122	73-129
Perfluorobutanesulfonic acid (PFBS)	10.0	1.9	ng/L	8.33	120	72-130
Perfluoropentanoic acid (PFPeA)	11.4	1.9	ng/L	9.42	121	72-129
Perfluorohexanoic acid (PFHxA)	11.2	1.9	ng/L	9.42	119	72-129
11Cl-PF3OUdS (F53B Major)	8.53	1.9	ng/L	8.87	96.1	55.1-141
9Cl-PF3ONS (F53B Minor)	8.62	1.9	ng/L	8.78	98.2	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	10.1	1.9	ng/L	8.87	113	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	11.0	1.9	ng/L	9.42	117	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.1	1.9	ng/L	9.04	112	67-138
Perfluorodecanoic acid (PFDA)	11.8	1.9	ng/L	9.42	125	71-129
Perfluorododecanoic acid (PFDoA)	12.0	1.9	ng/L	9.42	128	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	10.0	1.9	ng/L	8.38	120	49.4-154

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 B330940 - SOP 454-PFAAS
LCS (B330940-BS1)

Prepared: 02/13/23 Analyzed: 02/15/23

Perfluoroheptanesulfonic acid (PFHpS)	10.7	1.9	ng/L	8.99		119	69-134			
N-EtFOSAA (NEtFOSAA)	12.9	1.9	ng/L	9.42		137	* 61-135			L-01
N-MeFOSAA (NMeFOSAA)	12.9	1.9	ng/L	9.42		137	* 65-136			L-01
Perfluorotetradecanoic acid (PFTA)	12.5	1.9	ng/L	9.42		132	71-132			
Perfluorotridecanoic acid (PFTrDA)	12.1	1.9	ng/L	9.42		129	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	10.1	1.9	ng/L	8.81		115	63-143			
Perfluorodecanesulfonic acid (PFDS)	9.20	1.9	ng/L	9.09		101	53-142			
Perfluorooctanesulfonamide (FOSA)	11.6	1.9	ng/L	9.42		123	67-137			
Perfluorononanesulfonic acid (PFNS)	9.51	1.9	ng/L	9.04		105	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	11.5	1.9	ng/L	9.42		122	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	10.4	1.9	ng/L	9.42		111	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	9.91	1.9	ng/L	8.62		115	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	12.4	1.9	ng/L	9.42		131	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	11.7	1.9	ng/L	9.42		124	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	13.4	1.9	ng/L	8.95		150	* 64-140			L-05
Perfluoropentanesulfonic acid (PFPeS)	10.6	1.9	ng/L	8.85		120	71-127			
Perfluoroundecanoic acid (PFUnA)	11.7	1.9	ng/L	9.42		124	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.8	1.9	ng/L	9.42		114	58.5-143			
Perfluoroheptanoic acid (PFHpA)	11.2	1.9	ng/L	9.42		119	72-130			
Perfluorooctanoic acid (PFOA)	11.6	1.9	ng/L	9.42		123	71-133			
Perfluorooctanesulfonic acid (PFOS)	9.78	1.9	ng/L	8.71		112	65-140			
Perfluorononanoic acid (PFNA)	11.7	1.9	ng/L	9.42		125	69-130			

Matrix Spike (B330940-MS1)
Source: 23B0760-01

Prepared: 02/13/23 Analyzed: 02/15/23

Perfluorobutanoic acid (PFBA)	289	20	ng/L	100	166	123	73-129			
Perfluorobutanesulfonic acid (PFBS)	173	20	ng/L	88.5	62.6	124	72-130			
Perfluoropentanoic acid (PFPeA)	736	20	ng/L	100	605	130	* 72-129			MS-22
Perfluorohexanoic acid (PFHxA)	761	20	ng/L	100	612	149	* 72-129			MS-22
11Cl-PF3OUdS (F53B Major)	138	20	ng/L	94.2	ND	147	* 58.3-140			MS-12
9Cl-PF3ONS (F53B Minor)	139	20	ng/L	93.2	ND	149	* 61.4-144			MS-12
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	101	20	ng/L	94.2	ND	107	62.4-128			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	115	20	ng/L	100	ND	115	36.7-171			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	1540	20	ng/L	96.0	1290	261	* 67-138			MS-12
Perfluorodecanoic acid (PFDA)	212	20	ng/L	100	77.5	135	* 71-129			MS-22
Perfluorododecanoic acid (PFDoA)	125	20	ng/L	100	ND	125	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	105	20	ng/L	89.0	ND	118	54.3-149			
Perfluoroheptanesulfonic acid (PFHpS)	318	20	ng/L	95.5	149	177	* 69-134			MS-12
N-EtFOSAA (NEtFOSAA)	122	20	ng/L	100	ND	122	61-135			
N-MeFOSAA (NMeFOSAA)	139	20	ng/L	100	ND	139	* 65-136			MS-22
Perfluorotetradecanoic acid (PFTA)	133	20	ng/L	100	ND	133	* 71-132			MS-12
Perfluorotridecanoic acid (PFTrDA)	127	20	ng/L	100	ND	127	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	110	20	ng/L	93.5	ND	118	63-143			
Perfluorodecanesulfonic acid (PFDS)	122	20	ng/L	96.5	20.2	105	53-142			
Perfluorooctanesulfonamide (FOSA)	119	20	ng/L	100	8.69	111	67-137			
Perfluorononanesulfonic acid (PFNS)	260	20	ng/L	96.0	85.3	182	* 69-127			MS-12
Perfluoro-1-hexanesulfonamide (FHxSA)	2390	20	ng/L	100	2180	214	* 64.2-154			E, MS-22
Perfluoro-1-butanefulfonamide (FBSA)	229	20	ng/L	100	109	121	65.9-140			
Perfluorohexanesulfonic acid (PFHxS)	1540	20	ng/L	91.5	1490	54.6	* 68-131			MS-19

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 B330940 - SOP 454-PFAAS										
Matrix Spike (B330940-MS1)	Source: 23B0760-01			Prepared: 02/13/23 Analyzed: 02/15/23						
Perfluoro-4-oxapentanoic acid (PFMPA)	135	20	ng/L	100	ND	135	61.9-143			
Perfluoro-5-oxahexanoic acid (PFMBA)	121	20	ng/L	100	ND	121	61.4-142			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	783	20	ng/L	95.0	643	147 *	64-140			MS-22
Perfluoropetanesulfonic acid (PFPeS)	277	20	ng/L	94.0	155	130 *	71-127			MS-22
Perfluoroundecanoic acid (PFUnA)	221	20	ng/L	100	128	93.1	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	116	20	ng/L	100	ND	116	62-138			
Perfluoroheptanoic acid (PFHpA)	476	20	ng/L	100	365	111	72-130			
Perfluorooctanoic acid (PFOA)	436	20	ng/L	100	325	111	71-133			
Perfluorooctanesulfonic acid (PFOS)	10700	20	ng/L	92.5	10300	420 *	65-140			E, MS-19
Perfluorononanoic acid (PFNA)	344	20	ng/L	100	205	138 *	69-130			MS-22
Matrix Spike Dup (B330940-MSD1)	Source: 23B0760-01			Prepared: 02/13/23 Analyzed: 02/15/23						
Perfluorobutanoic acid (PFBA)	278	20	ng/L	100	166	112	73-129	3.77	30	
Perfluorobutanesulfonic acid (PFBS)	171	20	ng/L	88.5	62.6	122	72-130	1.15	30	
Perfluoropentanoic acid (PFPeA)	693	20	ng/L	100	605	88.1	72-129	5.91	30	
Perfluorohexanoic acid (PFHxA)	698	20	ng/L	100	612	86.6	72-129	8.60	30	
11Cl-PF3OUdS (F53B Major)	143	20	ng/L	94.2	ND	152 *	58.3-140	3.65	30	MS-12
9Cl-PF3ONS (F53B Minor)	137	20	ng/L	93.2	ND	147 *	61.4-144	0.953	30	MS-12
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	105	20	ng/L	94.2	ND	112	62.4-128	4.18	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	139	20	ng/L	100	ND	139	36.7-171	19.5	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	1420	20	ng/L	96.0	1290	140 *	67-138	7.78	30	MS-12
Perfluorodecanoic acid (PFDA)	205	20	ng/L	100	77.5	127	71-129	3.46	30	
Perfluorododecanoic acid (PFDoA)	126	20	ng/L	100	ND	126	72-134	1.20	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	106	20	ng/L	89.0	ND	120	54.3-149	1.57	30	
Perfluoroheptanesulfonic acid (PFHpS)	292	20	ng/L	95.5	149	149 *	69-134	8.71	30	MS-12
N-EtFOSAA (NEtFOSAA)	143	20	ng/L	100	ND	143 *	61-135	15.5	30	MS-22
N-MeFOSAA (NMeFOSAA)	131	20	ng/L	100	ND	131	65-136	5.98	30	
Perfluorotetradecanoic acid (PFTA)	136	20	ng/L	100	ND	136 *	71-132	2.56	30	MS-12
Perfluorotridecanoic acid (PFTrDA)	139	20	ng/L	100	ND	139	65-144	8.99	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	117	20	ng/L	93.5	ND	125	63-143	6.24	30	
Perfluorodecanesulfonic acid (PFDS)	119	20	ng/L	96.5	20.2	102	53-142	2.08	30	
Perfluorooctanesulfonamide (FOSA)	119	20	ng/L	100	8.69	110	67-137	0.715	30	
Perfluorononanesulfonic acid (PFNS)	232	20	ng/L	96.0	85.3	153 *	69-127	11.1	30	MS-12
Perfluoro-1-hexanesulfonamide (FHxSA)	2240	20	ng/L	100	2180	67.6	64.2-154	6.33	30	E
Perfluoro-1-butanedisulfonamide (FBSA)	218	20	ng/L	100	109	110	65.9-140	4.83	30	
Perfluorohexanesulfonic acid (PFHxS)	1430	20	ng/L	91.5	1490	-62.5 *	68-131	7.23	30	MS-19
Perfluoro-4-oxapentanoic acid (PFMPA)	139	20	ng/L	100	ND	139	61.9-143	2.91	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	127	20	ng/L	100	ND	127	61.4-142	4.07	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	764	20	ng/L	95.0	643	127	64-140	2.43	30	
Perfluoropetanesulfonic acid (PFPeS)	262	20	ng/L	94.0	155	114	71-127	5.59	30	
Perfluoroundecanoic acid (PFUnA)	242	20	ng/L	100	128	114	69-133	9.08	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	118	20	ng/L	100	ND	118	62-138	1.87	30	
Perfluoroheptanoic acid (PFHpA)	456	20	ng/L	100	365	91.3	72-130	4.24	30	
Perfluorooctanoic acid (PFOA)	409	20	ng/L	100	325	83.3	71-133	6.55	30	
Perfluorooctanesulfonic acid (PFOS)	9900	20	ng/L	92.5	10300	-391 *	65-140	7.31	30	E, MS-19
Perfluorononanoic acid (PFNA)	324	20	ng/L	100	205	119	69-130	5.76	30	

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.
E	Reported result is estimated. Value reported over verified calibration range.
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.
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-19	Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.
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.
PF-19	Sample re-analyzed at a dilution that was re-fortified with internal standard.
PF-20	Quantifying ion signal to noise ratio is <10. Detection is suspect.
S-29	Extracted Internal Standard is outside of control limits.

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PFW-1 (23B0760-01) Lab File ID: 23B0760-01.d Analyzed: 02/15/23 11:05									
M8FOSA	232691.8	3.924617	310,268.00	3.924617	75	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	66802.89	2.480383	102,003.00	2.4804	65	50 - 150	0.0000	+/-0.50	
M2PFTA	582993	4.297266	791,057.00	4.297266	74	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	139241.6	3.76295	134,679.00	3.76295	103	50 - 150	0.0000	+/-0.50	
MPFBA	321983.8	1.04185	392,126.00	1.04185	82	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	97835.74	2.822933	126,392.00	2.81475	77	50 - 150	0.0082	+/-0.50	
M6PFDA	562295.8	3.763467	633,738.00	3.763467	89	50 - 150	0.0000	+/-0.50	
M3PFBS	107800.9	1.886667	122,987.00	1.878383	88	50 - 150	0.0083	+/-0.50	
M7PFUnA	536289.9	3.914067	640,988.00	3.914067	84	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	63446.03	3.4044	79,262.00	3.4044	80	50 - 150	0.0000	+/-0.50	
M5PFPeA	340390.8	1.706567	385,422.00	1.706567	88	50 - 150	0.0000	+/-0.50	
M5PFHxA	515694.8	2.572333	568,727.00	2.564117	91	50 - 150	0.0082	+/-0.50	
M3PFHxS	73055.53	3.177667	86,613.00	3.17765	84	50 - 150	0.0000	+/-0.50	
M4PFHpA	534923.7	3.14655	607,093.00	3.138483	88	50 - 150	0.0081	+/-0.50	
M8PFOA	580042	3.421167	635,085.00	3.413117	91	50 - 150	0.0080	+/-0.50	
M8PFOS	54375.47	3.60425	89,742.00	3.60425	61	50 - 150	0.0000	+/-0.50	
M9PFNA	352440	3.605283	579,089.00	3.605283	61	50 - 150	0.0000	+/-0.50	
MPFDoA	490894.1	4.048683	598,588.00	4.048683	82	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	141415.1	3.921533	173,520.00	3.921533	81	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	182207	3.84175	216,811.00	3.84175	84	50 - 150	0.0000	+/-0.50	
PFW-1 (23B0760-01RE1) Lab File ID: 23B0760-01RE1.d Analyzed: 02/15/23 16:03									
M8PFOA	636943.4	3.413117	635,085.00	3.413117	100	50 - 150	0.0000	+/-0.50	
M8PFOS	83658.2	3.596267	89,742.00	3.60425	93	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PFW-2 (23B0760-02)		Lab File ID: 23B0760-02.d				Analyzed: 02/15/23 11:12			
M8FOSA	220624.8	3.924617	310,268.00	3.924617	71	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	62434.06	2.480383	102,003.00	2.4804	61	50 - 150	0.0000	+/-0.50	
M2PFTA	605949.9	4.297283	791,057.00	4.297266	77	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	111481.3	3.76295	134,679.00	3.76295	83	50 - 150	0.0000	+/-0.50	
MPFBA	304194	1.04185	392,126.00	1.04185	78	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	102291.7	2.81475	126,392.00	2.81475	81	50 - 150	0.0000	+/-0.50	
M6PFDA	590666.4	3.763467	633,738.00	3.763467	93	50 - 150	0.0000	+/-0.50	
M3PFBS	109467.1	1.878383	122,987.00	1.878383	89	50 - 150	0.0000	+/-0.50	
M7PFUnA	566347.6	3.91405	640,988.00	3.914067	88	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	74413.05	3.4044	79,262.00	3.4044	94	50 - 150	0.0000	+/-0.50	
M5PFPeA	339755.1	1.706567	385,422.00	1.706567	88	50 - 150	0.0000	+/-0.50	
M5PFHxA	510847.1	2.572333	568,727.00	2.564117	90	50 - 150	0.0082	+/-0.50	
M3PFHxS	76057.45	3.17765	86,613.00	3.17765	88	50 - 150	0.0000	+/-0.50	
M4PFHpA	538528.7	3.14655	607,093.00	3.138483	89	50 - 150	0.0081	+/-0.50	
M8PFOA	588248.8	3.421167	635,085.00	3.413117	93	50 - 150	0.0080	+/-0.50	
M8PFOS	74387.69	3.60425	89,742.00	3.60425	83	50 - 150	0.0000	+/-0.50	
M9PFNA	500142.6	3.605283	579,089.00	3.605283	86	50 - 150	0.0000	+/-0.50	
MPFDoA	492746.6	4.048683	598,588.00	4.048683	82	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	147641.3	3.921533	173,520.00	3.921533	85	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	192276.1	3.841733	216,811.00	3.84175	89	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PFW-5 (23B0760-03)		Lab File ID: 23B0760-03.d				Analyzed: 02/15/23 11:19			
M8FOSA	177338.5	3.924633	310,268.00	3.924617	57	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	51955.03	2.480383	102,003.00	2.4804	51	50 - 150	0.0000	+/-0.50	
M2PFTA	533535.7	4.2973	791,057.00	4.297266	67	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	86913.76	3.762967	134,679.00	3.76295	65	50 - 150	0.0000	+/-0.50	
MPFBA	313615.1	1.04185	392,126.00	1.04185	80	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	111661.4	2.81475	126,392.00	2.81475	88	50 - 150	0.0000	+/-0.50	
M6PFDA	537315.5	3.763483	633,738.00	3.763467	85	50 - 150	0.0000	+/-0.50	
M3PFBS	105423.4	1.878383	122,987.00	1.878383	86	50 - 150	0.0000	+/-0.50	
M7PFUnA	494032.6	3.914083	640,988.00	3.914067	77	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	48672.38	3.4044	79,262.00	3.4044	61	50 - 150	0.0000	+/-0.50	
M5PFPeA	325827.4	1.706567	385,422.00	1.706567	85	50 - 150	0.0000	+/-0.50	
M5PFHxA	494134.7	2.572333	568,727.00	2.564117	87	50 - 150	0.0082	+/-0.50	
M3PFHxS	75728.27	3.177667	86,613.00	3.17765	87	50 - 150	0.0000	+/-0.50	
M4PFHpA	514575.9	3.14655	607,093.00	3.138483	85	50 - 150	0.0081	+/-0.50	
M8PFOA	559213.1	3.421183	635,085.00	3.413117	88	50 - 150	0.0081	+/-0.50	
M8PFOS	75336.02	3.60425	89,742.00	3.60425	84	50 - 150	0.0000	+/-0.50	
M9PFNA	503597.9	3.605283	579,089.00	3.605283	87	50 - 150	0.0000	+/-0.50	
MPFDoA	436253	4.0487	598,588.00	4.048683	73	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	122552.1	3.92155	173,520.00	3.921533	71	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	172139.5	3.841767	216,811.00	3.84175	79	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
OW-8A (23B0760-04) Lab File ID: 23B0760-04.d Analyzed: 02/15/23 11:26									
M8FOSA	231612.7	3.924633	310,268.00	3.924617	75	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	151587.2	2.472183	102,003.00	2.4804	149	50 - 150	-0.0082	+/-0.50	
M2PFTA	643869.8	4.289217	791,057.00	4.297266	81	50 - 150	-0.0080	+/-0.50	
M2-8:2FTS	137333.2	3.762967	134,679.00	3.76295	102	50 - 150	0.0000	+/-0.50	
MPFBA	179037.7	1.04185	392,126.00	1.04185	46	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	79247.32	2.814767	126,392.00	2.81475	63	50 - 150	0.0000	+/-0.50	
M6PFDA	587271.8	3.763483	633,738.00	3.763467	93	50 - 150	0.0000	+/-0.50	
M3PFBS	118568.1	1.8701	122,987.00	1.878383	96	50 - 150	-0.0083	+/-0.50	
M7PFUnA	643435.6	3.914067	640,988.00	3.914067	100	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	110491.5	3.4044	79,262.00	3.4044	139	50 - 150	0.0000	+/-0.50	
M5PFPeA	319774.2	1.698283	385,422.00	1.706567	83	50 - 150	-0.0083	+/-0.50	
M5PFHxA	577805.3	2.564133	568,727.00	2.564117	102	50 - 150	0.0000	+/-0.50	
M3PFHxS	79281	3.177667	86,613.00	3.17765	92	50 - 150	0.0000	+/-0.50	
M4PFHpA	597943.7	3.138483	607,093.00	3.138483	98	50 - 150	0.0000	+/-0.50	
M8PFOA	645598	3.413133	635,085.00	3.413117	102	50 - 150	0.0000	+/-0.50	
M8PFOS	78929.81	3.604267	89,742.00	3.60425	88	50 - 150	0.0000	+/-0.50	
M9PFNA	587051.8	3.6053	579,089.00	3.605283	101	50 - 150	0.0000	+/-0.50	
MPFDoA	536657.4	4.0487	598,588.00	4.048683	90	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	171638	3.91355	173,520.00	3.921533	99	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	214711.6	3.84175	216,811.00	3.84175	99	50 - 150	0.0000	+/-0.50	
OW-8A (23B0760-04RE1) Lab File ID: 23B0760-04RE1.d Analyzed: 02/15/23 16:11									
M3PFHxS	89360.21	3.169583	86,613.00	3.169583	103	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-3S (23B0760-05)		Lab File ID: 23B0760-05.d				Analyzed: 02/15/23 11:34			
M8FOSA	239036.8	3.924633	310,268.00	3.924617	77	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	139034.5	2.4804	102,003.00	2.4804	136	50 - 150	0.0000	+/-0.50	
M2PFTA	527220.4	4.297283	791,057.00	4.297266	67	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	151002	3.762967	134,679.00	3.76295	112	50 - 150	0.0000	+/-0.50	
MPFBA	201351.3	1.04185	392,126.00	1.04185	51	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	89638.6	2.814767	126,392.00	2.81475	71	50 - 150	0.0000	+/-0.50	
M6PFDA	588398.5	3.763483	633,738.00	3.763467	93	50 - 150	0.0000	+/-0.50	
M3PFBS	119495.9	1.878383	122,987.00	1.878383	97	50 - 150	0.0000	+/-0.50	
M7PFUnA	631389.3	3.914067	640,988.00	3.914067	99	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	115973.2	3.4044	79,262.00	3.4044	146	50 - 150	0.0000	+/-0.50	
M5PFPeA	332606	1.698283	385,422.00	1.706567	86	50 - 150	-0.0083	+/-0.50	
M5PFHxA	583130.2	2.564133	568,727.00	2.564117	103	50 - 150	0.0000	+/-0.50	
M3PFHxS	82693.88	3.177667	86,613.00	3.17765	95	50 - 150	0.0000	+/-0.50	
M4PFHpA	596489.6	3.138483	607,093.00	3.138483	98	50 - 150	0.0000	+/-0.50	
M8PFOA	655741.4	3.413133	635,085.00	3.413117	103	50 - 150	0.0000	+/-0.50	
M8PFOS	80082.85	3.60425	89,742.00	3.60425	89	50 - 150	0.0000	+/-0.50	
M9PFNA	582353	3.605283	579,089.00	3.605283	101	50 - 150	0.0000	+/-0.50	
MPFDoA	491991	4.048683	598,588.00	4.048683	82	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	166204.8	3.91355	173,520.00	3.921533	96	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	208191.6	3.84175	216,811.00	3.84175	96	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-12S (23B0760-06) Lab File ID: 23B0760-06.d Analyzed: 02/15/23 11:41									
M8FOSA	222386.8	3.924633	310,268.00	3.924617	72	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	68117.3	2.4804	102,003.00	2.4804	67	50 - 150	0.0000	+/-0.50	
M2PFTA	639750.5	4.2973	791,057.00	4.297266	81	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	124146.5	3.762967	134,679.00	3.76295	92	50 - 150	0.0000	+/-0.50	
MPFBA	241582.3	1.04185	392,126.00	1.04185	62	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	108147.8	2.814767	126,392.00	2.81475	86	50 - 150	0.0000	+/-0.50	
M6PFDA	572946.6	3.7635	633,738.00	3.763467	90	50 - 150	0.0000	+/-0.50	
M3PFBS	115087.3	1.8784	122,987.00	1.878383	94	50 - 150	0.0000	+/-0.50	
M7PFUnA	565761.5	3.914083	640,988.00	3.914067	88	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	58206.09	3.404417	79,262.00	3.4044	73	50 - 150	0.0000	+/-0.50	
M5PFPeA	343197.9	1.706567	385,422.00	1.706567	89	50 - 150	0.0000	+/-0.50	
M5PFHxA	528784.7	2.57235	568,727.00	2.564117	93	50 - 150	0.0082	+/-0.50	
M3PFHxS	77769.09	3.177667	86,613.00	3.17765	90	50 - 150	0.0000	+/-0.50	
M4PFHpA	572599.9	3.146567	607,093.00	3.138483	94	50 - 150	0.0081	+/-0.50	
M8PFOA	602048	3.413133	635,085.00	3.413117	95	50 - 150	0.0000	+/-0.50	
M8PFOS	77769.21	3.604267	89,742.00	3.60425	87	50 - 150	0.0000	+/-0.50	
M9PFNA	515896.6	3.6053	579,089.00	3.605283	89	50 - 150	0.0000	+/-0.50	
MPFDoA	507328.7	4.0487	598,588.00	4.048683	85	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	137513.2	3.92155	173,520.00	3.921533	79	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	187780.4	3.841767	216,811.00	3.84175	87	50 - 150	0.0000	+/-0.50	
MW-12S (23B0760-06RE1) Lab File ID: 23B0760-06RE1.d Analyzed: 02/15/23 16:18									
M8PFOS	88737.88	3.59625	89,742.00	3.60425	99	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-22 (23B0760-07)		Lab File ID: 23B0760-07.d				Analyzed: 02/15/23 11:48			
M8FOSA	238909.7	3.924617	310,268.00	3.924617	77	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	55241.28	2.4804	102,003.00	2.4804	54	50 - 150	0.0000	+/-0.50	
M2PFTA	680866.9	4.297266	791,057.00	4.297266	86	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	102624.2	3.76295	134,679.00	3.76295	76	50 - 150	0.0000	+/-0.50	
MPFBA	340580.2	1.04185	392,126.00	1.04185	87	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	107361.4	2.81475	126,392.00	2.81475	85	50 - 150	0.0000	+/-0.50	
M6PFDA	594769	3.763483	633,738.00	3.763467	94	50 - 150	0.0000	+/-0.50	
M3PFBS	113542.9	1.878383	122,987.00	1.878383	92	50 - 150	0.0000	+/-0.50	
M7PFUnA	552618.3	3.914067	640,988.00	3.914067	86	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	51288.63	3.4044	79,262.00	3.4044	65	50 - 150	0.0000	+/-0.50	
M5PFPeA	352358.8	1.706567	385,422.00	1.706567	91	50 - 150	0.0000	+/-0.50	
M5PFHxA	528097.3	2.572333	568,727.00	2.564117	93	50 - 150	0.0082	+/-0.50	
M3PFHxS	83673.44	3.177667	86,613.00	3.17765	97	50 - 150	0.0000	+/-0.50	
M4PFHpA	566931.4	3.14655	607,093.00	3.138483	93	50 - 150	0.0081	+/-0.50	
M8PFOA	609346	3.421167	635,085.00	3.413117	96	50 - 150	0.0080	+/-0.50	
M8PFOS	88209.05	3.60425	89,742.00	3.60425	98	50 - 150	0.0000	+/-0.50	
M9PFNA	528368.6	3.605283	579,089.00	3.605283	91	50 - 150	0.0000	+/-0.50	
MPFDoA	503447.3	4.048683	598,588.00	4.048683	84	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	144388.9	3.921533	173,520.00	3.921533	83	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	190806.6	3.84175	216,811.00	3.84175	88	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-1 (23B0760-08)		Lab File ID: 23B0760-08.d				Analyzed: 02/15/23 11:55			
M8FOSA	243546.8	3.924617	310,268.00	3.924617	78	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	52500.26	2.480383	102,003.00	2.4804	51	50 - 150	0.0000	+/-0.50	
M2PFTA	687425.3	4.297266	791,057.00	4.297266	87	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	94111.91	3.76295	134,679.00	3.76295	70	50 - 150	0.0000	+/-0.50	
MPFBA	341151.9	1.04185	392,126.00	1.04185	87	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	109955.3	2.81475	126,392.00	2.81475	87	50 - 150	0.0000	+/-0.50	
M6PFDA	585505.3	3.763467	633,738.00	3.763467	92	50 - 150	0.0000	+/-0.50	
M3PFBS	119239.5	1.878383	122,987.00	1.878383	97	50 - 150	0.0000	+/-0.50	
M7PFUnA	537398.6	3.914067	640,988.00	3.914067	84	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	51348.66	3.4044	79,262.00	3.4044	65	50 - 150	0.0000	+/-0.50	
M5PFPeA	366966	1.706567	385,422.00	1.706567	95	50 - 150	0.0000	+/-0.50	
M5PFHxA	557582.1	2.572333	568,727.00	2.564117	98	50 - 150	0.0082	+/-0.50	
M3PFHxS	85537.6	3.17765	86,613.00	3.17765	99	50 - 150	0.0000	+/-0.50	
M4PFHpA	593529.6	3.14655	607,093.00	3.138483	98	50 - 150	0.0081	+/-0.50	
M8PFOA	637922	3.413117	635,085.00	3.413117	100	50 - 150	0.0000	+/-0.50	
M8PFOS	82391.79	3.60425	89,742.00	3.60425	92	50 - 150	0.0000	+/-0.50	
M9PFNA	560062	3.605283	579,089.00	3.605283	97	50 - 150	0.0000	+/-0.50	
MPFDoA	517313.4	4.048683	598,588.00	4.048683	86	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	128786.7	3.921533	173,520.00	3.921533	74	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	170685.1	3.84175	216,811.00	3.84175	79	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-6A (23B0760-09)		Lab File ID: 23B0760-09.d				Analyzed: 02/15/23 12:03			
M8FOSA	217766.7	3.924633	310,268.00	3.924617	70	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	48867.5	2.4804	102,003.00	2.4804	48	50 - 150	0.0000	+/-0.50	*
M2PFTA	554610.5	4.297283	791,057.00	4.297266	70	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	89711.31	3.76295	134,679.00	3.76295	67	50 - 150	0.0000	+/-0.50	
MPFBA	281800.6	1.04185	392,126.00	1.04185	72	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	103565.1	2.81475	126,392.00	2.81475	82	50 - 150	0.0000	+/-0.50	
M6PFDA	519585.9	3.763483	633,738.00	3.763467	82	50 - 150	0.0000	+/-0.50	
M3PFBS	101534.7	1.878383	122,987.00	1.878383	83	50 - 150	0.0000	+/-0.50	
M7PFUnA	507902.6	3.914067	640,988.00	3.914067	79	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	45700.96	3.4044	79,262.00	3.4044	58	50 - 150	0.0000	+/-0.50	
M5PFPeA	316356.4	1.706567	385,422.00	1.706567	82	50 - 150	0.0000	+/-0.50	
M5PFHxA	479206.2	2.572333	568,727.00	2.564117	84	50 - 150	0.0082	+/-0.50	
M3PFHxS	75179.54	3.177667	86,613.00	3.17765	87	50 - 150	0.0000	+/-0.50	
M4PFHpA	505256.7	3.14655	607,093.00	3.138483	83	50 - 150	0.0081	+/-0.50	
M8PFOA	548761.6	3.421183	635,085.00	3.413117	86	50 - 150	0.0081	+/-0.50	
M8PFOS	69891.76	3.60425	89,742.00	3.60425	78	50 - 150	0.0000	+/-0.50	
M9PFNA	463678.9	3.605283	579,089.00	3.605283	80	50 - 150	0.0000	+/-0.50	
MPFDoA	457895.8	4.0487	598,588.00	4.048683	76	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	128265.2	3.921533	173,520.00	3.921533	74	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	173812.8	3.84175	216,811.00	3.84175	80	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-16D (23B0760-10)		Lab File ID: 23B0760-10.d				Analyzed: 02/15/23 12:10			
M8FOSA	243437.9	3.924617	310,268.00	3.924617	78	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	51652.29	2.480383	102,003.00	2.4804	51	50 - 150	0.0000	+/-0.50	
M2PFTA	646125.5	4.297283	791,057.00	4.297266	82	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	98391.2	3.762967	134,679.00	3.76295	73	50 - 150	0.0000	+/-0.50	
MPFBA	315642.7	1.04185	392,126.00	1.04185	80	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	127622.4	2.822933	126,392.00	2.81475	101	50 - 150	0.0082	+/-0.50	
M6PFDA	573578.8	3.763483	633,738.00	3.763467	91	50 - 150	0.0000	+/-0.50	
M3PFBS	114667.2	1.886667	122,987.00	1.878383	93	50 - 150	0.0083	+/-0.50	
M7PFUnA	585565.5	3.914067	640,988.00	3.914067	91	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	44444.75	3.4044	79,262.00	3.4044	56	50 - 150	0.0000	+/-0.50	
M5PFPeA	351323.8	1.706567	385,422.00	1.706567	91	50 - 150	0.0000	+/-0.50	
M5PFHxA	536108.4	2.572333	568,727.00	2.564117	94	50 - 150	0.0082	+/-0.50	
M3PFHxS	85023.04	3.17765	86,613.00	3.17765	98	50 - 150	0.0000	+/-0.50	
M4PFHpA	578089.3	3.14655	607,093.00	3.138483	95	50 - 150	0.0081	+/-0.50	
M8PFOA	609088.8	3.421183	635,085.00	3.413117	96	50 - 150	0.0081	+/-0.50	
M8PFOS	80546.43	3.60425	89,742.00	3.60425	90	50 - 150	0.0000	+/-0.50	
M9PFNA	565588.2	3.605283	579,089.00	3.605283	98	50 - 150	0.0000	+/-0.50	
MPFDoA	550082.6	4.048683	598,588.00	4.048683	92	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	144945.7	3.921533	173,520.00	3.921533	84	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	185349.6	3.84175	216,811.00	3.84175	85	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-28 (23B0760-11) Lab File ID: 23B0760-11.d Analyzed: 02/15/23 12:32									
M8FOSA	243273.3	3.924617	310,268.00	3.924633	78	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	53136.96	2.4804	102,003.00	2.4804	52	50 - 150	0.0000	+/-0.50	
M2PFTA	631053.4	4.297266	791,057.00	4.297283	80	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	101018.7	3.76295	134,679.00	3.762967	75	50 - 150	0.0000	+/-0.50	
MPFBA	317348.2	1.04185	392,126.00	1.04185	81	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	115954.8	2.81475	126,392.00	2.81475	92	50 - 150	0.0000	+/-0.50	
M6PFDA	571359.8	3.763467	633,738.00	3.763483	90	50 - 150	0.0000	+/-0.50	
M3PFBS	113232.4	1.878383	122,987.00	1.8784	92	50 - 150	0.0000	+/-0.50	
M7PFUnA	538330.8	3.914067	640,988.00	3.914067	84	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	48505.86	3.4044	79,262.00	3.4044	61	50 - 150	0.0000	+/-0.50	
M5PFPeA	354303.6	1.706567	385,422.00	1.698283	92	50 - 150	0.0083	+/-0.50	
M5PFHxA	533632.1	2.564133	568,727.00	2.564133	94	50 - 150	0.0000	+/-0.50	
M3PFHxS	81025.52	3.177667	86,613.00	3.177667	94	50 - 150	0.0000	+/-0.50	
M4PFHpA	564134.4	3.14655	607,093.00	3.138483	93	50 - 150	0.0081	+/-0.50	
M8PFOA	617198.1	3.421167	635,085.00	3.413133	97	50 - 150	0.0080	+/-0.50	
M8PFOS	80196.7	3.60425	89,742.00	3.60425	89	50 - 150	0.0000	+/-0.50	
M9PFNA	506687	3.605283	579,089.00	3.605283	87	50 - 150	0.0000	+/-0.50	
MPFDoA	481127.3	4.048683	598,588.00	4.048683	80	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	137481.1	3.921533	173,520.00	3.91355	79	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	189007.8	3.84175	216,811.00	3.84175	87	50 - 150	0.0000	+/-0.50	
PC-28 (23B0760-11RE1) Lab File ID: 23B0760-11RE1.d Analyzed: 02/15/23 16:25									
M8PFOS	91125.79	3.596267	89,742.00	3.60425	102	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-30 (23B0760-12) Lab File ID: 23B0760-12.d Analyzed: 02/15/23 12:39									
M8FOSA	225726	3.924617	310,268.00	3.924633	73	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	56300.84	2.4886	102,003.00	2.4804	55	50 - 150	0.0082	+/-0.50	
M2PFTA	583268.6	4.297266	791,057.00	4.297283	74	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	91067.34	3.76295	134,679.00	3.762967	68	50 - 150	0.0000	+/-0.50	
MPFBA	294259.4	1.04185	392,126.00	1.04185	75	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	112450.6	2.81475	126,392.00	2.81475	89	50 - 150	0.0000	+/-0.50	
M6PFDA	536854.7	3.763483	633,738.00	3.763483	85	50 - 150	0.0000	+/-0.50	
M3PFBS	105167.2	1.886667	122,987.00	1.8784	86	50 - 150	0.0083	+/-0.50	
M7PFUnA	518878.5	3.914067	640,988.00	3.914067	81	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	45304.31	3.4044	79,262.00	3.4044	57	50 - 150	0.0000	+/-0.50	
M5PFPeA	338426.6	1.706567	385,422.00	1.698283	88	50 - 150	0.0083	+/-0.50	
M5PFHxA	507618	2.572333	568,727.00	2.564133	89	50 - 150	0.0082	+/-0.50	
M3PFHxS	77511.73	3.17765	86,613.00	3.177667	89	50 - 150	0.0000	+/-0.50	
M4PFHpA	546227.3	3.14655	607,093.00	3.138483	90	50 - 150	0.0081	+/-0.50	
M8PFOA	586606.8	3.421167	635,085.00	3.413133	92	50 - 150	0.0080	+/-0.50	
M8PFOS	72578.94	3.60425	89,742.00	3.60425	81	50 - 150	0.0000	+/-0.50	
M9PFNA	490512.6	3.605283	579,089.00	3.605283	85	50 - 150	0.0000	+/-0.50	
MPFDoA	466451.5	4.048683	598,588.00	4.048683	78	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	135539.4	3.913533	173,520.00	3.91355	78	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	176471.7	3.84175	216,811.00	3.84175	81	50 - 150	0.0000	+/-0.50	
PC-30 (23B0760-12RE1) Lab File ID: 23B0760-12RE1.d Analyzed: 02/15/23 16:32									
M8PFOS	93359.52	3.60425	89,742.00	3.60425	104	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-34S (23B0760-13) Lab File ID: 23B0760-13.d Analyzed: 02/15/23 12:47									
M8FOSA	212545.5	3.924617	310,268.00	3.924633	69	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	58202.1	2.4804	102,003.00	2.4804	57	50 - 150	0.0000	+/-0.50	
M2PFTA	591331.4	4.2892	791,057.00	4.297283	75	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	104255.2	3.76295	134,679.00	3.762967	77	50 - 150	0.0000	+/-0.50	
MPFBA	263904.5	1.04185	392,126.00	1.04185	67	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	106394.2	2.81475	126,392.00	2.81475	84	50 - 150	0.0000	+/-0.50	
M6PFDA	542045.8	3.763467	633,738.00	3.763483	86	50 - 150	0.0000	+/-0.50	
M3PFBS	103922.3	1.878383	122,987.00	1.8784	84	50 - 150	0.0000	+/-0.50	
M7PFUnA	527173.6	3.91405	640,988.00	3.914067	82	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	54782.34	3.4044	79,262.00	3.4044	69	50 - 150	0.0000	+/-0.50	
M5PFPeA	325511.1	1.706567	385,422.00	1.698283	84	50 - 150	0.0083	+/-0.50	
M5PFHxA	495654.3	2.572333	568,727.00	2.564133	87	50 - 150	0.0082	+/-0.50	
M3PFHxS	73268.73	3.17765	86,613.00	3.177667	85	50 - 150	0.0000	+/-0.50	
M4PFHpA	524934.6	3.14655	607,093.00	3.138483	86	50 - 150	0.0081	+/-0.50	
M8PFOA	568281.3	3.413117	635,085.00	3.413133	89	50 - 150	0.0000	+/-0.50	
M8PFOS	69644.67	3.60425	89,742.00	3.60425	78	50 - 150	0.0000	+/-0.50	
M9PFNA	468952.8	3.605283	579,089.00	3.605283	81	50 - 150	0.0000	+/-0.50	
MPFDoA	472570.4	4.048683	598,588.00	4.048683	79	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	137826.8	3.913533	173,520.00	3.91355	79	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	186167.5	3.841733	216,811.00	3.84175	86	50 - 150	0.0000	+/-0.50	
PC-34S (23B0760-13RE1) Lab File ID: 23B0760-13RE1.d Analyzed: 02/15/23 16:40									
M8PFOS	84605.05	3.60425	89,742.00	3.60425	94	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-39 (23B0760-14) Lab File ID: 23B0760-14.d Analyzed: 02/15/23 12:54									
M8FOSA	233842.5	3.932617	310,268.00	3.924633	75	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	51676.06	2.4804	102,003.00	2.4804	51	50 - 150	0.0000	+/-0.50	
M2PFTA	623957.6	4.297283	791,057.00	4.297283	79	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	110613.2	3.762967	134,679.00	3.762967	82	50 - 150	0.0000	+/-0.50	
MPFBA	327188.8	1.04185	392,126.00	1.04185	83	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	132250.8	2.814767	126,392.00	2.81475	105	50 - 150	0.0000	+/-0.50	
M6PFDA	555950.4	3.763483	633,738.00	3.763483	88	50 - 150	0.0000	+/-0.50	
M3PFBS	107183.6	1.886683	122,987.00	1.8784	87	50 - 150	0.0083	+/-0.50	
M7PFUnA	539090	3.914067	640,988.00	3.914067	84	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	50719.86	3.404417	79,262.00	3.4044	64	50 - 150	0.0000	+/-0.50	
M5PFPeA	346125	1.706567	385,422.00	1.698283	90	50 - 150	0.0083	+/-0.50	
M5PFHxA	514377.7	2.57235	568,727.00	2.564133	90	50 - 150	0.0082	+/-0.50	
M3PFHxS	79396.88	3.177667	86,613.00	3.177667	92	50 - 150	0.0000	+/-0.50	
M4PFHpA	553259.8	3.146567	607,093.00	3.138483	91	50 - 150	0.0081	+/-0.50	
M8PFOA	601009.4	3.421183	635,085.00	3.413133	95	50 - 150	0.0080	+/-0.50	
M8PFOS	76893.38	3.60425	89,742.00	3.60425	86	50 - 150	0.0000	+/-0.50	
M9PFNA	524206.5	3.6053	579,089.00	3.605283	91	50 - 150	0.0000	+/-0.50	
MPFDoA	501396.8	4.048683	598,588.00	4.048683	84	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	132981.9	3.92155	173,520.00	3.91355	77	50 - 150	0.0080	+/-0.50	
D3-NMeFOSAA	183676.7	3.84175	216,811.00	3.84175	85	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Duplicate 1 (23B0760-15) Lab File ID: 23B0760-15.d Analyzed: 02/15/23 13:01									
M8FOSA	249593.3	3.924617	310,268.00	3.924633	80	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	60533.1	2.4804	102,003.00	2.4804	59	50 - 150	0.0000	+/-0.50	
M2PFTA	604799.8	4.297283	791,057.00	4.297283	76	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	111469.6	3.76295	134,679.00	3.762967	83	50 - 150	0.0000	+/-0.50	
MPFBA	319660.8	1.04185	392,126.00	1.04185	82	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	120491.7	2.81475	126,392.00	2.81475	95	50 - 150	0.0000	+/-0.50	
M6PFDA	615164.6	3.763483	633,738.00	3.763483	97	50 - 150	0.0000	+/-0.50	
M3PFBS	116600	1.878383	122,987.00	1.8784	95	50 - 150	0.0000	+/-0.50	
M7PFUnA	588606.3	3.914067	640,988.00	3.914067	92	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	57834.89	3.4044	79,262.00	3.4044	73	50 - 150	0.0000	+/-0.50	
M5PFPeA	363359.3	1.706567	385,422.00	1.698283	94	50 - 150	0.0083	+/-0.50	
M5PFHxA	551492.7	2.57235	568,727.00	2.564133	97	50 - 150	0.0082	+/-0.50	
M3PFHxS	82616.12	3.177667	86,613.00	3.177667	95	50 - 150	0.0000	+/-0.50	
M4PFHpA	581959.4	3.146567	607,093.00	3.138483	96	50 - 150	0.0081	+/-0.50	
M8PFOA	627494.1	3.413133	635,085.00	3.413133	99	50 - 150	0.0000	+/-0.50	
M8PFOS	79924.84	3.60425	89,742.00	3.60425	89	50 - 150	0.0000	+/-0.50	
M9PFNA	556172.6	3.605283	579,089.00	3.605283	96	50 - 150	0.0000	+/-0.50	
MPFDoA	502678.5	4.048683	598,588.00	4.048683	84	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	148990.3	3.913533	173,520.00	3.91355	86	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	200458.3	3.84175	216,811.00	3.84175	92	50 - 150	0.0000	+/-0.50	
Duplicate 1 (23B0760-15RE1) Lab File ID: 23B0760-15RE1.d Analyzed: 02/15/23 16:47									
M8PFOS	87552.24	3.60425	89,742.00	3.60425	98	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Equipment Blank 1 (23B0760-16)		Lab File ID: 23B0760-16.d				Analyzed: 02/15/23 13:08			
M8FOSA	194181.4	3.924617	310,268.00	3.924633	63	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	66638.74	2.4804	102,003.00	2.4804	65	50 - 150	0.0000	+/-0.50	
M2PFTA	495316.8	4.297283	791,057.00	4.297283	63	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	101553.2	3.76295	134,679.00	3.762967	75	50 - 150	0.0000	+/-0.50	
MPFBA	315445.6	1.04185	392,126.00	1.04185	80	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	105336.9	2.81475	126,392.00	2.81475	83	50 - 150	0.0000	+/-0.50	
M6PFDA	517896.1	3.763467	633,738.00	3.763483	82	50 - 150	0.0000	+/-0.50	
M3PFBS	93791.05	1.886667	122,987.00	1.8784	76	50 - 150	0.0083	+/-0.50	
M7PFUnA	483348.2	3.91405	640,988.00	3.914067	75	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	56499.54	3.4044	79,262.00	3.4044	71	50 - 150	0.0000	+/-0.50	
M5PFPeA	305858.2	1.706567	385,422.00	1.698283	79	50 - 150	0.0083	+/-0.50	
M5PFHxA	461958.7	2.572333	568,727.00	2.564133	81	50 - 150	0.0082	+/-0.50	
M3PFHxS	69563.37	3.17765	86,613.00	3.177667	80	50 - 150	0.0000	+/-0.50	
M4PFHpA	484701.3	3.14655	607,093.00	3.138483	80	50 - 150	0.0081	+/-0.50	
M8PFOA	532986.8	3.413117	635,085.00	3.413133	84	50 - 150	0.0000	+/-0.50	
M8PFOS	74450.21	3.604233	89,742.00	3.60425	83	50 - 150	0.0000	+/-0.50	
M9PFNA	482691.5	3.605283	579,089.00	3.605283	83	50 - 150	0.0000	+/-0.50	
MPFDoA	426308.4	4.048683	598,588.00	4.048683	71	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	113197.6	3.913533	173,520.00	3.91355	65	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	156963	3.841733	216,811.00	3.84175	72	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Equipment Blank 2 (23B0760-17)		Lab File ID: 23B0760-17.d				Analyzed: 02/15/23 13:16			
M8FOSA	222349.8	3.924633	310,268.00	3.924633	72	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	75003.06	2.4804	102,003.00	2.4804	74	50 - 150	0.0000	+/-0.50	
M2PFTA	568714.1	4.2892	791,057.00	4.297283	72	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	98442.53	3.762967	134,679.00	3.762967	73	50 - 150	0.0000	+/-0.50	
MPFBA	344042.2	1.04185	392,126.00	1.04185	88	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	108830.2	2.81475	126,392.00	2.81475	86	50 - 150	0.0000	+/-0.50	
M6PFDA	548779.4	3.763483	633,738.00	3.763483	87	50 - 150	0.0000	+/-0.50	
M3PFBS	104999.5	1.878383	122,987.00	1.8784	85	50 - 150	0.0000	+/-0.50	
M7PFUnA	533909	3.906083	640,988.00	3.914067	83	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	61768.82	3.4044	79,262.00	3.4044	78	50 - 150	0.0000	+/-0.50	
M5PFPeA	336910.6	1.706567	385,422.00	1.698283	87	50 - 150	0.0083	+/-0.50	
M5PFHxA	498136.2	2.564133	568,727.00	2.564133	88	50 - 150	0.0000	+/-0.50	
M3PFHxS	76544.02	3.177667	86,613.00	3.177667	88	50 - 150	0.0000	+/-0.50	
M4PFHpA	537927.9	3.146567	607,093.00	3.138483	89	50 - 150	0.0081	+/-0.50	
M8PFOA	578151.6	3.413133	635,085.00	3.413133	91	50 - 150	0.0000	+/-0.50	
M8PFOS	69389.48	3.60425	89,742.00	3.60425	77	50 - 150	0.0000	+/-0.50	
M9PFNA	535166.4	3.605283	579,089.00	3.605283	92	50 - 150	0.0000	+/-0.50	
MPFDoA	461078.4	4.048683	598,588.00	4.048683	77	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	130367.8	3.91355	173,520.00	3.91355	75	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	176647.9	3.84175	216,811.00	3.84175	81	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B330940-BLK1)			Lab File ID: B330940-BLK1R.d			Analyzed: 02/15/23 14:57			
M8FOSA	195625.2	3.924633	310,268.00	3.924633	63	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	72413.27	2.480383	102,003.00	2.4804	71	50 - 150	0.0000	+/-0.50	
M2PFTA	499213.3	4.2892	791,057.00	4.289217	63	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	100509.6	3.76295	134,679.00	3.762967	75	50 - 150	0.0000	+/-0.50	
MPFBA	308258.9	1.04185	392,126.00	1.04185	79	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	94235.52	2.81475	126,392.00	2.81475	75	50 - 150	0.0000	+/-0.50	
M6PFDA	479505.3	3.763483	633,738.00	3.763483	76	50 - 150	0.0000	+/-0.50	
M3PFBS	97082.93	1.878383	122,987.00	1.8784	79	50 - 150	0.0000	+/-0.50	
M7PFUnA	465039.7	3.906083	640,988.00	3.906083	73	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	58637.64	3.4044	79,262.00	3.4044	74	50 - 150	0.0000	+/-0.50	
M5PFPeA	312455.8	1.706567	385,422.00	1.698283	81	50 - 150	0.0083	+/-0.50	
M5PFHxA	459076.2	2.564117	568,727.00	2.564133	81	50 - 150	0.0000	+/-0.50	
M3PFHxS	70728.77	3.17765	86,613.00	3.177667	82	50 - 150	0.0000	+/-0.50	
M4PFHpA	498548.4	3.138483	607,093.00	3.138483	82	50 - 150	0.0000	+/-0.50	
M8PFOA	535900.4	3.413117	635,085.00	3.413133	84	50 - 150	0.0000	+/-0.50	
M8PFOS	69959.23	3.60425	89,742.00	3.60425	78	50 - 150	0.0000	+/-0.50	
M9PFNA	466526.2	3.605283	579,089.00	3.605283	81	50 - 150	0.0000	+/-0.50	
MPFDoA	407457.2	4.048683	598,588.00	4.0487	68	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	113007	3.91355	173,520.00	3.91355	65	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	160338.7	3.8338	216,811.00	3.841767	74	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B330940-BS1)			Lab File ID: B330940-BS1R.d			Analyzed: 02/15/23 14:49			
M8FOSA	223525.3	3.924617	310,268.00	3.924633	72	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	83456.48	2.4804	102,003.00	2.4804	82	50 - 150	0.0000	+/-0.50	
M2PFTA	579720.9	4.2892	791,057.00	4.289217	73	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	115572.3	3.76295	134,679.00	3.762967	86	50 - 150	0.0000	+/-0.50	
MPFBA	336577.3	1.04185	392,126.00	1.04185	86	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	118796.3	2.81475	126,392.00	2.81475	94	50 - 150	0.0000	+/-0.50	
M6PFDA	558603.1	3.763483	633,738.00	3.763483	88	50 - 150	0.0000	+/-0.50	
M3PFBS	108945.9	1.878383	122,987.00	1.8784	89	50 - 150	0.0000	+/-0.50	
M7PFUnA	537345.9	3.906067	640,988.00	3.906083	84	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	62596.05	3.4044	79,262.00	3.4044	79	50 - 150	0.0000	+/-0.50	
M5PFPeA	343909.5	1.706567	385,422.00	1.698283	89	50 - 150	0.0083	+/-0.50	
M5PFHxA	511867.7	2.572333	568,727.00	2.564133	90	50 - 150	0.0082	+/-0.50	
M3PFHxS	78734.04	3.177667	86,613.00	3.177667	91	50 - 150	0.0000	+/-0.50	
M4PFHpA	540923.8	3.14655	607,093.00	3.138483	89	50 - 150	0.0081	+/-0.50	
M8PFOA	580448.8	3.413133	635,085.00	3.413133	91	50 - 150	0.0000	+/-0.50	
M8PFOS	80391.08	3.60425	89,742.00	3.60425	90	50 - 150	0.0000	+/-0.50	
M9PFNA	530793	3.605283	579,089.00	3.605283	92	50 - 150	0.0000	+/-0.50	
MPFDoA	472907.2	4.048683	598,588.00	4.0487	79	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	133364.4	3.913533	173,520.00	3.91355	77	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	182528.9	3.84175	216,811.00	3.841767	84	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B330940-MS1)		Lab File ID: B330940-MS1.d				Analyzed: 02/15/23 10:50			
M8FOSA	245095.8	3.924633	310,268.00	3.924617	79	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	74281.18	2.4886	102,003.00	2.4804	73	50 - 150	0.0082	+/-0.50	
M2PFTA	602893.7	4.297283	791,057.00	4.297266	76	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	140145.1	3.762967	134,679.00	3.76295	104	50 - 150	0.0000	+/-0.50	
MPFBA	321199.4	1.04185	392,126.00	1.04185	82	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	109126.4	2.81475	126,392.00	2.81475	86	50 - 150	0.0000	+/-0.50	
M6PFDA	556017.9	3.763483	633,738.00	3.763467	88	50 - 150	0.0000	+/-0.50	
M3PFBS	110266.2	1.886667	122,987.00	1.878383	90	50 - 150	0.0083	+/-0.50	
M7PFUnA	583004.1	3.914067	640,988.00	3.914067	91	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	65360.77	3.4044	79,262.00	3.4044	82	50 - 150	0.0000	+/-0.50	
M5PFPeA	343235.5	1.706567	385,422.00	1.706567	89	50 - 150	0.0000	+/-0.50	
M5PFHxA	508563.4	2.572333	568,727.00	2.564117	89	50 - 150	0.0082	+/-0.50	
M3PFHxS	76600.45	3.177667	86,613.00	3.17765	88	50 - 150	0.0000	+/-0.50	
M4PFHpA	549773.6	3.14655	607,093.00	3.138483	91	50 - 150	0.0081	+/-0.50	
M8PFOA	588655.8	3.421183	635,085.00	3.413117	93	50 - 150	0.0081	+/-0.50	
M8PFOS	54018.92	3.60425	89,742.00	3.60425	60	50 - 150	0.0000	+/-0.50	
M9PFNA	349259.2	3.605283	579,089.00	3.605283	60	50 - 150	0.0000	+/-0.50	
MPFDoA	513894.4	4.048683	598,588.00	4.048683	86	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	151511.5	3.921533	173,520.00	3.921533	87	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	200443.9	3.84175	216,811.00	3.84175	92	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B330940-MSD1)			Lab File ID: B330940-MSD1.d			Analyzed: 02/15/23 10:57			
M8FOSA	250407	3.924633	310,268.00	3.924617	81	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	70340.12	2.4886	102,003.00	2.4804	69	50 - 150	0.0082	+/-0.50	
M2PFTA	617077.1	4.297283	791,057.00	4.297266	78	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	155679.2	3.762967	134,679.00	3.76295	116	50 - 150	0.0000	+/-0.50	
MPFBA	335663.5	1.04185	392,126.00	1.04185	86	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	101356.6	2.822933	126,392.00	2.81475	80	50 - 150	0.0082	+/-0.50	
M6PFDA	573740	3.763483	633,738.00	3.763467	91	50 - 150	0.0000	+/-0.50	
M3PFBS	107988.5	1.886667	122,987.00	1.878383	88	50 - 150	0.0083	+/-0.50	
M7PFUnA	545843.4	3.914067	640,988.00	3.914067	85	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	63254	3.4044	79,262.00	3.4044	80	50 - 150	0.0000	+/-0.50	
M5PFPeA	350773.3	1.706567	385,422.00	1.706567	91	50 - 150	0.0000	+/-0.50	
M5PFHxA	523840.1	2.572333	568,727.00	2.564117	92	50 - 150	0.0082	+/-0.50	
M3PFHxS	74873.8	3.17765	86,613.00	3.17765	86	50 - 150	0.0000	+/-0.50	
M4PFHpA	551009.9	3.14655	607,093.00	3.138483	91	50 - 150	0.0081	+/-0.50	
M8PFOA	597971.3	3.421183	635,085.00	3.413117	94	50 - 150	0.0081	+/-0.50	
M8PFOS	54884.63	3.60425	89,742.00	3.60425	61	50 - 150	0.0000	+/-0.50	
M9PFNA	363801.9	3.613267	579,089.00	3.605283	63	50 - 150	0.0080	+/-0.50	
MPFDoA	522144.4	4.048683	598,588.00	4.048683	87	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	139193.1	3.921533	173,520.00	3.921533	80	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	199017.6	3.84175	216,811.00	3.84175	92	50 - 150	0.0000	+/-0.50	

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Major)	NH-P
9Cl-PF3ONS (F53B Minor)	NH-P
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA (NEtFOSAA)	NH-P
N-MeFOSAA (NMeFOSAA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P
Perfluorodecanesulfonic acid (PFDS)	NH-P
Perfluorooctanesulfonamide (FOSA)	NH-P
Perfluorononanesulfonic acid (PFNS)	NH-P
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P
Perfluoro-1-butanefulfonamide (FBSA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P
Perfluoropentanesulfonic acid (PFPeS)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
Perfluorononanoic acid (PFNA)	NH-P

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023

Historic Laboratory Results for Quarterly Sampling 2023

Please note- these results are historic results provided by Pace or another accredited laboratory, these results are for informational purposes only and do not reflect actual results of what may be in Jan/Feb 2023 sample

SAMPLE ID	PFW-1	PFW-2	PFW-5	OW-8A	MW-3S	MW-12S	MW-22	PC-1	PC-6A	PC-16D	PC-28	PC-30	PC-34S	PC-39
SAMPLING DATE	11/9/2022	11/9/2022	11/9/2022	11/9/2022	11/3/2021	1/25/2022	7/28/2022	11/10/2022	11/10/2022	11/10/2022	11/10/2022	11/10/2022	11/9/2022	11/10/2022
UNITS	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
PFAS														
PFOA	7,100	1,900	2,700	76	1,400	950	480	850	470	1,700	960	340	1,300	160
PFOA	500	110	24	13	360	100	77.0	230	30	89	56	21	80	2.2
PFNA	170	86	5.5	BRL (<1.9)	36	27	8.7	61	47	59	82	43	140	5.2
PFHxS	2,000	310	500	70	1,800	390	370	960	72	360	130	59	130	12
PFHpA	330	180	20.0	10	210	63	20	550	47	71	75	29	98	4
PFDA	42	27.0	7.8	BRL (<1.9)	BRL (<3.9)	4.7	<3.9	23.0	12	11.0	15.0	5.3	16.0	BRL (<1.8)
TOTAL Σ6 PFAS	10,142	2,613	3,257	169	3,806	1,535	956	2,674	678	2,290	1,318.0	497	1,764	183.4
Comments	MS/MSD submitted			April 2022 PFAS6 sum was over 2,000 ng/L					April 2022 PFAS6 sum was over 1,000 ng/L					

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.pacelabs.com

ENV-FRM-ELON-0001 v02 Sample Receiving Checklist 1-12-2023

Log In Back-Sheet

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



Client Barnstable County
Project BETA
MCP/RCP Required MA MCP
Deliverable Package Requirement GW-1
Location Barnstable, MA
PWSID# (When Applicable) NA
Arrival Method Courier
Received By / Date / Time GA 2/6/23 1554
Back-Sheet By / Date / Time GA 2/7/23 1852
Temperature Method gun # 5
Temp $\leq 6^{\circ}\text{C}$ ☒ Actual Temperature 4.8
Rush Samples: Yes / ☒ No ☐ Notify ☐
Short Hold: Yes / ☒ No ☐ Notify ☐

Notes regarding Samples/COC outside of SOP:

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☒	☐
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☒	IDs ☒	Collection Date/Time ☒
All Samples Proper PH	☒	☐

Container (Circle when applicable)	UnP	HCl	HNO3	H2SO4	NaOH	Trizma	Na2S2O3	Other Preservative
1L Amber Plastic								
500 mL Amber Plastic								
250 mL Amber Plastic	32							
Other Amber Clear Plastic								
16oz Amber Clear								
8oz Amber Clear								
4oz Amber Clear								
2oz Amber Clear								
Col/Bacteria								
Flashpoint								
Plastic Bag								
SOC Kit								
Perchlorate								
Encore								
Frozen								
Proper Headspace	UnP	HCl	MeOH	Bisulfate	DI	Thiosulfate	Sulfuric	Other
Vials								

May 12, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: Barnstable, MA
Client Job Number:
Project Number: 6206
Laboratory Work Order Number: 23D0977

Enclosed are results of analyses for samples as received by the laboratory on April 7, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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Barnstable County Regional Government of Cape C
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 5/12/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23D0977

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

PROJECT LOCATION: Barnstable, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PC-39	23D0977-01	Ground Water		SOP-454 PFAS	
PFW-1	23D0977-02	Ground Water		SOP-454 PFAS	
PFW-5	23D0977-03	Ground Water		SOP-454 PFAS	
PC-28	23D0977-04	Ground Water		SOP-454 PFAS	
OW-8A	23D0977-05	Ground Water		SOP-454 PFAS	
PFW-2	23D0977-06	Ground Water		SOP-454 PFAS	
EB-4.4.23	23D0977-07	Ground Water		SOP-454 PFAS	
EB-4.5.23	23D0977-08	Ground Water		SOP-454 PFAS	
MW-12S	23D0977-09	Ground Water		SOP-454 PFAS	
MW-22	23D0977-10	Ground Water		SOP-454 PFAS	
PC-16D	23D0977-11	Ground Water		SOP-454 PFAS	
PC-30	23D0977-12	Ground Water		SOP-454 PFAS	
PC-1	23D0977-13	Ground Water		SOP-454 PFAS	
PC-6A	23D0977-14	Ground Water		SOP-454 PFAS	

CASE NARRATIVE SUMMARY

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

SOP-454 PFAS

Qualifications:

D-01

Sample extracted/prepared at a dilution due to sample matrix interference.

Analyte & Samples(s) Qualified:

23D0977-01RE1[PC-39], 23D0977-02RE1[PFW-1], 23D0977-03RE1[PFW-5], 23D0977-04RE1[PC-28], 23D0977-05RE1[OW-8A], 23D0977-06RE1[PFW-2], 23D0977-09[MW-12S], 23D0977-11[PC-16D], 23D0977-13RE1[PC-1], 23D0977-14[PC-6A]

MS-09

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

Analyte & Samples(s) Qualified:

Perfluorooctanesulfonic acid (PFOS)

B336788-MS1, B336788-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:

Perfluorobutanoic acid (PFBA)

B336788-MS1, B336788-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:

Perfluoroheptanesulfonic acid (PFHpS)

B336788-MS1

Perfluorohexanoic acid (PFHxA)

B336788-MS1

Perfluorononanesulfonic acid (PFNS)

B336788-MS1

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:

M2-6:2FTS

23D0977-06RE1[PFW-2], 23D0977-13RE1[PC-1]

M2-8:2FTS

23D0977-01RE1[PC-39], 23D0977-02RE1[PFW-1], 23D0977-06RE1[PFW-2], 23D0977-07[EB-4.4.23], 23D0977-08[EB-4.5.23], 23D0977-10[MW-22], B338660-BLK1

PF-18

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:

M2-6:2FTS

23D0977-05RE1[OW-8A]

M2-8:2FTS

23D0977-05RE1[OW-8A], B336788-MS1, B336788-MSD1

M8FOSA

B336788-MS1, B336788-MSD1

M8PFOS

23D0977-02RE1[PFW-1]

M9PFNA

23D0977-02RE1[PFW-1]

PF-19

Sample re-analyzed at a dilution that was re-fortified with internal standard.

Analyte & Samples(s) Qualified:**6:2 Fluorotelomersulfonic acid (6:2FTS A)**

23D0977-06RE5[PFW-2], 23D0977-13RE3[PC-1]

8:2 Fluorotelomersulfonic acid (8:2FTS A)

23D0977-06RE4[PFW-2]

M2-6:2FTS

23D0977-06RE5[PFW-2]

Perfluoro-1-butanesulfonamide (FBSA)

23D0977-06RE4[PFW-2]

Perfluoro-1-hexanesulfonamide (FHxSA)

23D0977-02RE2[PFW-1], 23D0977-06RE4[PFW-2]

Perfluoroheptanesulfonic acid (PFHpS)

23D0977-02RE2[PFW-1]

Perfluoroheptanoic acid (PFHpA)

23D0977-06RE4[PFW-2]

Perfluorohexanesulfonic acid (PFHxS)

23D0977-02RE2[PFW-1], 23D0977-03RE3[PFW-5], 23D0977-05RE3[OW-8A], 23D0977-06RE4[PFW-2], 23D0977-09RE1[MW-12S], 23D0977-11RE1[PC-16D],

23D0977-13RE3[PC-1]

Perfluorohexanoic acid (PFHxA)

23D0977-06RE4[PFW-2]

Perfluorooctanesulfonic acid (PFOS)

23D0977-02RE5[PFW-1], 23D0977-03RE3[PFW-5], 23D0977-04RE3[PC-28], 23D0977-05RE3[OW-8A], 23D0977-06RE4[PFW-2], 23D0977-09RE1[MW-12S],

23D0977-11RE1[PC-16D], 23D0977-13RE3[PC-1], 23D0977-14RE1[PC-6A]

Perfluorooctanoic acid (PFOA)

23D0977-06RE4[PFW-2]

Perfluoropentanoic acid (PFPeA)

23D0977-06RE4[PFW-2]

Perfluoroundecanoic acid (PFUnA)

23D0977-06RE4[PFW-2]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:**M2-4:2FTS**

23D0977-05RE1[OW-8A]

M2-6:2FTS

S087029-CCV4

M2-8:2FTS

23D0977-03RE1[PFW-5], 23D0977-04RE1[PC-28], 23D0977-09[MW-12S], 23D0977-11[PC-16D], 23D0977-12[PC-30], 23D0977-14[PC-6A], B336788-BS1, B338660-BS1

M2PFTA

23D0977-10[MW-22], B336788-MSD1

M3HFPO-DA

S087029-CCV4

M3PFHxS

S087029-CCV3, S087029-CCV4

M4PFHpA

S087029-CCV3, S087029-CCV4

M8PFOA

S087029-CCV3, S087029-CCV4, S087277-CCV3

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:**6:2 Fluorotelomersulfonic acid (6:2FTS A)**

S087029-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:**N-EtFOSAA (NEtFOSAA)**

S087343-CCV3

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: PC-39

Sampled: 4/4/2023 10:30

Sample ID: 23D0977-01

Sample Matrix: Ground Water

Sample Flags: D-01

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	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluoropentanoic acid (PFPeA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorohexanoic acid (PFHxA)	5.2	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorodecanoic acid (PFDA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorohexanesulfonic acid (PFHxS)	9.2	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6.2	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluoroundecanoic acid (PFUnA)	6.3	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluoroheptanoic acid (PFHpA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorooctanoic acid (PFOA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorooctanesulfonic acid (PFOS)	96	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW
Perfluorononanoic acid (PFNA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:45	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: PFW-1

Sampled: 4/4/2023 13:30

Sample ID: 23D0977-02

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	58	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorobutanesulfonic acid (PFBS)	25	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluoropentanoic acid (PFPeA)	200	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorohexanoic acid (PFHxA)	240	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorodecanoic acid (PFDA)	79	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluoroheptanesulfonic acid (PFHpS)	130	83	ng/L	20	PF-19	SOP-454 PFAS	5/1/23	5/11/23 2:42	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorodecanesulfonic acid (PFDS)	7.7	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorooctanesulfonamide (FOSA)	17	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorononanesulfonic acid (PFNS)	200	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	1600	83	ng/L	20	PF-19	SOP-454 PFAS	5/1/23	5/11/23 2:42	QNW
Perfluoro-1-butanefulfonamide (FBFA)	65	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorohexanesulfonic acid (PFHxS)	910	83	ng/L	20	PF-19	SOP-454 PFAS	5/1/23	5/11/23 2:42	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	280	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluoropentanesulfonic acid (PFPeS)	83	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluoroundecanoic acid (PFUnA)	42	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluoroheptanoic acid (PFHpA)	160	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorooctanoic acid (PFOA)	200	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW
Perfluorooctanesulfonic acid (PFOS)	15000	420	ng/L	100	PF-19	SOP-454 PFAS	5/1/23	5/11/23 2:50	QNW
Perfluorononanoic acid (PFNA)	150	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:52	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: PFW-5

Sampled: 4/4/2023 12:30

Sample ID: 23D0977-03

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	65	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorobutanesulfonic acid (PFBS)	56	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluoropentanoic acid (PFPeA)	210	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorohexanoic acid (PFHxA)	240	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	29	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorodecanoic acid (PFDA)	5.1	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluoroheptanesulfonic acid (PFHpS)	26	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorooctanesulfonamide (FOSA)	44	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	73	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluoro-1-butanefulfonamide (FBFA)	51	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorohexanesulfonic acid (PFHxS)	670	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 2:57	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	47	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluoropentanesulfonic acid (PFPeS)	81	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluoroundecanoic acid (PFUnA)	13	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluoroheptanoic acid (PFHpA)	100	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorooctanoic acid (PFOA)	110	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW
Perfluorooctanesulfonic acid (PFOS)	660	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 2:57	QNW
Perfluorononanoic acid (PFNA)	55	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/9/23 23:59	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: PC-28

Sampled: 4/4/2023 09:00

Sample ID: 23D0977-04

Sample Matrix: Ground Water

Sample Flags: D-01

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	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluoropentanoic acid (PFPeA)	47	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorohexanoic acid (PFHxA)	52	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	5.4	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorodecanoic acid (PFDA)	10	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluoroheptanesulfonic acid (PFHpS)	6.8	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorononanesulfonic acid (PFNS)	6.0	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	25	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluoro-1-butanefulfonamide (FBFA)	5.8	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorohexanesulfonic acid (PFHxS)	76	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	11	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluoropentanesulfonic acid (PFPeS)	6.6	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluoroundecanoic acid (PFUnA)	50	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluoroheptanoic acid (PFHpA)	44	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorooctanoic acid (PFOA)	29	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW
Perfluorooctanesulfonic acid (PFOS)	600	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:04	QNW
Perfluorononanoic acid (PFNA)	46	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:06	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: OW-8A

Sampled: 4/4/2023 13:00

Sample ID: 23D0977-05

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	65	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorobutanesulfonic acid (PFBS)	36	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluoropentanoic acid (PFPeA)	210	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorohexanoic acid (PFHxA)	300	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	71	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorodecanoic acid (PFDA)	4.6	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluoroheptanesulfonic acid (PFHpS)	14	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorooctanesulfonamide (FOSA)	20	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorononanesulfonic acid (PFNS)	5.0	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	47	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluoro-1-butanefulfonamide (FBFA)	11	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorohexanesulfonic acid (PFHxS)	660	42	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:11	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	12	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluoropentanesulfonic acid (PFPeS)	36	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluoroundecanoic acid (PFUnA)	21	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluoroheptanoic acid (PFHpA)	140	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorooctanoic acid (PFOA)	210	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW
Perfluorooctanesulfonic acid (PFOS)	680	42	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:11	QNW
Perfluorononanoic acid (PFNA)	25	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:13	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: PFW-2

Sampled: 4/4/2023 13:50

Sample ID: 23D0977-06

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	340	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluorobutanesulfonic acid (PFBS)	70	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluoropentanoic acid (PFPeA)	870	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:18	QNW
Perfluorohexanoic acid (PFHxA)	1100	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:18	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	310	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:18	QNW
Perfluorodecanoic acid (PFDA)	11	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluorododecanoic acid (PFDoA)	6.2	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluoroheptanesulfonic acid (PFHpS)	43	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	30	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluorodecanesulfonic acid (PFDS)	20	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluorooctanesulfonamide (FOSA)	20	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluorononanesulfonic acid (PFNS)	14	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	560	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:18	QNW
Perfluoro-1-butanesulfonamide (FBSA)	350	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:18	QNW
Perfluorohexanesulfonic acid (PFHxS)	1000	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:18	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6000	410	ng/L	100	PF-19	SOP-454 PFAS	5/1/23	5/12/23 12:52	QNW
Perfluoropentanesulfonic acid (PFPeS)	130	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluoroundecanoic acid (PFUnA)	320	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:18	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW
Perfluoroheptanoic acid (PFHpA)	320	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:18	QNW
Perfluorooctanoic acid (PFOA)	730	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:18	QNW
Perfluorooctanesulfonic acid (PFOS)	1100	41	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:18	QNW
Perfluorononanoic acid (PFNA)	160	4.1	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:21	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: EB-4.4.23

Sampled: 4/4/2023 14:00

Sample ID: 23D0977-07

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)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:10	AMS

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: EB-4.5.23

Sampled: 4/5/2023 14:00

Sample ID: 23D0977-08

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)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:17	AMS

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: MW-12S

Sampled: 4/5/2023 12:50

Sample ID: 23D0977-09

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	44	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorobutanesulfonic acid (PFBS)	11	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluoropentanoic acid (PFPeA)	150	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorohexanoic acid (PFHxA)	130	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorodecanoic acid (PFDA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluoroheptanesulfonic acid (PFHpS)	13	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorooctanesulfonamide (FOSA)	370	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorononanesulfonic acid (PFNS)	4.5	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluoro-1-hexanesulfonamide (FHxSA)	69	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluoro-1-butanefulfonamide (FBFA)	20	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorohexanesulfonic acid (PFHxS)	400	41	ng/L	10	PF-19	SOP-454 PFAS	4/17/23	5/2/23 9:15	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
6:2 Fluorotelomersulfonic acid (6:2FTS A)	26	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluoropentanesulfonic acid (PFPeS)	17	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluoroundecanoic acid (PFUnA)	17	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluoroheptanoic acid (PFHpA)	71	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorooctanoic acid (PFOA)	150	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS
Perfluorooctanesulfonic acid (PFOS)	630	41	ng/L	10	PF-19	SOP-454 PFAS	4/17/23	5/2/23 9:15	QNW
Perfluorononanoic acid (PFNA)	14	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:25	AMS

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: MW-22

Sampled: 4/5/2023 12:55

Sample ID: 23D0977-10

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	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluoropentanoic acid (PFPeA)	2.1	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorohexanoic acid (PFHxA)	2.7	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorohexanesulfonic acid (PFHxS)	23	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluoroheptanoic acid (PFHpA)	2.0	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorooctanoic acid (PFOA)	7.1	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorooctanesulfonic acid (PFOS)	86	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:32	AMS

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: PC-16D

Sampled: 4/5/2023 08:30

Sample ID: 23D0977-11

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	92	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorobutanesulfonic acid (PFBS)	40	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluoropentanoic acid (PFPeA)	280	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorohexanoic acid (PFHxA)	250	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
8:2 Fluorotelomersulfonic acid (8:2FTS A)	19	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorodecanoic acid (PFDA)	8.2	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluoroheptanesulfonic acid (PFHpS)	46	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorooctanesulfonamide (FOSA)	13	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorononanesulfonic acid (PFNS)	8.0	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluoro-1-hexanesulfonamide (FHxSA)	62	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluoro-1-butanefulfonamide (FBFA)	50	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorohexanesulfonic acid (PFHxS)	490	41	ng/L	10	PF-19	SOP-454 PFAS	4/17/23	5/2/23 9:23	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
6:2 Fluorotelomersulfonic acid (6:2FTS A)	160	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluoropentanesulfonic acid (PFPeS)	63	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluoroundecanoic acid (PFUnA)	16	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluoroheptanoic acid (PFHpA)	110	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorooctanoic acid (PFOA)	120	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS
Perfluorooctanesulfonic acid (PFOS)	1300	41	ng/L	10	PF-19	SOP-454 PFAS	4/17/23	5/2/23 9:23	QNW
Perfluorononanoic acid (PFNA)	72	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:39	AMS

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: PC-30

Sampled: 4/5/2023 07:30

Sample ID: 23D0977-12

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)	21	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorobutanesulfonic acid (PFBS)	7.6	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluoropentanoic acid (PFPeA)	57	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorohexanoic acid (PFHxA)	66	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.0	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorodecanoic acid (PFDA)	10	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluoroheptanesulfonic acid (PFHpS)	9.4	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorononanesulfonic acid (PFNS)	4.6	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluoro-1-hexanesulfonamide (FHxSA)	24	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluoro-1-butanesulfonamide (FBSA)	9.5	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorohexanesulfonic acid (PFHxS)	96	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
6:2 Fluorotelomersulfonic acid (6:2FTS A)	18	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluoropentanesulfonic acid (PFPeS)	9.9	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluoroundecanoic acid (PFUnA)	18	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluoroheptanoic acid (PFHpA)	45	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorooctanoic acid (PFOA)	35	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS
Perfluorooctanesulfonic acid (PFOS)	580	41	ng/L	10		SOP-454 PFAS	4/17/23	5/2/23 9:30	QNW
Perfluorononanoic acid (PFNA)	65	4.1	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 16:46	AMS

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: PC-1

Sampled: 4/5/2023 10:30

Sample ID: 23D0977-13

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	93	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorobutanesulfonic acid (PFBS)	19	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluoropentanoic acid (PFPeA)	340	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorohexanoic acid (PFHxA)	270	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	61	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorodecanoic acid (PFDA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluoroheptanesulfonic acid (PFHpS)	13	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorooctanesulfonamide (FOSA)	5.3	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	100	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluoro-1-butanefulfonamide (FBFA)	72	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorohexanesulfonic acid (PFHxS)	540	42	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:26	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	560	42	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:26	QNW
Perfluoropentanesulfonic acid (PFPeS)	33	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluoroundecanoic acid (PFUnA)	34	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluoroheptanoic acid (PFHpA)	160	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorooctanoic acid (PFOA)	250	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW
Perfluorooctanesulfonic acid (PFOS)	510	42	ng/L	10	PF-19	SOP-454 PFAS	5/1/23	5/11/23 3:26	QNW
Perfluorononanoic acid (PFNA)	27	4.2	ng/L	1		SOP-454 PFAS	5/1/23	5/10/23 0:28	QNW

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

Project Location: Barnstable, MA

Sample Description:

Work Order: 23D0977

Date Received: 4/7/2023

Field Sample #: PC-6A

Sampled: 4/5/2023 09:30

Sample ID: 23D0977-14

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	17	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluoropentanoic acid (PFPeA)	40	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorohexanoic acid (PFHxA)	43	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
11Cl-PF3OUdS (F53B Major)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
9Cl-PF3ONS (F53B Minor)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
8:2 Fluorotelomersulfonic acid (8:2FTS A)	5.7	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorodecanoic acid (PFDA)	9.3	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorododecanoic acid (PFDoA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluoroheptanesulfonic acid (PFHpS)	4.8	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
N-EtFOSAA (NEtFOSAA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
N-MeFOSAA (NMeFOSAA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorotetradecanoic acid (PFTA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorooctanesulfonamide (FOSA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorononanesulfonic acid (PFNS)	5.3	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluoro-1-hexanesulfonamide (FHxSA)	18	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorohexanesulfonic acid (PFHxS)	65	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
6:2 Fluorotelomersulfonic acid (6:2FTS A)	7.7	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluoropentanesulfonic acid (PFPeS)	5.4	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluoroundecanoic acid (PFUnA)	71	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluoroheptanoic acid (PFHpA)	36	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorooctanoic acid (PFOA)	27	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS
Perfluorooctanesulfonic acid (PFOS)	390	42	ng/L	10	PF-19	SOP-454 PFAS	4/17/23	5/2/23 9:59	QNW
Perfluorononanoic acid (PFNA)	45	4.2	ng/L	1		SOP-454 PFAS	4/17/23	4/27/23 17:01	AMS

Sample Extraction Data

Prep Method: SOP 454-PFAAS Analytical Method: SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23D0977-07 [EB-4.4.23]	B336788	269	1.00	04/17/23
23D0977-08 [EB-4.5.23]	B336788	267	1.00	04/17/23
23D0977-09 [MW-12S]	B336788	123	1.00	04/17/23
23D0977-09RE1 [MW-12S]	B336788	123	1.00	04/17/23
23D0977-10 [MW-22]	B336788	276	1.00	04/17/23
23D0977-11 [PC-16D]	B336788	121	1.00	04/17/23
23D0977-11RE1 [PC-16D]	B336788	121	1.00	04/17/23
23D0977-12 [PC-30]	B336788	122	1.00	04/17/23
23D0977-12RE1 [PC-30]	B336788	122	1.00	04/17/23
23D0977-14 [PC-6A]	B336788	120	1.00	04/17/23
23D0977-14RE1 [PC-6A]	B336788	120	1.00	04/17/23

Prep Method: SOP 454-PFAAS Analytical Method: SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23D0977-01RE1 [PC-39]	B338660	122	1.00	05/01/23
23D0977-02RE1 [PFW-1]	B338660	120	1.00	05/01/23
23D0977-02RE2 [PFW-1]	B338660	120	1.00	05/01/23
23D0977-02RE5 [PFW-1]	B338660	120	1.00	05/01/23
23D0977-03RE1 [PFW-5]	B338660	121	1.00	05/01/23
23D0977-03RE3 [PFW-5]	B338660	121	1.00	05/01/23
23D0977-04RE1 [PC-28]	B338660	121	1.00	05/01/23
23D0977-04RE3 [PC-28]	B338660	121	1.00	05/01/23
23D0977-05RE1 [OW-8A]	B338660	120	1.00	05/01/23
23D0977-05RE3 [OW-8A]	B338660	120	1.00	05/01/23
23D0977-06RE1 [PFW-2]	B338660	121	1.00	05/01/23
23D0977-06RE4 [PFW-2]	B338660	121	1.00	05/01/23
23D0977-06RE5 [PFW-2]	B338660	121	1.00	05/01/23
23D0977-13RE1 [PC-1]	B338660	120	1.00	05/01/23
23D0977-13RE3 [PC-1]	B338660	120	1.00	05/01/23

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 B336788 - SOP 454-PFAAS
Blank (B336788-BLK1)

Prepared: 04/17/23 Analyzed: 04/27/23

Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.9	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L

LCS (B336788-BS1)

Prepared: 04/17/23 Analyzed: 04/27/23

Perfluorobutanoic acid (PFBA)	11.4	1.8	ng/L	9.23	124	73-129
Perfluorobutanesulfonic acid (PFBS)	9.72	1.8	ng/L	8.17	119	72-130
Perfluoropentanoic acid (PFPeA)	11.0	1.8	ng/L	9.23	119	72-129
Perfluorohexanoic acid (PFHxA)	11.2	1.8	ng/L	9.23	122	72-129
11Cl-PF3OUdS (F53B Major)	7.79	1.8	ng/L	8.69	89.6	55.1-141
9Cl-PF3ONS (F53B Minor)	8.97	1.8	ng/L	8.60	104	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.86	1.8	ng/L	8.69	102	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.68	1.8	ng/L	9.23	105	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	11.4	1.8	ng/L	8.86	129	67-138
Perfluorodecanoic acid (PFDA)	11.5	1.8	ng/L	9.23	125	71-129
Perfluorododecanoic acid (PFDoA)	11.3	1.8	ng/L	9.23	123	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	8.35	1.8	ng/L	8.21	102	49.4-154

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 B336788 - SOP 454-PFAAS
LCS (B336788-BS1)

Prepared: 04/17/23 Analyzed: 04/27/23

Perfluoroheptanesulfonic acid (PFHpS)	10.6	1.8	ng/L	8.81		120	69-134			
N-EtFOSAA (NEtFOSAA)	11.0	1.8	ng/L	9.23		120	61-135			
N-MeFOSAA (NMeFOSAA)	12.4	1.8	ng/L	9.23		135	65-136			
Perfluorotetradecanoic acid (PFTA)	11.2	1.8	ng/L	9.23		122	71-132			
Perfluorotridecanoic acid (PFTTrDA)	13.1	1.8	ng/L	9.23		142	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	10.5	1.8	ng/L	8.63		122	63-143			
Perfluorodecanesulfonic acid (PFDS)	8.06	1.8	ng/L	8.91		90.5	53-142			
Perfluorooctanesulfonamide (FOSA)	11.3	1.8	ng/L	9.23		122	67-137			
Perfluorononanesulfonic acid (PFNS)	10.2	1.8	ng/L	8.86		116	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	9.62	1.8	ng/L	9.23		104	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	9.82	1.8	ng/L	9.23		106	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	10.3	1.8	ng/L	8.44		122	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	10.2	1.8	ng/L	9.23		111	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.15	1.8	ng/L	9.23		99.2	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.05	1.8	ng/L	8.77		103	64-140			
Perfluoropentanesulfonic acid (PFPeS)	11.0	1.8	ng/L	8.68		127	71-127			
Perfluoroundecanoic acid (PFUnA)	11.0	1.8	ng/L	9.23		119	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	11.8	1.8	ng/L	9.23		128	58.5-143			
Perfluoroheptanoic acid (PFHpA)	10.7	1.8	ng/L	9.23		116	72-130			
Perfluorooctanoic acid (PFOA)	10.8	1.8	ng/L	9.23		117	71-133			
Perfluorooctanesulfonic acid (PFOS)	9.97	1.8	ng/L	8.54		117	65-140			
Perfluorononanoic acid (PFNA)	11.4	1.8	ng/L	9.23		124	69-130			

Matrix Spike (B336788-MS1)
Source: 23D0977-01

Prepared: 04/17/23 Analyzed: 04/27/23

Perfluorobutanoic acid (PFBA)	14.6	1.9	ng/L	9.35	1.81	137	*	73-129		MS-12
Perfluorobutanesulfonic acid (PFBS)	10.6	1.9	ng/L	8.28	ND	128		72-130		
Perfluoropentanoic acid (PFPeA)	15.4	1.9	ng/L	9.35	4.70	115		72-129		
Perfluorohexanoic acid (PFHxA)	18.4	1.9	ng/L	9.35	6.26	130	*	72-129		MS-22
11Cl-PF3OUdS (F53B Major)	10.0	1.9	ng/L	8.81	ND	114		58.3-140		
9Cl-PF3ONS (F53B Minor)	9.55	1.9	ng/L	8.72	ND	110		61.4-144		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.66	1.9	ng/L	8.81	ND	110		62.4-128		
Hexafluoropropylene oxide dimer acid (HFPO-DA)	11.4	1.9	ng/L	9.35	ND	122		36.7-171		
8:2 Fluorotelomersulfonic acid (8:2FTS A)	12.2	1.9	ng/L	8.98	ND	136		67-138		
Perfluorodecanoic acid (PFDA)	11.8	1.9	ng/L	9.35	ND	126		71-129		
Perfluorododecanoic acid (PFDoA)	12.2	1.9	ng/L	9.35	ND	131		72-134		
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	8.82	1.9	ng/L	8.33	ND	106		54.3-149		
Perfluoroheptanesulfonic acid (PFHpS)	12.4	1.9	ng/L	8.93	ND	139	*	69-134		MS-22
N-EtFOSAA (NEtFOSAA)	12.2	1.9	ng/L	9.35	ND	130		61-135		
N-MeFOSAA (NMeFOSAA)	12.6	1.9	ng/L	9.35	ND	135		65-136		
Perfluorotetradecanoic acid (PFTA)	11.6	1.9	ng/L	9.35	ND	124		71-132		
Perfluorotridecanoic acid (PFTTrDA)	12.2	1.9	ng/L	9.35	ND	130		65-144		
4:2 Fluorotelomersulfonic acid (4:2FTS A)	10.9	1.9	ng/L	8.75	ND	124		63-143		
Perfluorodecanesulfonic acid (PFDS)	12.2	1.9	ng/L	9.03	1.35	120		53-142		
Perfluorooctanesulfonamide (FOSA)	11.4	1.9	ng/L	9.35	ND	121		67-137		
Perfluorononanesulfonic acid (PFNS)	12.5	1.9	ng/L	8.98	ND	140	*	69-127		MS-22
Perfluoro-1-hexanesulfonamide (FHxSA)	10.5	1.9	ng/L	9.35	1.60	94.6		64.2-154		
Perfluoro-1-butanefulfonamide (FBSA)	10.3	1.9	ng/L	9.35	ND	110		65.9-140		
Perfluorohexanesulfonic acid (PFHxS)	22.1	1.9	ng/L	8.56	11.0	129		68-131		
Perfluoro-4-oxapentanoic acid (PFMPA)	12.1	1.9	ng/L	9.35	ND	129		61.9-143		
Perfluoro-5-oxahexanoic acid (PFMBA)	9.54	1.9	ng/L	9.35	ND	102		61.4-142		

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 B336788 - SOP 454-PFAAS

Matrix Spike (B336788-MS1)		Source: 23D0977-01			Prepared: 04/17/23 Analyzed: 04/27/23					
6:2 Fluorotelomersulfonic acid (6:2FTS A)	17.1	1.9	ng/L	8.89	8.88	93.0	64-140			
Perfluoropetanesulfonic acid (PFPeS)	11.7	1.9	ng/L	8.79	0.866	123	71-127			
Perfluoroundecanoic acid (PFUnA)	19.1	1.9	ng/L	9.35	7.10	128	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	12.5	1.9	ng/L	9.35	ND	134	62-138			
Perfluoroheptanoic acid (PFHpA)	14.0	1.9	ng/L	9.35	3.34	114	72-130			
Perfluorooctanoic acid (PFOA)	13.0	1.9	ng/L	9.35	1.43	124	71-133			
Perfluorooctanesulfonic acid (PFOS)	116	1.9	ng/L	8.65	120	-44.0 *	65-140			MS-09
Perfluorononanoic acid (PFNA)	15.2	1.9	ng/L	9.35	4.05	119	69-130			

Matrix Spike Dup (B336788-MSD1)		Source: 23D0977-01			Prepared: 04/17/23 Analyzed: 04/27/23					
Perfluorobutanoic acid (PFBA)	14.3	1.9	ng/L	9.53	1.81	131 *	73-129	2.24	30	MS-12
Perfluorobutanesulfonic acid (PFBS)	10.4	1.9	ng/L	8.43	ND	123	72-130	2.16	30	
Perfluoropentanoic acid (PFPeA)	14.9	1.9	ng/L	9.53	4.70	107	72-129	3.34	30	
Perfluorohexanoic acid (PFHxA)	17.6	1.9	ng/L	9.53	6.26	119	72-129	4.27	30	
11Cl-PF3OUdS (F53B Major)	8.94	1.9	ng/L	8.98	ND	99.6	58.3-140	11.5	30	
9Cl-PF3ONS (F53B Minor)	8.90	1.9	ng/L	8.88	ND	100	61.4-144	7.10	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.54	1.9	ng/L	8.98	ND	106	62.4-128	1.18	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	10.9	1.9	ng/L	9.53	ND	115	36.7-171	4.18	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	11.2	1.9	ng/L	9.15	ND	122	67-138	8.50	30	
Perfluorodecanoic acid (PFDA)	12.0	1.9	ng/L	9.53	ND	126	71-129	1.35	30	
Perfluorododecanoic acid (PFDoA)	11.3	1.9	ng/L	9.53	ND	119	72-134	8.06	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	8.40	1.9	ng/L	8.48	ND	99.0	54.3-149	4.94	30	
Perfluoroheptanesulfonic acid (PFHpS)	10.9	1.9	ng/L	9.10	ND	120	69-134	12.9	30	
N-EtFOSAA (NEtFOSAA)	12.1	1.9	ng/L	9.53	ND	127	61-135	0.582	30	
N-MeFOSAA (NMeFOSAA)	11.9	1.9	ng/L	9.53	ND	125	65-136	5.99	30	
Perfluorotetradecanoic acid (PFTA)	11.6	1.9	ng/L	9.53	ND	122	71-132	0.0445	30	
Perfluorotridecanoic acid (PFTrDA)	13.1	1.9	ng/L	9.53	ND	138	65-144	7.61	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	10.6	1.9	ng/L	8.91	ND	119	63-143	2.25	30	
Perfluorodecanesulfonic acid (PFDS)	9.97	1.9	ng/L	9.20	1.35	93.7	53-142	19.8	30	
Perfluorooctanesulfonamide (FOSA)	11.5	1.9	ng/L	9.53	ND	121	67-137	1.19	30	
Perfluorononanesulfonic acid (PFNS)	10.1	1.9	ng/L	9.15	ND	110	69-127	21.7	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	10.5	1.9	ng/L	9.53	1.60	93.0	64.2-154	0.0897	30	
Perfluoro-1-butanedisulfonamide (FBSA)	10.1	1.9	ng/L	9.53	ND	106	65.9-140	2.42	30	
Perfluorohexanesulfonic acid (PFHxS)	20.2	1.9	ng/L	8.72	11.0	105	68-131	9.00	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	12.0	1.9	ng/L	9.53	ND	126	61.9-143	1.21	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	9.26	1.9	ng/L	9.53	ND	97.2	61.4-142	3.05	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	16.2	1.9	ng/L	9.05	8.88	81.2	64-140	5.46	30	
Perfluoropetanesulfonic acid (PFPeS)	11.5	1.9	ng/L	8.96	0.866	119	71-127	0.998	30	
Perfluoroundecanoic acid (PFUnA)	17.4	1.9	ng/L	9.53	7.10	109	69-133	9.02	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	12.5	1.9	ng/L	9.53	ND	131	62-138	0.00704	30	
Perfluoroheptanoic acid (PFHpA)	14.4	1.9	ng/L	9.53	3.34	116	72-130	2.70	30	
Perfluorooctanoic acid (PFOA)	13.2	1.9	ng/L	9.53	1.43	124	71-133	1.37	30	
Perfluorooctanesulfonic acid (PFOS)	114	1.9	ng/L	8.81	120	-71.0 *	65-140	2.13	30	MS-09
Perfluorononanoic acid (PFNA)	14.6	1.9	ng/L	9.53	4.05	111	69-130	3.78	30	

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 B338660 - SOP 454-PFAAS
Blank (B338660-BLK1)

Prepared: 05/01/23 Analyzed: 05/09/23

Perfluorobutanoic acid (PFBA)	ND	1.8	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L

LCS (B338660-BS1)

Prepared: 05/01/23 Analyzed: 05/09/23

Perfluorobutanoic acid (PFBA)	9.18	1.9	ng/L	9.25	99.3	73-129
Perfluorobutanesulfonic acid (PFBS)	8.02	1.9	ng/L	8.19	97.9	72-130
Perfluoropentanoic acid (PFPeA)	8.91	1.9	ng/L	9.25	96.3	72-129
Perfluorohexanoic acid (PFHxA)	9.24	1.9	ng/L	9.25	99.8	72-129
11Cl-PF3OUdS (F53B Major)	6.80	1.9	ng/L	8.72	78.1	55.1-141
9Cl-PF3ONS (F53B Minor)	7.38	1.9	ng/L	8.62	85.6	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.79	1.9	ng/L	8.72	101	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	10.5	1.9	ng/L	9.25	114	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.93	1.9	ng/L	8.88	112	67-138
Perfluorodecanoic acid (PFDA)	8.86	1.9	ng/L	9.25	95.8	71-129
Perfluorododecanoic acid (PFDoA)	10.1	1.9	ng/L	9.25	109	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	8.02	1.9	ng/L	8.23	97.3	49.4-154

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 B338660 - SOP 454-PFAAS
LCS (B338660-BS1)

Prepared: 05/01/23 Analyzed: 05/09/23

Perfluoroheptanesulfonic acid (PFHpS)	9.83	1.9	ng/L	8.84		111	69-134			
N-EtFOSAA (NEtFOSAA)	9.23	1.9	ng/L	9.25		99.8	61-135			
N-MeFOSAA (NMeFOSAA)	9.89	1.9	ng/L	9.25		107	65-136			
Perfluorotetradecanoic acid (PFTA)	8.67	1.9	ng/L	9.25		93.7	71-132			
Perfluorotridecanoic acid (PFTrDA)	7.63	1.9	ng/L	9.25		82.5	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.33	1.9	ng/L	8.65		96.3	63-143			
Perfluorodecanesulfonic acid (PFDS)	7.72	1.9	ng/L	8.93		86.5	53-142			
Perfluorooctanesulfonamide (FOSA)	9.14	1.9	ng/L	9.25		98.8	67-137			
Perfluorononanesulfonic acid (PFNS)	8.80	1.9	ng/L	8.88		99.0	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	7.38	1.9	ng/L	9.25		79.8	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	8.30	1.9	ng/L	9.25		89.7	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	7.71	1.9	ng/L	8.47		91.1	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	7.89	1.9	ng/L	9.25		85.3	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	8.02	1.9	ng/L	9.25		86.7	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.73	1.9	ng/L	8.79		99.3	64-140			
Perfluoropentanesulfonic acid (PFPeS)	8.31	1.9	ng/L	8.70		95.6	71-127			
Perfluoroundecanoic acid (PFUnA)	8.58	1.9	ng/L	9.25		92.8	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	7.90	1.9	ng/L	9.25		85.4	58.5-143			
Perfluoroheptanoic acid (PFHpA)	9.12	1.9	ng/L	9.25		98.6	72-130			
Perfluorooctanoic acid (PFOA)	8.36	1.9	ng/L	9.25		90.4	71-133			
Perfluorooctanesulfonic acid (PFOS)	8.15	1.9	ng/L	8.56		95.2	65-140			
Perfluorononanoic acid (PFNA)	8.35	1.9	ng/L	9.25		90.3	69-130			

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.
D-01	Sample extracted/prepared at a dilution due to sample matrix interference.
MS-09	Matrix spike recovery and/or matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots 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.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
PF-19	Sample re-analyzed at a dilution that was re-fortified with internal standard.
S-29	Extracted Internal Standard is outside of control limits.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low 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.

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-39 (23D0977-01RE1) Lab File ID: 23D0977-01RE1.d Analyzed: 05/09/23 23:45									
M8FOSA	213478.7	4.044533	238,694.00	4.044533	89	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	60184.06	2.529667	61,329.00	2.537883	98	50 - 150	-0.0082	+/-0.50	
M2PFTA	504196.2	4.30535	471,133.00	4.313416	107	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	131711.8	3.8028	40,150.00	3.8028	328	50 - 150	0.0000	+/-0.50	*
MPFBA	475300.3	1.0917	442,652.00	1.091717	107	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	124689.9	2.86385	119,328.00	2.872033	104	50 - 150	-0.0082	+/-0.50	
M6PFDA	452156.1	3.803317	393,323.00	3.803317	115	50 - 150	0.0000	+/-0.50	
M3PFBS	141657.3	1.928117	127,633.00	1.9364	111	50 - 150	-0.0083	+/-0.50	
M7PFUnA	353910.5	3.93805	368,504.00	3.946033	96	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	44129.41	3.453283	32,535.00	3.461417	136	50 - 150	-0.0081	+/-0.50	
M5PFPeA	399141.6	1.749417	345,458.00	1.749417	116	50 - 150	0.0000	+/-0.50	
M5PFHxA	685908.5	2.6134	570,567.00	2.621617	120	50 - 150	-0.0082	+/-0.50	
M3PFHxS	103250	3.2345	89,083.00	3.2345	116	50 - 150	0.0000	+/-0.50	
M4PFHpA	706783.8	3.2031	587,200.00	3.203083	120	50 - 150	0.0000	+/-0.50	
M8PFOA	653961.3	3.469933	536,603.00	3.469917	122	50 - 150	0.0000	+/-0.50	
M8PFOS	78666.91	3.652167	67,719.00	3.65215	116	50 - 150	0.0000	+/-0.50	
M9PFNA	476611.9	3.6532	375,001.00	3.6532	127	50 - 150	0.0000	+/-0.50	
MPFDoA	318565.8	4.072667	347,389.00	4.072667	92	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	80732.56	3.945517	86,761.00	3.9535	93	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	96161.36	3.873783	94,164.00	3.88175	102	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PFW-1 (23D0977-02RE1) Lab File ID: 23D0977-02RE1.d Analyzed: 05/09/23 23:52									
M8FOSA	190385.5	4.044533	238,694.00	4.044533	80	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	54215.29	2.52145	61,329.00	2.537883	88	50 - 150	-0.0164	+/-0.50	
M2PFTA	481236.7	4.297283	471,133.00	4.313416	102	50 - 150	-0.0161	+/-0.50	
M2-8:2FTS	166019.2	3.8028	40,150.00	3.8028	413	50 - 150	0.0000	+/-0.50	*
MPFBA	445491.5	1.0917	442,652.00	1.091717	101	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	141187.1	2.855667	119,328.00	2.872033	118	50 - 150	-0.0164	+/-0.50	
M6PFDA	426583.2	3.79535	393,323.00	3.803317	108	50 - 150	-0.0080	+/-0.50	
M3PFBS	125020.7	1.919817	127,633.00	1.9364	98	50 - 150	-0.0166	+/-0.50	
M7PFUnA	380008.7	3.93805	368,504.00	3.946033	103	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	45822.91	3.453283	32,535.00	3.461417	141	50 - 150	-0.0081	+/-0.50	
M5PFPeA	350869.3	1.741133	345,458.00	1.749417	102	50 - 150	-0.0083	+/-0.50	
M5PFHxA	597593.3	2.605183	570,567.00	2.621617	105	50 - 150	-0.0164	+/-0.50	
M3PFHxS	78779.77	3.2345	89,083.00	3.2345	88	50 - 150	0.0000	+/-0.50	
M4PFHpA	611089.2	3.195017	587,200.00	3.203083	104	50 - 150	-0.0081	+/-0.50	
M8PFOA	548415.1	3.461933	536,603.00	3.469917	102	50 - 150	-0.0080	+/-0.50	
M8PFOS	20858.24	3.652167	67,719.00	3.65215	31	50 - 150	0.0000	+/-0.50	*
M9PFNA	121611.2	3.6532	375,001.00	3.6532	32	50 - 150	0.0000	+/-0.50	*
MPFDoA	353455.4	4.064683	347,389.00	4.072667	102	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	82464.23	3.945517	86,761.00	3.9535	95	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	94123.89	3.865617	94,164.00	3.88175	100	50 - 150	-0.0161	+/-0.50	
PFW-1 (23D0977-02RE2) Lab File ID: 23D0977-02RE2.d Analyzed: 05/11/23 02:42									
M3PFHxS	101019.6	3.226433	90,122.00	3.226417	112	50 - 150	0.0000	+/-0.50	
M8PFOA	709885.8	3.46195	518,833.00	3.46195	137	50 - 150	0.0000	+/-0.50	
M8PFOS	65424.66	3.644183	69,191.00	3.644183	95	50 - 150	0.0000	+/-0.50	
PFW-1 (23D0977-02RE5) Lab File ID: 23D0977-02RE5.d Analyzed: 05/11/23 02:50									
M8PFOS	76755.96	3.644167	69,191.00	3.644183	111	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PFW-5 (23D0977-03RE1) Lab File ID: 23D0977-03RE1.d Analyzed: 05/09/23 23:59									
M8FOSA	195897.9	4.04455	238,694.00	4.044533	82	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	56326.35	2.51325	61,329.00	2.537883	92	50 - 150	-0.0246	+/-0.50	
M2PFTA	486816.1	4.289217	471,133.00	4.313416	103	50 - 150	-0.0242	+/-0.50	
M2-8:2FTS	62629.13	3.79485	40,150.00	3.8028	156	50 - 150	-0.0080	+/-0.50	*
MPFBA	442980.5	1.0917	442,652.00	1.091717	100	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	114243.5	2.855683	119,328.00	2.872033	96	50 - 150	-0.0164	+/-0.50	
M6PFDA	482293.5	3.795367	393,323.00	3.803317	123	50 - 150	-0.0079	+/-0.50	
M3PFBS	136770.3	1.919817	127,633.00	1.9364	107	50 - 150	-0.0166	+/-0.50	
M7PFUnA	361978	3.930067	368,504.00	3.946033	98	50 - 150	-0.0160	+/-0.50	
M2-6:2FTS	33835.11	3.453283	32,535.00	3.461417	104	50 - 150	-0.0081	+/-0.50	
M5PFPeA	372154.1	1.741117	345,458.00	1.749417	108	50 - 150	-0.0083	+/-0.50	
M5PFHxA	639036.1	2.6052	570,567.00	2.621617	112	50 - 150	-0.0164	+/-0.50	
M3PFHxS	86234.73	3.226433	89,083.00	3.2345	97	50 - 150	-0.0081	+/-0.50	
M4PFHpA	664555.8	3.195033	587,200.00	3.203083	113	50 - 150	-0.0080	+/-0.50	
M8PFOA	625293	3.46195	536,603.00	3.469917	117	50 - 150	-0.0080	+/-0.50	
M8PFOS	67540.55	3.644183	67,719.00	3.65215	100	50 - 150	-0.0080	+/-0.50	
M9PFNA	378022.4	3.645217	375,001.00	3.6532	101	50 - 150	-0.0080	+/-0.50	
MPFDoA	292425	4.064683	347,389.00	4.072667	84	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	77791.12	3.937533	86,761.00	3.9535	90	50 - 150	-0.0160	+/-0.50	
D3-NMeFOSAA	80515.43	3.865633	94,164.00	3.88175	86	50 - 150	-0.0161	+/-0.50	
PFW-5 (23D0977-03RE3) Lab File ID: 23D0977-03RE3.d Analyzed: 05/11/23 02:57									
M3PFHxS	95429.21	3.226417	90,122.00	3.226417	106	50 - 150	0.0000	+/-0.50	
M8PFOS	79541.43	3.644167	69,191.00	3.644183	115	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-28 (23D0977-04RE1) Lab File ID: 23D0977-04RE1.d Analyzed: 05/10/23 00:06									
M8FOSA	177064	4.04455	238,694.00	4.044533	74	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	54201.45	2.505033	61,329.00	2.537883	88	50 - 150	-0.0328	+/-0.50	
M2PFTA	433910.2	4.289217	471,133.00	4.313416	92	50 - 150	-0.0242	+/-0.50	
M2-8:2FTS	61618.56	3.786867	40,150.00	3.8028	153	50 - 150	-0.0159	+/-0.50	*
MPFBA	438797.1	1.0834	442,652.00	1.091717	99	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	129035.4	2.847483	119,328.00	2.872033	108	50 - 150	-0.0246	+/-0.50	
M6PFDA	424111.4	3.787383	393,323.00	3.803317	108	50 - 150	-0.0159	+/-0.50	
M3PFBS	132863.9	1.911533	127,633.00	1.9364	104	50 - 150	-0.0249	+/-0.50	
M7PFUnA	328482.8	3.922067	368,504.00	3.946033	89	50 - 150	-0.0240	+/-0.50	
M2-6:2FTS	37137.85	3.445283	32,535.00	3.461417	114	50 - 150	-0.0161	+/-0.50	
M5PFPeA	351506.1	1.731383	345,458.00	1.749417	102	50 - 150	-0.0180	+/-0.50	
M5PFHxA	619326.8	2.596983	570,567.00	2.621617	109	50 - 150	-0.0246	+/-0.50	
M3PFHxS	90505.7	3.226417	89,083.00	3.2345	102	50 - 150	-0.0081	+/-0.50	
M4PFHpA	621196.6	3.186933	587,200.00	3.203083	106	50 - 150	-0.0162	+/-0.50	
M8PFOA	582623.1	3.453817	536,603.00	3.469917	109	50 - 150	-0.0161	+/-0.50	
M8PFOS	60456.27	3.644183	67,719.00	3.65215	89	50 - 150	-0.0080	+/-0.50	
M9PFNA	368237.2	3.645217	375,001.00	3.6532	98	50 - 150	-0.0080	+/-0.50	
MPFDoA	279815	4.056684	347,389.00	4.072667	81	50 - 150	-0.0160	+/-0.50	
D5-NEtFOSAA	69869.98	3.929533	86,761.00	3.9535	81	50 - 150	-0.0240	+/-0.50	
D3-NMeFOSAA	89136.55	3.857683	94,164.00	3.88175	95	50 - 150	-0.0241	+/-0.50	
PC-28 (23D0977-04RE3) Lab File ID: 23D0977-04RE3.d Analyzed: 05/11/23 03:04									
M8PFOS	69930.48	3.644183	69,191.00	3.644183	101	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
OW-8A (23D0977-05RE1) Lab File ID: 23D0977-05RE1.d Analyzed: 05/10/23 00:13									
M8FOSA	180029.9	4.044533	238,694.00	4.044533	75	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	108777.1	2.4804	61,329.00	2.537883	177	50 - 150	-0.0575	+/-0.50	*
M2PFTA	433007	4.281133	471,133.00	4.313416	92	50 - 150	-0.0323	+/-0.50	
M2-8:2FTS	104346.6	3.786867	40,150.00	3.8028	260	50 - 150	-0.0159	+/-0.50	*
MPFBA	365952	1.0834	442,652.00	1.091717	83	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	89812.97	2.822933	119,328.00	2.872033	75	50 - 150	-0.0491	+/-0.50	
M6PFDA	402035.8	3.787383	393,323.00	3.803317	102	50 - 150	-0.0159	+/-0.50	
M3PFBS	104498.8	1.894967	127,633.00	1.9364	82	50 - 150	-0.0414	+/-0.50	
M7PFUnA	367650	3.922067	368,504.00	3.946033	100	50 - 150	-0.0240	+/-0.50	
M2-6:2FTS	87928.01	3.4373	32,535.00	3.461417	270	50 - 150	-0.0241	+/-0.50	*
M5PFPeA	291981.7	1.714833	345,458.00	1.749417	85	50 - 150	-0.0346	+/-0.50	
M5PFHxA	494024	2.572333	570,567.00	2.621617	87	50 - 150	-0.0493	+/-0.50	
M3PFHxS	79764.23	3.210267	89,083.00	3.2345	90	50 - 150	-0.0242	+/-0.50	
M4PFHpA	561385.4	3.178867	587,200.00	3.203083	96	50 - 150	-0.0242	+/-0.50	
M8PFOA	514316.3	3.453833	536,603.00	3.469917	96	50 - 150	-0.0161	+/-0.50	
M8PFOS	56559.09	3.6362	67,719.00	3.65215	84	50 - 150	-0.0159	+/-0.50	
M9PFNA	372382.7	3.637233	375,001.00	3.6532	99	50 - 150	-0.0160	+/-0.50	
MPFDoA	316377.7	4.048683	347,389.00	4.072667	91	50 - 150	-0.0240	+/-0.50	
D5-NEtFOSAA	91632.85	3.929533	86,761.00	3.9535	106	50 - 150	-0.0240	+/-0.50	
D3-NMeFOSAA	105877.4	3.857667	94,164.00	3.88175	112	50 - 150	-0.0241	+/-0.50	
OW-8A (23D0977-05RE3) Lab File ID: 23D0977-05RE3.d Analyzed: 05/11/23 03:11									
M3PFHxS	94987.45	3.226433	90,122.00	3.226417	105	50 - 150	0.0000	+/-0.50	
M8PFOS	65556.15	3.644183	69,191.00	3.644183	95	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PFW-2 (23D0977-06RE1) Lab File ID: 23D0977-06RE1.d Analyzed: 05/10/23 00:21									
M8FOSA	139894.5	4.044533	238,694.00	4.044533	59	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	39033.11	2.496817	61,329.00	2.537883	64	50 - 150	-0.0411	+/-0.50	
M2PFTA	376591.1	4.281133	471,133.00	4.313416	80	50 - 150	-0.0323	+/-0.50	
M2-8:2FTS	60435.72	3.786867	40,150.00	3.8028	151	50 - 150	-0.0159	+/-0.50	*
MPFBA	341270.4	1.0834	442,652.00	1.091717	77	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	98563.73	2.8393	119,328.00	2.872033	83	50 - 150	-0.0327	+/-0.50	
M6PFDA	315859.4	3.787383	393,323.00	3.803317	80	50 - 150	-0.0159	+/-0.50	
M3PFBS	99443.16	1.90325	127,633.00	1.9364	78	50 - 150	-0.0331	+/-0.50	
M7PFUnA	246362.7	3.922067	368,504.00	3.946033	67	50 - 150	-0.0240	+/-0.50	
M2-6:2FTS	172212.6	3.4373	32,535.00	3.461417	529	50 - 150	-0.0241	+/-0.50	*
M5PFPeA	249545.6	1.7231	345,458.00	1.749417	72	50 - 150	-0.0263	+/-0.50	
M5PFHxA	404671.3	2.58055	570,567.00	2.621617	71	50 - 150	-0.0411	+/-0.50	
M3PFHxS	57335.62	3.218333	89,083.00	3.2345	64	50 - 150	-0.0162	+/-0.50	
M4PFHpA	442922	3.186933	587,200.00	3.203083	75	50 - 150	-0.0162	+/-0.50	
M8PFOA	332528.8	3.453817	536,603.00	3.469917	62	50 - 150	-0.0161	+/-0.50	
M8PFOS	45851.4	3.6362	67,719.00	3.65215	68	50 - 150	-0.0159	+/-0.50	
M9PFNA	240221.5	3.637233	375,001.00	3.6532	64	50 - 150	-0.0160	+/-0.50	
MPFDoA	233656.2	4.056684	347,389.00	4.072667	67	50 - 150	-0.0160	+/-0.50	
D5-NEtFOSAA	55931.29	3.929533	86,761.00	3.9535	64	50 - 150	-0.0240	+/-0.50	
D3-NMeFOSAA	69836.77	3.857667	94,164.00	3.88175	74	50 - 150	-0.0241	+/-0.50	
PFW-2 (23D0977-06RE4) Lab File ID: 23D0977-06RE4.d Analyzed: 05/11/23 03:18									
M2-8:2FTS	49383.49	3.786867	48,895.00	3.786867	101	50 - 150	0.0000	+/-0.50	
M7PFUnA	408403.2	3.930067	380,840.00	3.922067	107	50 - 150	0.0080	+/-0.50	
M5PFPeA	394347.8	1.731383	363,549.00	1.731383	108	50 - 150	0.0000	+/-0.50	
M5PFHxA	688375.1	2.596983	603,066.00	2.596983	114	50 - 150	0.0000	+/-0.50	
M3PFHxS	101597.9	3.226417	90,122.00	3.226417	113	50 - 150	0.0000	+/-0.50	
M4PFHpA	704076.8	3.18695	622,459.00	3.18695	113	50 - 150	0.0000	+/-0.50	
M8PFOA	625005.4	3.46195	518,833.00	3.46195	120	50 - 150	0.0000	+/-0.50	
M8PFOS	74805.46	3.644183	69,191.00	3.644183	108	50 - 150	0.0000	+/-0.50	
PFW-2 (23D0977-06RE5) Lab File ID: 23D0977-06RE5R.d Analyzed: 05/12/23 12:52									
M2-6:2FTS	41459.35	3.4453	34,374.00	3.4373	121	50 - 150	0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
EB-4.4.23 (23D0977-07) Lab File ID: 23D0977-07.d Analyzed: 04/27/23 16:10									
M8FOSA	154915.2	4.052516	229,751.00	4.052516	67	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	44718.38	2.562517	63,052.00	2.5543	71	50 - 150	0.0082	+/-0.50	
M2PFTA	442455.2	4.329667	625,482.00	4.329667	71	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	171914.2	3.818717	36,800.00	3.818733	467	50 - 150	0.0000	+/-0.50	*
MPFBA	394330.5	1.100017	413,982.00	1.100017	95	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	114206.3	2.896583	127,387.00	2.8884	90	50 - 150	0.0082	+/-0.50	
M6PFDA	419992.5	3.81925	434,091.00	3.81925	97	50 - 150	0.0000	+/-0.50	
M3PFBS	112321.6	1.95315	132,489.00	1.95315	85	50 - 150	0.0000	+/-0.50	
M7PFUnA	379011	3.962017	435,821.00	3.962017	87	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	27086.61	3.469383	32,472.00	3.469383	83	50 - 150	0.0000	+/-0.50	
M5PFPeA	283831.1	1.7743	326,410.00	1.766017	87	50 - 150	0.0083	+/-0.50	
M5PFHxA	501308.9	2.646767	600,288.00	2.646767	84	50 - 150	0.0000	+/-0.50	
M3PFHxS	86192.1	3.250667	102,169.00	3.250667	84	50 - 150	0.0000	+/-0.50	
M4PFHpA	514265.8	3.219533	635,701.00	3.21145	81	50 - 150	0.0081	+/-0.50	
M8PFOA	525446.3	3.485883	615,023.00	3.485883	85	50 - 150	0.0000	+/-0.50	
M8PFOS	67162.71	3.668117	80,318.00	3.668117	84	50 - 150	0.0000	+/-0.50	
M9PFNA	387093.3	3.66915	485,671.00	3.66915	80	50 - 150	0.0000	+/-0.50	
MPFDoA	348141.3	4.096633	427,448.00	4.096633	81	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	79907.7	3.969483	101,283.00	3.969483	79	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	76272.71	3.889733	100,758.00	3.889733	76	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
EB-4.5.23 (23D0977-08) Lab File ID: 23D0977-08.d Analyzed: 04/27/23 16:17									
M8FOSA	172950.8	4.052516	229,751.00	4.052516	75	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	54499.35	2.562517	63,052.00	2.5543	86	50 - 150	0.0082	+/-0.50	
M2PFTA	530098.1	4.329667	625,482.00	4.329667	85	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	213528.7	3.818717	36,800.00	3.818733	580	50 - 150	0.0000	+/-0.50	*
MPFBA	445952.3	1.100017	413,982.00	1.100017	108	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	139756.1	2.896583	127,387.00	2.8884	110	50 - 150	0.0082	+/-0.50	
M6PFDA	476501.2	3.81925	434,091.00	3.81925	110	50 - 150	0.0000	+/-0.50	
M3PFBS	127548.4	1.95315	132,489.00	1.95315	96	50 - 150	0.0000	+/-0.50	
M7PFUnA	403615	3.962017	435,821.00	3.962017	93	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	34007.62	3.469383	32,472.00	3.469383	105	50 - 150	0.0000	+/-0.50	
M5PFPeA	321947.1	1.7743	326,410.00	1.766017	99	50 - 150	0.0083	+/-0.50	
M5PFHxA	559883.1	2.646767	600,288.00	2.646767	93	50 - 150	0.0000	+/-0.50	
M3PFHxS	96698.86	3.250667	102,169.00	3.250667	95	50 - 150	0.0000	+/-0.50	
M4PFHpA	600519	3.219533	635,701.00	3.21145	94	50 - 150	0.0081	+/-0.50	
M8PFOA	572072.2	3.485883	615,023.00	3.485883	93	50 - 150	0.0000	+/-0.50	
M8PFOS	80946.38	3.668117	80,318.00	3.668117	101	50 - 150	0.0000	+/-0.50	
M9PFNA	456462	3.66915	485,671.00	3.66915	94	50 - 150	0.0000	+/-0.50	
MPFDoA	379112	4.096633	427,448.00	4.096633	89	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	83507.4	3.969483	101,283.00	3.969483	82	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	90965.43	3.889733	100,758.00	3.889733	90	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-12S (23D0977-09) Lab File ID: 23D0977-09.d Analyzed: 04/27/23 16:25									
M8FOSA	156979	4.052516	229,751.00	4.052516	68	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	53954.84	2.562517	63,052.00	2.5543	86	50 - 150	0.0082	+/-0.50	
M2PFTA	471471.3	4.329667	625,482.00	4.329667	75	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	108137	3.818733	36,800.00	3.818733	294	50 - 150	0.0000	+/-0.50	*
MPFBA	299857.9	1.100017	413,982.00	1.100017	72	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	106007	2.8884	127,387.00	2.8884	83	50 - 150	0.0000	+/-0.50	
M6PFDA	404795	3.81925	434,091.00	3.81925	93	50 - 150	0.0000	+/-0.50	
M3PFBS	111322.5	1.95315	132,489.00	1.95315	84	50 - 150	0.0000	+/-0.50	
M7PFUnA	370143.5	3.962017	435,821.00	3.962017	85	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	39339.09	3.469383	32,472.00	3.469383	121	50 - 150	0.0000	+/-0.50	
M5PFPeA	278820.6	1.766017	326,410.00	1.766017	85	50 - 150	0.0000	+/-0.50	
M5PFHxA	505028.9	2.646767	600,288.00	2.646767	84	50 - 150	0.0000	+/-0.50	
M3PFHxS	84047.38	3.250667	102,169.00	3.250667	82	50 - 150	0.0000	+/-0.50	
M4PFHpA	527823.3	3.219533	635,701.00	3.21145	83	50 - 150	0.0081	+/-0.50	
M8PFOA	503520.9	3.485883	615,023.00	3.485883	82	50 - 150	0.0000	+/-0.50	
M8PFOS	61575.28	3.668117	80,318.00	3.668117	77	50 - 150	0.0000	+/-0.50	
M9PFNA	359598.2	3.669167	485,671.00	3.66915	74	50 - 150	0.0000	+/-0.50	
MPFDoA	318799.3	4.096633	427,448.00	4.096633	75	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	75089.57	3.969483	101,283.00	3.969483	74	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	80271.3	3.889733	100,758.00	3.889733	80	50 - 150	0.0000	+/-0.50	
MW-12S (23D0977-09RE1) Lab File ID: 23D0977-09RE1.d Analyzed: 05/02/23 09:15									
M3PFHxS	75270.26	3.242583	61,466.00	3.242583	122	50 - 150	0.0000	+/-0.50	
M8PFOS	66539.34	3.660133	60,383.00	3.668117	110	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-22 (23D0977-10) Lab File ID: 23D0977-10.d Analyzed: 04/27/23 16:32									
M8FOSA	152249.5	4.052516	229,751.00	4.052516	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	36337.71	2.562517	63,052.00	2.5543	58	50 - 150	0.0082	+/-0.50	
M2PFTA	305934.9	4.329667	625,482.00	4.329667	49	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	132070.5	3.818717	36,800.00	3.818733	359	50 - 150	0.0000	+/-0.50	*
MPFBA	331211.8	1.108317	413,982.00	1.100017	80	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	101532.7	2.896583	127,387.00	2.8884	80	50 - 150	0.0082	+/-0.50	
M6PFDA	364815.6	3.81925	434,091.00	3.81925	84	50 - 150	0.0000	+/-0.50	
M3PFBS	109878.8	1.95315	132,489.00	1.95315	83	50 - 150	0.0000	+/-0.50	
M7PFUnA	302387	3.962017	435,821.00	3.962017	69	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	28715.11	3.469383	32,472.00	3.469383	88	50 - 150	0.0000	+/-0.50	
M5PFPeA	278678.4	1.7743	326,410.00	1.766017	85	50 - 150	0.0083	+/-0.50	
M5PFHxA	461602.1	2.655	600,288.00	2.646767	77	50 - 150	0.0082	+/-0.50	
M3PFHxS	79796.02	3.250667	102,169.00	3.250667	78	50 - 150	0.0000	+/-0.50	
M4PFHpA	468372.9	3.219533	635,701.00	3.21145	74	50 - 150	0.0081	+/-0.50	
M8PFOA	444038.6	3.485883	615,023.00	3.485883	72	50 - 150	0.0000	+/-0.50	
M8PFOS	62996.09	3.668117	80,318.00	3.668117	78	50 - 150	0.0000	+/-0.50	
M9PFNA	309111.2	3.66915	485,671.00	3.66915	64	50 - 150	0.0000	+/-0.50	
MPFDoA	250852.2	4.096633	427,448.00	4.096633	59	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	58013.38	3.969483	101,283.00	3.969483	57	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	67587.39	3.889733	100,758.00	3.889733	67	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-16D (23D0977-11) Lab File ID: 23D0977-11.d Analyzed: 04/27/23 16:39									
M8FOSA	165415.1	4.052516	229,751.00	4.052516	72	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	44909.18	2.562517	63,052.00	2.5543	71	50 - 150	0.0082	+/-0.50	
M2PFTA	399933.2	4.329667	625,482.00	4.329667	64	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	112953.5	3.818733	36,800.00	3.818733	307	50 - 150	0.0000	+/-0.50	*
MPFBA	297262.6	1.100017	413,982.00	1.100017	72	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	97741.89	2.896583	127,387.00	2.8884	77	50 - 150	0.0082	+/-0.50	
M6PFDA	355879.1	3.81925	434,091.00	3.81925	82	50 - 150	0.0000	+/-0.50	
M3PFBS	104650.8	1.95315	132,489.00	1.95315	79	50 - 150	0.0000	+/-0.50	
M7PFUnA	346784.7	3.962017	435,821.00	3.962017	80	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	39372.21	3.469383	32,472.00	3.469383	121	50 - 150	0.0000	+/-0.50	
M5PFPeA	266757.7	1.766017	326,410.00	1.766017	82	50 - 150	0.0000	+/-0.50	
M5PFHxA	436937.8	2.646767	600,288.00	2.646767	73	50 - 150	0.0000	+/-0.50	
M3PFHxS	76007.67	3.250667	102,169.00	3.250667	74	50 - 150	0.0000	+/-0.50	
M4PFHpA	461943.1	3.219533	635,701.00	3.21145	73	50 - 150	0.0081	+/-0.50	
M8PFOA	447933	3.485883	615,023.00	3.485883	73	50 - 150	0.0000	+/-0.50	
M8PFOS	56912.75	3.668117	80,318.00	3.668117	71	50 - 150	0.0000	+/-0.50	
M9PFNA	287257.2	3.66915	485,671.00	3.66915	59	50 - 150	0.0000	+/-0.50	
MPFDoA	304586.1	4.096633	427,448.00	4.096633	71	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	65606.86	3.969483	101,283.00	3.969483	65	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	71638.7	3.889733	100,758.00	3.889733	71	50 - 150	0.0000	+/-0.50	
PC-16D (23D0977-11RE1) Lab File ID: 23D0977-11RE1.d Analyzed: 05/02/23 09:23									
M3PFHxS	71564.84	3.242583	61,466.00	3.242583	116	50 - 150	0.0000	+/-0.50	
M8PFOS	66388.7	3.660133	60,383.00	3.668117	110	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-30 (23D0977-12) Lab File ID: 23D0977-12.d Analyzed: 04/27/23 16:46									
M8FOSA	143972.6	4.052516	229,751.00	4.052516	63	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	37318.14	2.562517	63,052.00	2.5543	59	50 - 150	0.0082	+/-0.50	
M2PFTA	362172.3	4.329667	625,482.00	4.329667	58	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	94680.85	3.818733	36,800.00	3.818733	257	50 - 150	0.0000	+/-0.50	*
MPFBA	304058.9	1.100017	413,982.00	1.100017	73	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	103226.8	2.896583	127,387.00	2.8884	81	50 - 150	0.0082	+/-0.50	
M6PFDA	314730.6	3.81925	434,091.00	3.81925	73	50 - 150	0.0000	+/-0.50	
M3PFBS	100202.7	1.95315	132,489.00	1.95315	76	50 - 150	0.0000	+/-0.50	
M7PFUnA	278708.2	3.962017	435,821.00	3.962017	64	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	25127.03	3.469383	32,472.00	3.469383	77	50 - 150	0.0000	+/-0.50	
M5PFPeA	251960.9	1.7743	326,410.00	1.766017	77	50 - 150	0.0083	+/-0.50	
M5PFHxA	413818.6	2.646767	600,288.00	2.646767	69	50 - 150	0.0000	+/-0.50	
M3PFHxS	72387.17	3.250667	102,169.00	3.250667	71	50 - 150	0.0000	+/-0.50	
M4PFHpA	434068.3	3.219533	635,701.00	3.21145	68	50 - 150	0.0081	+/-0.50	
M8PFOA	405159.7	3.485883	615,023.00	3.485883	66	50 - 150	0.0000	+/-0.50	
M8PFOS	51896.28	3.668117	80,318.00	3.668117	65	50 - 150	0.0000	+/-0.50	
M9PFNA	261222	3.66915	485,671.00	3.66915	54	50 - 150	0.0000	+/-0.50	
MPFDoA	254519.5	4.096633	427,448.00	4.096633	60	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	55622.12	3.969483	101,283.00	3.969483	55	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	64942.3	3.889733	100,758.00	3.889733	64	50 - 150	0.0000	+/-0.50	
PC-30 (23D0977-12RE1) Lab File ID: 23D0977-12RE1.d Analyzed: 05/02/23 09:30									
M8PFOS	68272.98	3.660133	60,383.00	3.668117	113	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-1 (23D0977-13RE1) Lab File ID: 23D0977-13RE1.d Analyzed: 05/10/23 00:28									
M8FOSA	159141.6	4.044533	238,694.00	4.044533	67	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	46837.71	2.496817	61,329.00	2.537883	76	50 - 150	-0.0411	+/-0.50	
M2PFTA	408392.8	4.281133	471,133.00	4.313416	87	50 - 150	-0.0323	+/-0.50	
M2-8:2FTS	54742.42	3.786867	40,150.00	3.8028	136	50 - 150	-0.0159	+/-0.50	
MPFBA	381051.8	1.0834	442,652.00	1.091717	86	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	119572.1	2.8393	119,328.00	2.872033	100	50 - 150	-0.0327	+/-0.50	
M6PFDA	363756	3.787383	393,323.00	3.803317	92	50 - 150	-0.0159	+/-0.50	
M3PFBS	117264.9	1.90325	127,633.00	1.9364	92	50 - 150	-0.0331	+/-0.50	
M7PFUnA	317191.2	3.92205	368,504.00	3.946033	86	50 - 150	-0.0240	+/-0.50	
M2-6:2FTS	51909.93	3.4373	32,535.00	3.461417	160	50 - 150	-0.0241	+/-0.50	*
M5PFPeA	311747	1.7231	345,458.00	1.749417	90	50 - 150	-0.0263	+/-0.50	
M5PFHxA	519518.9	2.58055	570,567.00	2.621617	91	50 - 150	-0.0411	+/-0.50	
M3PFHxS	76887.95	3.218333	89,083.00	3.2345	86	50 - 150	-0.0162	+/-0.50	
M4PFHpA	534819.1	3.186933	587,200.00	3.203083	91	50 - 150	-0.0162	+/-0.50	
M8PFOA	471839.3	3.453817	536,603.00	3.469917	88	50 - 150	-0.0161	+/-0.50	
M8PFOS	53434.71	3.636183	67,719.00	3.65215	79	50 - 150	-0.0160	+/-0.50	
M9PFNA	324146.5	3.637217	375,001.00	3.6532	86	50 - 150	-0.0160	+/-0.50	
MPFDoA	286705.8	4.056667	347,389.00	4.072667	83	50 - 150	-0.0160	+/-0.50	
D5-NEtFOSAA	60679.06	3.929517	86,761.00	3.9535	70	50 - 150	-0.0240	+/-0.50	
D3-NMeFOSAA	86179.88	3.857667	94,164.00	3.88175	92	50 - 150	-0.0241	+/-0.50	
PC-1 (23D0977-13RE3) Lab File ID: 23D0977-13RE3.d Analyzed: 05/11/23 03:26									
M2-6:2FTS	30786.02	3.445283	32,650.00	3.4453	94	50 - 150	0.0000	+/-0.50	
M3PFHxS	81507.83	3.226417	90,122.00	3.226417	90	50 - 150	0.0000	+/-0.50	
M8PFOS	63810.25	3.644183	69,191.00	3.644183	92	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-6A (23D0977-14) Lab File ID: 23D0977-14.d Analyzed: 04/27/23 17:01									
M8FOSA	150938.2	4.052516	229,751.00	4.052516	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	35512.46	2.562517	63,052.00	2.5543	56	50 - 150	0.0082	+/-0.50	
M2PFTA	373302.8	4.329667	625,482.00	4.329667	60	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	89585.09	3.818733	36,800.00	3.818733	243	50 - 150	0.0000	+/-0.50	*
MPFBA	301942.2	1.100017	413,982.00	1.100017	73	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	111119.4	2.896583	127,387.00	2.8884	87	50 - 150	0.0082	+/-0.50	
M6PFDA	319512.9	3.81925	434,091.00	3.81925	74	50 - 150	0.0000	+/-0.50	
M3PFBS	99032.29	1.95315	132,489.00	1.95315	75	50 - 150	0.0000	+/-0.50	
M7PFUnA	283250.9	3.962017	435,821.00	3.962017	65	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	25442.46	3.469383	32,472.00	3.469383	78	50 - 150	0.0000	+/-0.50	
M5PFPeA	248377.4	1.7743	326,410.00	1.766017	76	50 - 150	0.0083	+/-0.50	
M5PFHxA	420707.8	2.646767	600,288.00	2.646767	70	50 - 150	0.0000	+/-0.50	
M3PFHxS	75135.09	3.250667	102,169.00	3.250667	74	50 - 150	0.0000	+/-0.50	
M4PFHpA	429461	3.219533	635,701.00	3.21145	68	50 - 150	0.0081	+/-0.50	
M8PFOA	390196.2	3.485883	615,023.00	3.485883	63	50 - 150	0.0000	+/-0.50	
M8PFOS	55361.75	3.668117	80,318.00	3.668117	69	50 - 150	0.0000	+/-0.50	
M9PFNA	252094.3	3.66915	485,671.00	3.66915	52	50 - 150	0.0000	+/-0.50	
MPFDoA	272053.1	4.096633	427,448.00	4.096633	64	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	59880.7	3.969483	101,283.00	3.969483	59	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	68568.2	3.889733	100,758.00	3.889733	68	50 - 150	0.0000	+/-0.50	
PC-6A (23D0977-14RE1) Lab File ID: 23D0977-14RE1.d Analyzed: 05/02/23 09:59									
M8PFOS	84783.95	3.660133	60,383.00	3.660133	140	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B336788-BLK1) Lab File ID: B336788-BLK1.d Analyzed: 04/27/23 14:22									
M8FOSA	159254.7	4.0525	229,751.00	4.0525	69	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	47720.08	2.570733	63,052.00	2.57895	76	50 - 150	-0.0082	+/-0.50	
M2PFTA	411838	4.329667	625,482.00	4.337783	66	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	98763.36	3.818717	36,800.00	3.82705	268	50 - 150	-0.0083	+/-0.50	*
MPFBA	366883.5	1.100017	413,982.00	1.108317	89	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	112767.9	2.896583	127,387.00	2.904767	89	50 - 150	-0.0082	+/-0.50	
M6PFDA	367958.2	3.819233	434,091.00	3.827533	85	50 - 150	-0.0083	+/-0.50	
M3PFBS	112656.3	1.96145	132,489.00	1.969733	85	50 - 150	-0.0083	+/-0.50	
M7PFUnA	307683.8	3.962	435,821.00	3.97	71	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	27418.98	3.477367	32,472.00	3.477367	84	50 - 150	0.0000	+/-0.50	
M5PFPeA	285928	1.7743	326,410.00	1.7826	88	50 - 150	-0.0083	+/-0.50	
M5PFHxA	495074.3	2.655	600,288.00	2.663233	82	50 - 150	-0.0082	+/-0.50	
M3PFHxS	82893.62	3.25065	102,169.00	3.258733	81	50 - 150	-0.0081	+/-0.50	
M4PFHpA	529505.4	3.219533	635,701.00	3.227617	83	50 - 150	-0.0081	+/-0.50	
M8PFOA	451716.8	3.485883	615,023.00	3.493867	73	50 - 150	-0.0080	+/-0.50	
M8PFOS	64755.05	3.668117	80,318.00	3.6761	81	50 - 150	-0.0080	+/-0.50	
M9PFNA	373779.4	3.66915	485,671.00	3.677133	77	50 - 150	-0.0080	+/-0.50	
MPFDoA	281309.4	4.096633	427,448.00	4.104617	66	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	71716.5	3.969483	101,283.00	3.977467	71	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	75150.3	3.889717	100,758.00	3.8977	75	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B336788-BS1) Lab File ID: B336788-BS1.d Analyzed: 04/27/23 14:14									
M8FOSA	151200.3	4.0525	229,751.00	4.0525	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	46362.85	2.570733	63,052.00	2.57895	74	50 - 150	-0.0082	+/-0.50	
M2PFTA	345679.8	4.329667	625,482.00	4.337783	55	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	82918.51	3.818717	36,800.00	3.82705	225	50 - 150	-0.0083	+/-0.50	*
MPFBA	357218	1.108317	413,982.00	1.108317	86	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	124172.1	2.896583	127,387.00	2.904767	97	50 - 150	-0.0082	+/-0.50	
M6PFDA	347336.3	3.819233	434,091.00	3.827533	80	50 - 150	-0.0083	+/-0.50	
M3PFBS	111879.9	1.96145	132,489.00	1.969733	84	50 - 150	-0.0083	+/-0.50	
M7PFUnA	301370.9	3.962	435,821.00	3.97	69	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	26975.83	3.477367	32,472.00	3.477367	83	50 - 150	0.0000	+/-0.50	
M5PFPeA	281632.3	1.7743	326,410.00	1.7826	86	50 - 150	-0.0083	+/-0.50	
M5PFHxA	482989.8	2.655	600,288.00	2.663233	80	50 - 150	-0.0082	+/-0.50	
M3PFHxS	78700.38	3.25065	102,169.00	3.258733	77	50 - 150	-0.0081	+/-0.50	
M4PFHpA	530554.3	3.219533	635,701.00	3.227617	83	50 - 150	-0.0081	+/-0.50	
M8PFOA	480707.7	3.485883	615,023.00	3.493867	78	50 - 150	-0.0080	+/-0.50	
M8PFOS	65803.85	3.668117	80,318.00	3.6761	82	50 - 150	-0.0080	+/-0.50	
M9PFNA	355230.2	3.66915	485,671.00	3.677133	73	50 - 150	-0.0080	+/-0.50	
MPFDoA	271447.3	4.096633	427,448.00	4.104617	64	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	65525.69	3.969483	101,283.00	3.977467	65	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	64261.33	3.889717	100,758.00	3.8977	64	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B336788-MS1)			Lab File ID: B336788-MS1.d			Analyzed: 04/27/23 14:29			
M8FOSA	105587.4	4.0525	229,751.00	4.0525	46	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	31871.45	2.570733	63,052.00	2.57895	51	50 - 150	-0.0082	+/-0.50	
M2PFTA	318543.4	4.329667	625,482.00	4.337783	51	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	97743.75	3.818717	36,800.00	3.82705	266	50 - 150	-0.0083	+/-0.50	*
MPFBA	237877.5	1.108317	413,982.00	1.108317	57	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	78716.66	2.896583	127,387.00	2.904767	62	50 - 150	-0.0082	+/-0.50	
M6PFDA	305608.6	3.81925	434,091.00	3.827533	70	50 - 150	-0.0083	+/-0.50	
M3PFBS	89576.07	1.96145	132,489.00	1.969733	68	50 - 150	-0.0083	+/-0.50	
M7PFUnA	255709	3.962017	435,821.00	3.97	59	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	24112.77	3.469383	32,472.00	3.477367	74	50 - 150	-0.0080	+/-0.50	
M5PFPeA	224034.1	1.7743	326,410.00	1.7826	69	50 - 150	-0.0083	+/-0.50	
M5PFHxA	382065.3	2.655	600,288.00	2.663233	64	50 - 150	-0.0082	+/-0.50	
M3PFHxS	65355.52	3.25065	102,169.00	3.258733	64	50 - 150	-0.0081	+/-0.50	
M4PFHpA	401067.5	3.219533	635,701.00	3.227617	63	50 - 150	-0.0081	+/-0.50	
M8PFOA	368621	3.485883	615,023.00	3.493867	60	50 - 150	-0.0080	+/-0.50	
M8PFOS	49508.52	3.668117	80,318.00	3.6761	62	50 - 150	-0.0080	+/-0.50	
M9PFNA	279408.2	3.66915	485,671.00	3.677133	58	50 - 150	-0.0080	+/-0.50	
MPFDoA	218936.5	4.096633	427,448.00	4.104617	51	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	50985.38	3.969483	101,283.00	3.977467	50	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	52170.27	3.8977	100,758.00	3.8977	52	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B336788-MSD1) Lab File ID: B336788-MSD1.d Analyzed: 04/27/23 14:36									
M8FOSA	107240.1	4.0525	229,751.00	4.0525	47	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	34864.3	2.570733	63,052.00	2.57895	55	50 - 150	-0.0082	+/-0.50	
M2PFTA	305370.9	4.329667	625,482.00	4.337783	49	50 - 150	-0.0081	+/-0.50	*
M2-8:2FTS	111212.5	3.818717	36,800.00	3.82705	302	50 - 150	-0.0083	+/-0.50	*
MPFBA	265282.1	1.108317	413,982.00	1.108317	64	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	87841.3	2.896583	127,387.00	2.904767	69	50 - 150	-0.0082	+/-0.50	
M6PFDA	324318	3.81925	434,091.00	3.827533	75	50 - 150	-0.0083	+/-0.50	
M3PFBS	98755.8	1.96145	132,489.00	1.969733	75	50 - 150	-0.0083	+/-0.50	
M7PFUnA	277036.8	3.962017	435,821.00	3.97	64	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	25136.8	3.477367	32,472.00	3.477367	77	50 - 150	0.0000	+/-0.50	
M5PFPeA	249708.8	1.7743	326,410.00	1.7826	77	50 - 150	-0.0083	+/-0.50	
M5PFHxA	427576.9	2.655	600,288.00	2.663233	71	50 - 150	-0.0082	+/-0.50	
M3PFHxS	71391.98	3.25065	102,169.00	3.258733	70	50 - 150	-0.0081	+/-0.50	
M4PFHpA	431161.2	3.219533	635,701.00	3.227617	68	50 - 150	-0.0081	+/-0.50	
M8PFOA	400159.3	3.485883	615,023.00	3.493867	65	50 - 150	-0.0080	+/-0.50	
M8PFOS	56686.35	3.668117	80,318.00	3.6761	71	50 - 150	-0.0080	+/-0.50	
M9PFNA	305488.1	3.66915	485,671.00	3.677133	63	50 - 150	-0.0080	+/-0.50	
MPFDoA	247257.5	4.096633	427,448.00	4.104617	58	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	56491.46	3.969483	101,283.00	3.977467	56	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	59627.53	3.8977	100,758.00	3.8977	59	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B338660-BLK1) Lab File ID: B338660-BLK1.d Analyzed: 05/09/23 23:37									
M8FOSA	210729.3	4.04455	238,694.00	4.044533	88	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	63766.36	2.529683	61,329.00	2.537883	104	50 - 150	-0.0082	+/-0.50	
M2PFTA	581946.3	4.305367	471,133.00	4.313416	124	50 - 150	-0.0080	+/-0.50	
M2-8:2FTS	119282.3	3.802817	40,150.00	3.8028	297	50 - 150	0.0000	+/-0.50	*
MPFBA	538233.9	1.0917	442,652.00	1.091717	122	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	155944.7	2.87205	119,328.00	2.872033	131	50 - 150	0.0000	+/-0.50	
M6PFDA	501008.7	3.803333	393,323.00	3.803317	127	50 - 150	0.0000	+/-0.50	
M3PFBS	154948.8	1.9364	127,633.00	1.9364	121	50 - 150	0.0000	+/-0.50	
M7PFUnA	409940	3.93805	368,504.00	3.946033	111	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	37114	3.461433	32,535.00	3.461417	114	50 - 150	0.0000	+/-0.50	
M5PFPeA	440665.6	1.749417	345,458.00	1.749417	128	50 - 150	0.0000	+/-0.50	
M5PFHxA	735855.3	2.621617	570,567.00	2.621617	129	50 - 150	0.0000	+/-0.50	
M3PFHxS	113916.6	3.2345	89,083.00	3.2345	128	50 - 150	0.0000	+/-0.50	
M4PFHpA	737722	3.2031	587,200.00	3.203083	126	50 - 150	0.0000	+/-0.50	
M8PFOA	739671.8	3.469933	536,603.00	3.469917	138	50 - 150	0.0000	+/-0.50	
M8PFOS	85184.84	3.652167	67,719.00	3.65215	126	50 - 150	0.0000	+/-0.50	
M9PFNA	534701.1	3.653217	375,001.00	3.6532	143	50 - 150	0.0000	+/-0.50	
MPFDoA	367040.5	4.072683	347,389.00	4.072667	106	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	94736.98	3.945533	86,761.00	3.9535	109	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	131711.9	3.873783	94,164.00	3.88175	140	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B338660-BS1)		Lab File ID: B338660-BS1.d				Analyzed: 05/09/23 23:30			
M8FOSA	219420.4	4.04455	238,694.00	4.044533	92	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	61589.61	2.537883	61,329.00	2.537883	100	50 - 150	0.0000	+/-0.50	
M2PFTA	599966.2	4.305367	471,133.00	4.313416	127	50 - 150	-0.0080	+/-0.50	
M2-8:2FTS	83156.71	3.802817	40,150.00	3.8028	207	50 - 150	0.0000	+/-0.50	*
MPFBA	532301.6	1.0917	442,652.00	1.091717	120	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	135786.5	2.87205	119,328.00	2.872033	114	50 - 150	0.0000	+/-0.50	
M6PFDA	487554.9	3.803333	393,323.00	3.803317	124	50 - 150	0.0000	+/-0.50	
M3PFBS	150661.8	1.9364	127,633.00	1.9364	118	50 - 150	0.0000	+/-0.50	
M7PFUnA	431562.1	3.94605	368,504.00	3.946033	117	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	37553.59	3.461433	32,535.00	3.461417	115	50 - 150	0.0000	+/-0.50	
M5PFPeA	437296.4	1.749417	345,458.00	1.749417	127	50 - 150	0.0000	+/-0.50	
M5PFHxA	735579.7	2.621617	570,567.00	2.621617	129	50 - 150	0.0000	+/-0.50	
M3PFHxS	110111	3.234517	89,083.00	3.2345	124	50 - 150	0.0000	+/-0.50	
M4PFHpA	752012.1	3.2031	587,200.00	3.203083	128	50 - 150	0.0000	+/-0.50	
M8PFOA	736639.7	3.469933	536,603.00	3.469917	137	50 - 150	0.0000	+/-0.50	
M8PFOS	82989.96	3.652167	67,719.00	3.65215	123	50 - 150	0.0000	+/-0.50	
M9PFNA	529863.1	3.653217	375,001.00	3.6532	141	50 - 150	0.0000	+/-0.50	
MPFDoA	357940	4.072683	347,389.00	4.072667	103	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	98956.26	3.953517	86,761.00	3.9535	114	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	120884.4	3.873783	94,164.00	3.88175	128	50 - 150	-0.0080	+/-0.50	

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Major)	NH-P
9Cl-PF3ONS (F53B Minor)	NH-P
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P
Perfluorodecanoic acid (PFDA)	NH-P
Perfluorododecanoic acid (PFDoA)	NH-P
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA (NEtFOSAA)	NH-P
N-MeFOSAA (NMeFOSAA)	NH-P
Perfluorotetradecanoic acid (PFTA)	NH-P
Perfluorotridecanoic acid (PFTrDA)	NH-P
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P
Perfluorodecanesulfonic acid (PFDS)	NH-P
Perfluorooctanesulfonamide (FOSA)	NH-P
Perfluorononanesulfonic acid (PFNS)	NH-P
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P
Perfluoro-1-butanedisulfonamide (FBSA)	NH-P
Perfluorohexanesulfonic acid (PFHxS)	NH-P
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P
Perfluoropentanesulfonic acid (PFPeS)	NH-P
Perfluoroundecanoic acid (PFUnA)	NH-P
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P
Perfluoroheptanoic acid (PFHpA)	NH-P
Perfluorooctanoic acid (PFOA)	NH-P
Perfluorooctanesulfonic acid (PFOS)	NH-P
Perfluorononanoic acid (PFNA)	NH-P

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023

2300977



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

Company Name: Barnstable County
Address: 3195 Main St. PO Box 427

Phone: BFTA

Project Location: Barnstable, MA

Project Number: 6206

Project Manager: Roger Thibault

Con-Test Quote Name/Number:

Invoice Recipient: Priscilla Ellis - pellis@barnstablecounty.org

Sampled By: Chris Olen

39 Spruce Street
East Longmeadow, MA 01028

CHAIN OF CUSTODY RECORD

http://www.contestlabs.com

Doc # 381 Rev 2_06262019

Page 1 of 2

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	Preservation Code	Conc Code	Conc Code
1	PC-39	4.4.23 10:30	4.4.23 10:30	GRAB	GW	H								
2	PFW-1	4.4.23 13:30	4.4.23 13:30	GRAB	GW	H								
3	PFW-5	4.4.23 12:30	4.4.23 12:30	GRAB	GW	H								
4	PC-28	4.4.23 9:00	4.4.23 9:00	GRAB	GW	H								
5	OW-8A	4.4.23 13:00	4.4.23 13:00	GRAB	GW	M-H								
6	PFW-2	4.4.23 1:50pm	4.4.23 1:50pm	GRAB	GW	H								
7	EB-4.4.23	4.4.23 14:00	4.4.23 14:00	GRAB	GW	L								
8	EB-4.5.23	4.5.23 14:00	4.5.23 14:00	GRAB	GW	L								
9	MW-12S	4.5.23 12:50	4.5.23 12:50	GRAB	GW	H								
10	PC-39 MS/MSD	4.4.23 10:30	4.4.23 10:30	GRAB	GW	H								

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

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)

Special Requirements:
MA RCP Required ☒
MA RCP Certification Form Required ☐
CT RCP Required ☐
RCP Certification Form Required ☐
MA State DW Required ☐
PWSD #

Project Entity:
Government ☐
Federal ☐
City ☐
Municipality ☐
21 J ☐
Brownfield ☐
MWRA ☐
School ☐
MBTA ☐
WRTA ☐
Other ☐
☐ Chromatogram
☐ AIHA-LAP, LLC

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

Client Comments:

Sample confirmation and report to Rthibault@BETA-Inc.com & Lboulley@BETA-Inc.com. MS/MSD provided to laboratory at their request.

Received by: (signature) *Paul Chute*
Date/Time: 4-7-23 14:30

Relinquished by: (signature) *Paul Chute*
Date/Time: 4-7-23 16:45

Received by: (signature) *Paul Chute*
Date/Time: 4-7-23 16:45

Relinquished by: (signature) *Paul Chute*
Date/Time: 4-7-23 18:15

Received by: (signature) *Paul Chute*
Date/Time: 4-7-23 18:15

Relinquished by: (signature) *Paul Chute*
Date/Time: 4-7-23 18:15

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Relinquished by: (signature) *Paul Chute*
Date/Time: 4-7-23 18:15

KAF

23D0977



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

Barnstable County
3195 Main St. PO Box 427

BFTA
Barnstable, MA
6206
Roger Thibault

Con-Test Quote Name/Number:
Invoice Recipient: Pricilla Ellis - pellis@barnstablecounty.org
Sampled By: Chris Olen

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

Page 2 of 2

ANALYSIS REQUESTED

7 Day ☐ 10 Day ☐
9FAS 15-Day (std) ☒ Due Date:
Push-Approval Required: ☐
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐
Lab to Filter
Lab to Filter
Format: PDF ☒ EXCEL ☒
Other: ☐
CLP Like Data Pkg Required: ☐
Email To: ☐
Fax To #: ☐

2 Preservation Code
Container Use Only
Total Number Of:
VIALS
GLASS
PLASTIC 10
BACTERIA
ENCORE
Glassware in the fridge? ☒ Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N
*Context is not responsible for missing samples from prepacked coolers

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	PFA's
10	MW-22	4.5.23 12:55	4.5.23 12:55	GRAB	GW	H			2			X
11	PC-160	4.5.23 8:30	4.5.23 8:30	GRAB	GW	H			2			X
12	PC-30	4.5.23 7:30	4.5.23 7:30	GRAB	GW	H			2			X
13	PC-1	4.5.23 10:30	4.5.23 10:30	GRAB	GW	H			2			X
14	PC-6A	4.5.23 9:30	4.5.23 9:30	GRAB	GW	H			2			X
				GRAB	GW	H			2			X
				GRAB	GW	C			2			X
				GRAB	GW	C			2			X

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)

Client Comments:
Sample confirmation and report to Rthibault@BETA-Inc.com & Lbouley@BETA-Inc.com
*** See attached sheet for historic laboratory results***
Special Requirements:
MA MA P Required ☒
NY P Certification Form Required ☐
CT RCP Required ☐
RCP Certification Form Required ☐
See State Gov Required ☐
PWS-ID #

Relinquished by: (signature) Date/Time: 4-6-23 8:00
Received by: (signature) Date/Time: 4-7-23 14:30
Relinquished by: (signature) Date/Time: 4-7-23 16:45
Received by: (signature) Date/Time: 4-7-23 16:45
Relinquished by: (signature) Date/Time: 4-7-23 16:45
Received by: (signature) Date/Time: 4-7-23 18:11
Relinquished by: (signature) Date/Time:
Received by: (signature) Date/Time:

Project Entity: Government ☐ Federal ☐ City ☐
Municipality: 21 J ☐ Brownfield ☐
MWRA ☐ School ☐ MBTA ☐
WRTA ☐
Other: ☐ Chromatogram ☐ AIHA-LAP, LLC ☐
NEAC and AIHA-LAP, LLC Accredited
Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. The Chain of Custody is a legal document that must be complete and accurate and is used to determine what analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Con-Test values your partnership on each project and will try to assist with missing information, but will not be held accountable.

Historic Laboratory Results for Quarterly Sampling April 2023
please note- these results are historic results provided by Pace or another accredited laboratory, these results are for informational purposes only and do not reflect actual results of what may be in April 2023 sample

Historic Laboratory Results for Quarterly Sampling April 2023
please note- these results are historic results provided by Pace or another accredited laboratory, these results are for informational purposes only and do not reflect actual results of what may be in April 2023 sample

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.pacelabs.com

ENV-FRM-ELON-0009V02 Sample Receiving Checklist 1-12-2023

Log In Back-Sheet

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



Client Barnstable County
Project DETA
MCP/RCP Required MA MCP
Deliverable Package Req. GW-1
Location Barnstable, MA
PWSID# (When Applicable) _____
Arrival Method:
Courier ☒ Fed Ex ☐ Walk In ☐ Other ☐
Received By / Date / Time MM 4-7-23 18:15
Back-Sheet By / Date / Time CH 4-10-23 12:16
Temperature Method GIN # 3
Temp ☒ < 6° C Actual Temperature 2.6
Rush Samples: Yes / No Notify
Short Hold: Yes / No Notify

Notes regarding Samples/COC outside of SOP:

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☒	☒
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☒	IDs ☒	Collection Date/Time ☒
All Samples Proper pH: <u>N/A</u> ☐ ☐		

Container (Circle when applicable)	UnP	HCl	HNO3	H2SO4	NaOH	Trizma	Na2S2O3	Other Preservative
1L Amber Plastic								
500 mL Amber Plastic								
250 mL Amber Plastic	30							
Other Amber Clear Plastic								
16oz Amber Clear								
8oz Amber Clear								
4oz Amber Clear								
2oz Amber Clear								
Col/Bacteria								
Flashpoint								
Plastic Bag								
SOC Kit								
Perchlorate								
Encore								
Frozen								
Proper Headspace	UnP	HCl	MeOH	Bisulfate	DI	Thiosulfate	Sulfuric	Other
Vials								

August 14, 2023

Laura Bouley
Barnstable County Regional Government of Cape Cod
3195 Main St, PO Box 427
Barnstable, MA 02630

Project Location: BARNSTABLE, MA
Client Job Number:
Project Number: 6206
Laboratory Work Order Number: 23G4062

Enclosed are results of analyses for samples as received by the laboratory on July 28, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kaitlyn A. Feliciano
Project Manager

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Barnstable County Regional Government of Cape C
3195 Main St, PO Box 427
Barnstable, MA 02630
ATTN: Laura Bouley

REPORT DATE: 8/14/2023

PURCHASE ORDER NUMBER: 23000936

PROJECT NUMBER: 6206

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23G4062

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

PROJECT LOCATION: BARNSTABLE, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PC-16D	23G4062-01	Ground Water		SOP-454 PFAS	
MW-401S	23G4062-02	Ground Water		SOP-454 PFAS	
MW-401D	23G4062-03	Ground Water		SOP-454 PFAS	
MW-403S	23G4062-04	Ground Water		SOP-454 PFAS	
MW-403D	23G4062-05	Ground Water		SOP-454 PFAS	
MW-402S	23G4062-06	Ground Water		SOP-454 PFAS	
MW-402D	23G4062-07	Ground Water		SOP-454 PFAS	
PC-39	23G4062-08	Ground Water		SOP-454 PFAS	
PC-39D	23G4062-09	Ground Water		SOP-454 PFAS	
EB-7/25	23G4062-10	Ground Water		SOP-454 PFAS	
PFW-5	23G4062-11	Ground Water		SOP-454 PFAS	
OW-8A	23G4062-12	Ground Water		SOP-454 PFAS	
PFW-1	23G4062-13	Ground Water		SOP-454 PFAS	
PFW-2	23G4062-14	Ground Water		SOP-454 PFAS	
MW-12S	23G4062-15	Ground Water		SOP-454 PFAS	
MW-22	23G4062-16	Ground Water		SOP-454 PFAS	
PC-28	23G4062-17	Ground Water		SOP-454 PFAS	
PC-1	23G4062-18	Ground Water		SOP-454 PFAS	
PC-30	23G4062-19	Ground Water		SOP-454 PFAS	
PC-6A	23G4062-20	Ground Water		SOP-454 PFAS	
DUP - PFW-1	23G4062-21	Ground Water		SOP-454 PFAS	
EB-7.26.23	23G4062-22	Ground Water		SOP-454 PFAS	

CASE NARRATIVE SUMMARY

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

SOP-454 PFAS

Qualifications:

B

Analyte is found in the associated laboratory blank as well as in the sample.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonic acid (6:2FTS A)

B347867-BLK1, B347867-BS1

B-05

Data is not affected by elevated level in laboratory blank since sample(s) result is "Not Detected".

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonic acid (6:2FTS A)

23G4062-10[EB-7/25]

D-01

Sample extracted/prepared at a dilution due to sample matrix.

Analyte & Samples(s) Qualified:

23G4062-01RE2[PC-16D], 23G4062-06[MW-402S], 23G4062-19RE2[PC-30]

E

Reported result is estimated. Value reported over verified calibration range.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonic acid (6:2FTS A)

B347705-MS1, B347705-MSD1

8:2 Fluorotelomersulfonic acid (8:2FTS A)

B347705-MS1, B347705-MSD1

Perfluoro-1-butanesulfonamide (FBSA)

B347705-MS1, B347705-MSD1

Perfluoro-1-hexanesulfonamide (FHxSA)

B347705-MS1, B347705-MSD1

Perfluorohexanoic acid (PFHxA)

B347705-MS1, B347705-MSD1

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:

Perfluorononanesulfonic acid (PFNS)

B347867-BS1

Perfluorotetradecanoic acid (PFTA)

B347867-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:

6:2 Fluorotelomersulfonic acid (6:2FTS A)

B347867-BS1

Perfluorobutanesulfonic acid (PFBS)

B347867-BS1

Perfluorobutanoic acid (PFBA)

B347867-BS1

Perfluoroheptanoic acid (PFHpA)

B347867-BS1

Perfluorohexanesulfonic acid (PFHxS)

B347867-BS1

Perfluorononanoic acid (PFNA)

B347867-BS1

Perfluoropentanesulfonic acid (PFPeS)

B347867-BS1

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:**Perfluoro-4-oxapentanoic acid (PFMPA)**

23G4062-14[PFW-2], B347705-MS1, B347705-MSD1

Perfluorononanesulfonic acid (PFNS)

23G4062-14[PFW-2], B347705-MS1, B347705-MSD1

MS-19

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

Analyte & Samples(s) Qualified:**Perfluoro-1-butanefulfonamide (FBSA)**

B347705-MS1, B347705-MSD1

Perfluoro-1-hexanesulfonamide (FHxSA)

B347705-MS1, B347705-MSD1

Perfluorobutanoic acid (PFBA)

23G4062-14[PFW-2], B347705-MSD1

Perfluorodecanoic acid (PFDA)

23G4062-14[PFW-2], B347705-MS1

Perfluoroheptanesulfonic acid (PFHpS)

23G4062-14[PFW-2], B347705-MS1

Perfluoroheptanoic acid (PFHpA)

B347705-MSD1

Perfluorohexanesulfonic acid (PFHxS)

B347705-MS1, B347705-MSD1

Perfluorohexanoic acid (PFHxA)

B347705-MS1, B347705-MSD1

Perfluorononanoic acid (PFNA)

B347705-MSD1

Perfluorooctanesulfonic acid (PFOS)

B347705-MS1, B347705-MSD1

Perfluorooctanoic acid (PFOA)

B347705-MSD1

Perfluoropentanesulfonic acid (PFPeS)

23G4062-14[PFW-2], B347705-MSD1

Perfluoropentanoic acid (PFPeA)

B347705-MS1, B347705-MSD1

Perfluoroundecanoic acid (PFUnA)

23G4062-14[PFW-2], B347705-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:**4:2 Fluorotelomersulfonic acid (4:2FTS A)**

23G4062-14[PFW-2], B347705-MS1

Perfluorobutanesulfonic acid (PFBS)

23G4062-14[PFW-2], B347705-MSD1

Perfluorooctanesulfonamide (FOSA)

23G4062-14[PFW-2], B347705-MS1

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:**M2-4:2FTS**

23G4062-04[MW-403S], 23G4062-12[OW-8A], 23G4062-15[MW-12S], 23G4062-20[PC-6A]

M2-6:2FTS

23G4062-05[MW-403D], 23G4062-12[OW-8A]

M2-8:2FTS

23G4062-07[MW-402D], 23G4062-09[PC-39D], 23G4062-10[EB-7/25], 23G4062-12[OW-8A], 23G4062-22RE1[EB-7.26.23]

PF-18

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:

M2-4:2FTS

23G4062-14[PFW-2], B347705-MS1, B347705-MSD1

M2-6:2FTS

23G4062-19RE2[PC-30], B347705-MS1, B347705-MSD1

M2-8:2FTS

23G4062-01RE2[PC-16D], 23G4062-19RE2[PC-30], B347705-MS1, B347705-MSD1

M2PFTA

23G4062-12[OW-8A]

M8FOSA

23G4062-12[OW-8A]

MPFBA

23G4062-14[PFW-2], 23G4062-19RE2[PC-30], B347705-MS1, B347705-MSD1

MPFDoA

23G4062-12[OW-8A]

PF-19

Sample re-analyzed at a dilution that was re-fortified with internal standard.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonic acid (6:2FTS A)

23G4062-04RE1[MW-403S], 23G4062-13RE1[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-21RE1[DUP - PFW-1]

8:2 Fluorotelomersulfonic acid (8:2FTS A)

23G4062-13RE1[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-21RE1[DUP - PFW-1]

Perfluoro-1-butanesulfonamide (FBSA)

23G4062-13RE1[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-21RE1[DUP - PFW-1]

Perfluoro-1-hexanesulfonamide (FHxSA)

23G4062-11RE1[PFW-5], 23G4062-13RE1[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-21RE1[DUP - PFW-1]

Perfluorobutanoic acid (PFBA)

23G4062-13RE1[PFW-1]

Perfluoroheptanesulfonic acid (PFHpS)

23G4062-13RE1[PFW-1], 23G4062-21RE1[DUP - PFW-1]

Perfluoroheptanoic acid (PFHpA)

23G4062-13RE1[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-21RE1[DUP - PFW-1]

Perfluorohexanesulfonic acid (PFHxS)

23G4062-11RE1[PFW-5], 23G4062-13RE1[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-15RE1[MW-12S], 23G4062-18RE1[PC-1], 23G4062-21RE1[DUP - PFW-1]

Perfluorohexanoic acid (PFHxA)

23G4062-13RE1[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-15RE1[MW-12S], 23G4062-21RE1[DUP - PFW-1]

Perfluorononanoic acid (PFNA)

23G4062-13RE1[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-21RE1[DUP - PFW-1]

Perfluorooctanesulfonamide (FOSA)

23G4062-15RE1[MW-12S]

Perfluorooctanesulfonic acid (PFOS)

23G4062-11RE1[PFW-5], 23G4062-13RE2[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-15RE1[MW-12S], 23G4062-17RE1[PC-28], 23G4062-18RE1[PC-1], 23G4062-19RE3[PC-30], 23G4062-21RE2[DUP - PFW-1]

Perfluorooctanoic acid (PFOA)

23G4062-13RE1[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-15RE1[MW-12S], 23G4062-21RE1[DUP - PFW-1]

Perfluoropentanesulfonic acid (PFPeS)

23G4062-13RE1[PFW-1], 23G4062-21RE1[DUP - PFW-1]

Perfluoropentanoic acid (PFPeA)

23G4062-13RE1[PFW-1], 23G4062-14RE1[PFW-2], 23G4062-15RE1[MW-12S], 23G4062-18RE1[PC-1], 23G4062-21RE1[DUP - PFW-1]

PF-20

Quantifying ion signal to noise ratio is <10. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)

23G4062-15[MW-12S]

Perfluoropentanoic acid (PFPeA)

23G4062-15RE1[MW-12S]

PF-23

Qualifier ion ratio <50% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:**N-MeFOSAA (NMeFOSAA)**

23G4062-15[MW-12S]

Perfluorodecanesulfonic acid (PFDS)

23G4062-13[PFW-1], 23G4062-14[PFW-2], 23G4062-18[PC-1], 23G4062-20[PC-6A], 23G4062-21[DUP - PFW-1]

Perfluorononanesulfonic acid (PFNS)

23G4062-14[PFW-2]

R-05

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

Analyte & Samples(s) Qualified:**Perfluorotridecanoic acid (PFTrDA)**

B348570-BSD1

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:**D3-NMeFOSAA**

23G4062-08[PC-39]

D5-NEtFOSAA

23G4062-08[PC-39]

M2-6:2FTS

23G4062-15[MW-12S], 23G4062-18[PC-1], 23G4062-20[PC-6A]

M2-8:2FTS

23G4062-11[PFW-5], 23G4062-15[MW-12S], 23G4062-17[PC-28], 23G4062-18[PC-1], 23G4062-20[PC-6A], S091896-CCV3

M2PFTA

23G4062-08[PC-39], 23G4062-14[PFW-2]

M7PFUnA

23G4062-08[PC-39]

M8FOSA

23G4062-08[PC-39]

M8PFOS

23G4062-13[PFW-1], 23G4062-21[DUP - PFW-1]

M9PFNA

23G4062-21[DUP - PFW-1], B347705-MS1

MPFBA

23G4062-15[MW-12S], 23G4062-18[PC-1], 23G4062-20[PC-6A]

MPFDoA

23G4062-08[PC-39]

N-MeFOSAA (NMeFOSAA)

B347867-BS1

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:**9Cl-PF3ONS (F53B Minor)**

S091896-CCV5

Perfluorononanesulfonic acid (PFNS)

S091896-CCV5

The results of analyses reported only relate to samples submitted to Con-Test, a Pace 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

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: PC-16D

Sampled: 7/26/2023 11:00

Sample ID: 23G4062-01

Sample Matrix: Ground Water

Sample Flags: D-01

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	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluoropentanoic acid (PFPeA)	53	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorohexanoic acid (PFHxA)	55	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
11Cl-PF3OUdS (F53B Major)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
9Cl-PF3ONS (F53B Minor)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorodecanoic acid (PFDA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorododecanoic acid (PFDoA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
N-EtFOSAA (NEtFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
N-MeFOSAA (NMeFOSAA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorotetradecanoic acid (PFTA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorooctanesulfonamide (FOSA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorononanesulfonic acid (PFNS)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	19	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorohexanesulfonic acid (PFHxS)	88	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	32	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluoroundecanoic acid (PFUnA)	13	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Nonafuoro-3,6-dioxaheptanoic acid (NFDHA)	ND	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluoroheptanoic acid (PFHpA)	28	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorooctanoic acid (PFOA)	20	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorooctanesulfonic acid (PFOS)	410	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW
Perfluorononanoic acid (PFNA)	25	10	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 11:23	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: MW-401S

Sampled: 7/26/2023 14:30

Sample ID: 23G4062-02

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)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:39	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: MW-401D

Sampled: 7/26/2023 13:30

Sample ID: 23G4062-03

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)	4.3	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluoropentanoic acid (PFPeA)	6.5	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorohexanoic acid (PFHxA)	6.6	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorohexanesulfonic acid (PFHxS)	22	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluoroheptanoic acid (PFHpA)	4.4	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorooctanoic acid (PFOA)	7.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorooctanesulfonic acid (PFOS)	9.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW
Perfluorononanoic acid (PFNA)	3.3	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:47	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: MW-403S

Sampled: 7/26/2023 12:00

Sample ID: 23G4062-04

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)	55	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluoropentanoic acid (PFPeA)	140	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorohexanoic acid (PFHxA)	85	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorohexanesulfonic acid (PFHxS)	14	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	190	37	ng/L	20	PF-19	SOP-454 PFAS	8/3/23	8/9/23 13:50	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluoroheptanoic acid (PFHpA)	57	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorooctanoic acid (PFOA)	49	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorooctanesulfonic acid (PFOS)	9.4	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW
Perfluorononanoic acid (PFNA)	12	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 18:54	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Sampled: 7/26/2023 10:55

Field Sample #: MW-403D

Sample ID: 23G4062-05

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)	7.0	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorobutanesulfonic acid (PFBS)	3.0	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluoropentanoic acid (PFPeA)	5.6	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorohexanoic acid (PFHxA)	8.5	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorohexanesulfonic acid (PFHxS)	13	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluoroheptanoic acid (PFHpA)	3.9	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorooctanoic acid (PFOA)	8.6	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorooctanesulfonic acid (PFOS)	20	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:01	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: MW-402S

Sampled: 7/26/2023 15:00

Sample ID: 23G4062-06

Sample Matrix: Ground Water

Sample Flags: D-01

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	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluoropentanoic acid (PFPeA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorohexanoic acid (PFHxA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorodecanoic acid (PFDA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluoroundecanoic acid (PFUnA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluoroheptanoic acid (PFHpA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorooctanoic acid (PFOA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW
Perfluorononanoic acid (PFNA)	ND	4.1	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:08	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: MW-402D

Sampled: 7/26/2023 13:30

Sample ID: 23G4062-07

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)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorohexanesulfonic acid (PFHxS)	3.9	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:16	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Sampled: 7/26/2023 11:45

Field Sample #: PC-39

Sample ID: 23G4062-08

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)	2.2	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluoropentanoic acid (PFPeA)	4.4	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorohexanoic acid (PFHxA)	3.2	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorohexanesulfonic acid (PFHxS)	5.7	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6.3	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluoroundecanoic acid (PFUnA)	4.6	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluoroheptanoic acid (PFHpA)	2.4	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorooctanesulfonic acid (PFOS)	54	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW
Perfluorononanoic acid (PFNA)	2.4	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:23	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: PC-39D

Sampled: 7/26/2023 11:00

Sample ID: 23G4062-09

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	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluoropentanoic acid (PFPeA)	2.4	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorohexanoic acid (PFHxA)	2.9	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorohexanesulfonic acid (PFHxS)	6.5	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	3.2	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluoroheptanoic acid (PFHpA)	2.1	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorooctanesulfonic acid (PFOS)	29	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW
Perfluorononanoic acid (PFNA)	2.8	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:30	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: EB-7/25

Sampled: 7/25/2023 14:00

Sample ID: 23G4062-10

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	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1	B-05	SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/4/23	8/7/23 12:00	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: PFW-5

Sampled: 7/25/2023 10:15

Sample ID: 23G4062-11

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)	18	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorobutanesulfonic acid (PFBS)	38	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluoropentanoic acid (PFPeA)	47	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorohexanoic acid (PFHxA)	130	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	62	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorodecanoic acid (PFDA)	7.7	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluoroheptanesulfonic acid (PFHpS)	110	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorodecanesulfonic acid (PFDS)	2.9	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorooctanesulfonamide (FOSA)	62	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorononanesulfonic acid (PFNS)	8.2	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	350	91	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 13:58	QNW
Perfluoro-1-butanesulfonamide (FBSA)	47	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorohexanesulfonic acid (PFHxS)	860	91	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 13:58	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	3.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluoropentanesulfonic acid (PFPeS)	76	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluoroundecanoic acid (PFUnA)	18	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluoroheptanoic acid (PFHpA)	34	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorooctanoic acid (PFOA)	99	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW
Perfluorooctanesulfonic acid (PFOS)	2200	91	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 13:58	QNW
Perfluorononanoic acid (PFNA)	24	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 19:38	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Sampled: 7/25/2023 11:20

Field Sample #: OW-8A

Sample ID: 23G4062-12

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	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorobutanesulfonic acid (PFBS)	3.4	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluoropentanoic acid (PFPeA)	22	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorohexanoic acid (PFHxA)	20	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	1.9	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorodecanoic acid (PFDA)	2.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorooctanesulfonamide (FOSA)	30	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	10	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluoro-1-butanessulfonamide (FBSA)	3.3	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorohexanesulfonic acid (PFHxS)	42	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluoropentanesulfonic acid (PFPeS)	3.0	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluoroundecanoic acid (PFUnA)	15	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluoroheptanoic acid (PFHpA)	9.9	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorooctanoic acid (PFOA)	11	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorooctanesulfonic acid (PFOS)	130	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW
Perfluorononanoic acid (PFNA)	2.5	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:00	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: PFW-1

Sampled: 7/25/2023 12:20

Sample ID: 23G4062-13

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)	150	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
Perfluorobutanesulfonic acid (PFBS)	81	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluoropentanoic acid (PFPeA)	620	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
Perfluorohexanoic acid (PFHxA)	870	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2200	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
Perfluorodecanoic acid (PFDA)	92	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluoroheptanesulfonic acid (PFHpS)	290	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	5.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluorodecanesulfonic acid (PFDS)	19	1.8	ng/L	1	PF-23	SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluorooctanesulfonamide (FOSA)	17	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluorononanesulfonic acid (PFNS)	170	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	2500	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
Perfluoro-1-butanesulfonamide (FBSA)	310	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
Perfluorohexanesulfonic acid (PFHxS)	2500	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	4700	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
Perfluoropentanesulfonic acid (PFPeS)	110	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
Perfluoroundecanoic acid (PFUnA)	160	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:07	QNW
Perfluoroheptanoic acid (PFHpA)	390	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
Perfluorooctanoic acid (PFOA)	730	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW
Perfluorooctanesulfonic acid (PFOS)	15000	180	ng/L	100	PF-19	SOP-454 PFAS	8/3/23	8/9/23 17:04	QNW
Perfluorononanoic acid (PFNA)	290	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:05	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: PFW-2

Sampled: 7/25/2023 13:40

Sample ID: 23G4062-14

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)	170	1.8	ng/L	1	MS-19	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluorobutanesulfonic acid (PFBS)	53	1.8	ng/L	1	MS-22	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluoropentanoic acid (PFPeA)	460	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW
Perfluorohexanoic acid (PFHxA)	410	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	780	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW
Perfluorodecanoic acid (PFDA)	42	1.8	ng/L	1	MS-19	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluorododecanoic acid (PFDoA)	8.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluoroheptanesulfonic acid (PFHpS)	38	1.8	ng/L	1	MS-19	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluorotridecanoic acid (PFTTrDA)	4.3	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	15	1.8	ng/L	1	MS-22	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluorodecanesulfonic acid (PFDS)	19	1.8	ng/L	1	PF-23	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluorooctanesulfonamide (FOSA)	11	1.8	ng/L	1	MS-22	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluorononanesulfonic acid (PFNS)	15	1.8	ng/L	1	MS-12, PF-23	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	770	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW
Perfluoro-1-butanesulfonamide (FBSA)	160	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW
Perfluorohexanesulfonic acid (PFHxS)	640	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1	MS-12	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1300	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW
Perfluoropentanesulfonic acid (PFPeS)	74	1.8	ng/L	1	MS-19	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluoroundecanoic acid (PFUnA)	120	1.8	ng/L	1	MS-19	SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:14	QNW
Perfluoroheptanoic acid (PFHpA)	150	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW
Perfluorooctanoic acid (PFOA)	240	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW
Perfluorooctanesulfonic acid (PFOS)	3300	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW
Perfluorononanoic acid (PFNA)	160	92	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:12	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: MW-12S

Sampled: 7/25/2023 11:35

Sample ID: 23G4062-15

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)	67	1.8	ng/L	1	PF-20	SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluorobutanesulfonic acid (PFBS)	61	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluoropentanoic acid (PFPeA)	230	89	ng/L	50	PF-19, PF-20	SOP-454 PFAS	8/3/23	8/9/23 14:19	QNW
Perfluorohexanoic acid (PFHxA)	210	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:19	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluorodecanoic acid (PFDA)	5.8	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluoroheptanesulfonic acid (PFHpS)	27	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
N-MeFOSAA (NMeFOSAA)	4.0	1.8	ng/L	1	PF-23	SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluorodecanesulfonic acid (PFDS)	2.0	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluorooctanesulfonamide (FOSA)	320	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:19	QNW
Perfluorononanesulfonic acid (PFNS)	5.6	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	110	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluoro-1-butanefulfonamide (FBFA)	21	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluorohexanesulfonic acid (PFHxS)	800	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:19	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	33	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluoropentanesulfonic acid (PFPeS)	58	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluoroundecanoic acid (PFUnA)	15	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluoroheptanoic acid (PFHpA)	120	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW
Perfluorooctanoic acid (PFOA)	190	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:19	QNW
Perfluorooctanesulfonic acid (PFOS)	1100	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:19	QNW
Perfluorononanoic acid (PFNA)	27	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:22	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: MW-22

Sampled: 7/25/2023 13:05

Sample ID: 23G4062-16

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	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluoropentanoic acid (PFPeA)	3.0	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorohexanoic acid (PFHxA)	3.7	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluoroheptanesulfonic acid (PFHpS)	2.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorooctanesulfonamide (FOSA)	2.8	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorohexanesulfonic acid (PFHxS)	67	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluoropentanesulfonic acid (PFPeS)	2.6	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluoroheptanoic acid (PFHpA)	2.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorooctanoic acid (PFOA)	15	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorooctanesulfonic acid (PFOS)	130	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW
Perfluorononanoic acid (PFNA)	1.8	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:29	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: PC-28

Sampled: 7/25/2023 14:40

Sample ID: 23G4062-17

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)	10	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorobutanesulfonic acid (PFBS)	3.3	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluoropentanoic acid (PFPeA)	24	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorohexanoic acid (PFHxA)	22	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	3.3	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorodecanoic acid (PFDA)	4.8	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluoroheptanesulfonic acid (PFHpS)	3.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorodecanesulfonic acid (PFDS)	2.7	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorooctanesulfonamide (FOSA)	3.6	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorononanesulfonic acid (PFNS)	2.7	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	3.8	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluoro-1-butanefulfonamide (FBFA)	2.3	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorohexanesulfonic acid (PFHxS)	55	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	15	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluoropentanesulfonic acid (PFPeS)	5.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluoroundecanoic acid (PFUnA)	43	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluoroheptanoic acid (PFHpA)	26	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorooctanoic acid (PFOA)	11	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW
Perfluorooctanesulfonic acid (PFOS)	190	36	ng/L	20	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:27	QNW
Perfluorononanoic acid (PFNA)	17	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:36	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: PC-1

Sampled: 7/25/2023 10:30

Sample ID: 23G4062-18

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)	76	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorobutanesulfonic acid (PFBS)	8.6	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluoropentanoic acid (PFPeA)	160	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:34	QNW
Perfluorohexanoic acid (PFHxA)	140	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	140	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorodecanoic acid (PFDA)	7.5	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluoroheptanesulfonic acid (PFHpS)	5.7	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorodecanesulfonic acid (PFDS)	4.1	1.8	ng/L	1	PF-23	SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorooctanesulfonamide (FOSA)	7.4	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorononanesulfonic acid (PFNS)	3.8	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	80	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluoro-1-butanefulfonamide (FBFA)	14	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorohexanesulfonic acid (PFHxS)	140	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:34	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	97	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluoropentanesulfonic acid (PFPeS)	16	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluoroundecanoic acid (PFUnA)	63	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluoroheptanoic acid (PFHpA)	130	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorooctanoic acid (PFOA)	81	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW
Perfluorooctanesulfonic acid (PFOS)	440	89	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 14:34	QNW
Perfluorononanoic acid (PFNA)	30	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:44	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: PC-30

Sampled: 7/25/2023 13:00

Sample ID: 23G4062-19

Sample Matrix: Ground Water

Sample Flags: D-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	26	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorobutanesulfonic acid (PFBS)	8.6	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluoropentanoic acid (PFPeA)	53	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorohexanoic acid (PFHxA)	60	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
11Cl-PF3OUdS (F53B Major)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
9Cl-PF3ONS (F53B Minor)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.8	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorodecanoic acid (PFDA)	6.9	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorododecanoic acid (PFDoA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluoroheptanesulfonic acid (PFHpS)	6.6	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
N-EtFOSAA (NEtFOSAA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
N-MeFOSAA (NMeFOSAA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorotetradecanoic acid (PFTA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorooctanesulfonamide (FOSA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorononanesulfonic acid (PFNS)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	9.8	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluoro-1-butanefulfonamide (FBFA)	9.7	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorohexanesulfonic acid (PFHxS)	80	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	48	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluoropentanesulfonic acid (PFPeS)	9.0	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluoroundecanoic acid (PFUnA)	25	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluoroheptanoic acid (PFHpA)	41	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorooctanoic acid (PFOA)	26	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW
Perfluorooctanesulfonic acid (PFOS)	390	84	ng/L	20	PF-19	SOP-454 PFAS	8/10/23	8/11/23 15:14	QNW
Perfluorononanoic acid (PFNA)	45	4.2	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:01	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: PC-6A

Sampled: 7/26/2023 12:10

Sample ID: 23G4062-20

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	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorobutanesulfonic acid (PFBS)	3.3	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluoropentanoic acid (PFPeA)	28	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorohexanoic acid (PFHxA)	30	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	5.6	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorodecanoic acid (PFDA)	8.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluoroheptanesulfonic acid (PFHpS)	4.0	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorodecanesulfonic acid (PFDS)	4.2	1.8	ng/L	1	PF-23	SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorooctanesulfonamide (FOSA)	2.7	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorononanesulfonic acid (PFNS)	4.0	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	11	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluoro-1-butanesulfonamide (FBSA)	3.1	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorohexanesulfonic acid (PFHxS)	53	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6.4	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluoropentanesulfonic acid (PFPeS)	4.4	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluoroundecanoic acid (PFUnA)	82	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluoroheptanoic acid (PFHpA)	26	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorooctanoic acid (PFOA)	19	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW
Perfluorooctanesulfonic acid (PFOS)	440	36	ng/L	20		SOP-454 PFAS	8/3/23	8/9/23 14:49	QNW
Perfluorononanoic acid (PFNA)	29	1.8	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 20:58	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Field Sample #: DUP - PFW-1

Sampled: 7/25/2023 12:20

Sample ID: 23G4062-21

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)	180	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluorobutanesulfonic acid (PFBS)	81	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluoropentanoic acid (PFPeA)	650	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
Perfluorohexanoic acid (PFHxA)	940	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2300	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
Perfluorodecanoic acid (PFDA)	89	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluoroheptanesulfonic acid (PFHpS)	270	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	5.2	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluorodecanesulfonic acid (PFDS)	21	1.9	ng/L	1	PF-23	SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluorooctanesulfonamide (FOSA)	17	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluorononanesulfonic acid (PFNS)	180	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	2700	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
Perfluoro-1-butanesulfonamide (FBSA)	340	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
Perfluorohexanesulfonic acid (PFHxS)	2700	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	4700	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
Perfluoropentanesulfonic acid (PFPeS)	140	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
Perfluoroundecanoic acid (PFUnA)	170	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/3/23	8/7/23 21:05	QNW
Perfluoroheptanoic acid (PFHpA)	420	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
Perfluorooctanoic acid (PFOA)	800	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW
Perfluorooctanesulfonic acid (PFOS)	17000	190	ng/L	100	PF-19	SOP-454 PFAS	8/3/23	8/9/23 17:12	QNW
Perfluorononanoic acid (PFNA)	310	96	ng/L	50	PF-19	SOP-454 PFAS	8/3/23	8/9/23 15:11	QNW

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

Project Location: BARNSTABLE, MA

Sample Description:

Work Order: 23G4062

Date Received: 7/28/2023

Sampled: 7/26/2023 13:00

Field Sample #: EB-7.26.23

Sample ID: 23G4062-22

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	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorotridecanoic acid (PFTTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluoro-1-butanefulfonamide (FBFA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	8/10/23	8/11/23 12:09	QNW

Sample Extraction Data**Prep Method:**SOP 454-PFAAS **Analytical Method:**SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23G4062-02 [MW-401S]	B347705	273	1.00	08/03/23
23G4062-03 [MW-401D]	B347705	270	1.00	08/03/23
23G4062-04 [MW-403S]	B347705	271	1.00	08/03/23
23G4062-04RE1 [MW-403S]	B347705	271	1.00	08/03/23
23G4062-05 [MW-403D]	B347705	263	1.00	08/03/23
23G4062-06 [MW-402S]	B347705	122	1.00	08/03/23
23G4062-07 [MW-402D]	B347705	262	1.00	08/03/23
23G4062-08 [PC-39]	B347705	269	1.00	08/03/23
23G4062-09 [PC-39D]	B347705	263	1.00	08/03/23
23G4062-11 [PFW-5]	B347705	275	1.00	08/03/23
23G4062-11RE1 [PFW-5]	B347705	275	1.00	08/03/23
23G4062-12 [OW-8A]	B347705	273	1.00	08/03/23
23G4062-13 [PFW-1]	B347705	282	1.00	08/03/23
23G4062-13RE1 [PFW-1]	B347705	282	1.00	08/03/23
23G4062-13RE2 [PFW-1]	B347705	282	1.00	08/03/23
23G4062-14 [PFW-2]	B347705	272	1.00	08/03/23
23G4062-14RE1 [PFW-2]	B347705	272	1.00	08/03/23
23G4062-15 [MW-12S]	B347705	281	1.00	08/03/23
23G4062-15RE1 [MW-12S]	B347705	281	1.00	08/03/23
23G4062-16 [MW-22]	B347705	272	1.00	08/03/23
23G4062-17 [PC-28]	B347705	277	1.00	08/03/23
23G4062-17RE1 [PC-28]	B347705	277	1.00	08/03/23
23G4062-18 [PC-1]	B347705	282	1.00	08/03/23
23G4062-18RE1 [PC-1]	B347705	282	1.00	08/03/23
23G4062-20 [PC-6A]	B347705	277	1.00	08/03/23
23G4062-20RE1 [PC-6A]	B347705	277	1.00	08/03/23
23G4062-21 [DUP - PFW-1]	B347705	261	1.00	08/03/23
23G4062-21RE1 [DUP - PFW-1]	B347705	261	1.00	08/03/23
23G4062-21RE2 [DUP - PFW-1]	B347705	261	1.00	08/03/23

Prep Method:SOP 454-PFAAS **Analytical Method:**SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23G4062-10 [EB-7/25]	B347867	268	1.00	08/04/23

Prep Method:SOP 454-PFAAS **Analytical Method:**SOP-454 PFAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23G4062-01RE2 [PC-16D]	B348570	48.7	1.00	08/10/23
23G4062-19RE2 [PC-30]	B348570	119	1.00	08/10/23
23G4062-19RE3 [PC-30]	B348570	119	1.00	08/10/23
23G4062-22RE1 [EB-7.26.23]	B348570	257	1.00	08/10/23

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 B347705 - SOP 454-PFAAS
Blank (B347705-BLK1)

Prepared: 08/03/23 Analyzed: 08/07/23

Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.9	ng/L
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L

LCS (B347705-BS1)

Prepared: 08/03/23 Analyzed: 08/07/23

Perfluorobutanoic acid (PFBA)	11.1	2.0	ng/L	9.82	114	73-129
Perfluorobutanesulfonic acid (PFBS)	9.65	2.0	ng/L	8.69	111	72-130
Perfluoropentanoic acid (PFPeA)	10.6	2.0	ng/L	9.82	108	72-129
Perfluorohexanoic acid (PFHxA)	10.9	2.0	ng/L	9.82	111	72-129
11Cl-PF3OUdS (F53B Major)	7.94	2.0	ng/L	9.25	85.9	55.1-141
9Cl-PF3ONS (F53B Minor)	8.13	2.0	ng/L	9.15	88.8	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.91	2.0	ng/L	9.25	96.3	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.79	2.0	ng/L	9.82	89.5	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	10.3	2.0	ng/L	9.43	110	67-138
Perfluorodecanoic acid (PFDA)	10.6	2.0	ng/L	9.82	108	71-129
Perfluorododecanoic acid (PFDoA)	11.9	2.0	ng/L	9.82	121	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	8.40	2.0	ng/L	8.74	96.1	49.4-154

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 B347705 - SOP 454-PFAAS
LCS (B347705-BS1)

Prepared: 08/03/23 Analyzed: 08/07/23

Perfluoroheptanesulfonic acid (PFHpS)	11.7	2.0	ng/L	9.38		125	69-134			
N-EtFOSAA (NEtFOSAA)	10.4	2.0	ng/L	9.82		106	61-135			
N-MeFOSAA (NMeFOSAA)	11.6	2.0	ng/L	9.82		118	65-136			
Perfluorotetradecanoic acid (PFTA)	11.1	2.0	ng/L	9.82		113	71-132			
Perfluorotridecanoic acid (PFTTrDA)	10.8	2.0	ng/L	9.82		110	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	10.4	2.0	ng/L	9.18		114	63-143			
Perfluorodecanesulfonic acid (PFDS)	9.72	2.0	ng/L	9.48		103	53-142			
Perfluorooctanesulfonamide (FOSA)	11.3	2.0	ng/L	9.82		115	67-137			
Perfluorononanesulfonic acid (PFNS)	11.4	2.0	ng/L	9.43		121	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.66	2.0	ng/L	9.82		88.2	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	10.2	2.0	ng/L	9.82		104	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	9.79	2.0	ng/L	8.99		109	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	10.5	2.0	ng/L	9.82		106	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.86	2.0	ng/L	9.82		100	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.87	2.0	ng/L	9.33		106	64-140			
Perfluoropentanesulfonic acid (PFPeS)	10.6	2.0	ng/L	9.23		115	71-127			
Perfluoroundecanoic acid (PFUnA)	11.0	2.0	ng/L	9.82		112	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.88	2.0	ng/L	9.82		90.4	58.5-143			
Perfluoroheptanoic acid (PFHpA)	11.1	2.0	ng/L	9.82		113	72-130			
Perfluorooctanoic acid (PFOA)	11.1	2.0	ng/L	9.82		113	71-133			
Perfluorooctanesulfonic acid (PFOS)	10.4	2.0	ng/L	9.08		114	65-140			
Perfluorononanoic acid (PFNA)	10.8	2.0	ng/L	9.82		110	69-130			

Matrix Spike (B347705-MS1)
Source: 23G4062-14

Prepared: 08/03/23 Analyzed: 08/07/23

Perfluorobutanoic acid (PFBA)	172	1.8	ng/L	8.96	165	80.0	73-129			
Perfluorobutanesulfonic acid (PFBS)	61.5	1.8	ng/L	7.93	52.5	113	72-130			
Perfluoropentanoic acid (PFPeA)	465	1.8	ng/L	8.96	472	-82.4 *	72-129			MS-19
Perfluorohexanoic acid (PFHxA)	427	1.8	ng/L	8.96	429	-26.0 *	72-129			E, MS-19
11Cl-PF3OUdS (F53B Major)	9.94	1.8	ng/L	8.44	ND	118	58.3-140			
9Cl-PF3ONS (F53B Minor)	10.2	1.8	ng/L	8.35	ND	122	61.4-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.51	1.8	ng/L	8.44	ND	101	62.4-128			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.70	1.8	ng/L	8.96	ND	86.0	36.7-171			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	8.60	ND	*	67-138			E
Perfluorodecanoic acid (PFDA)	47.7	1.8	ng/L	8.96	42.3	61.1 *	71-129			MS-19
Perfluorododecanoic acid (PFDoA)	19.7	1.8	ng/L	8.96	8.10	130	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	8.23	1.8	ng/L	7.97	ND	103	54.3-149			
Perfluoroheptanesulfonic acid (PFHpS)	55.5	1.8	ng/L	8.55	37.5	210 *	69-134			MS-19
N-EtFOSAA (NEtFOSAA)	11.6	1.8	ng/L	8.96	ND	130	61-135			
N-MeFOSAA (NMeFOSAA)	12.2	1.8	ng/L	8.96	ND	136	65-136			
Perfluorotetradecanoic acid (PFTA)	11.9	1.8	ng/L	8.96	ND	132	71-132			
Perfluorotridecanoic acid (PFTTrDA)	15.5	1.8	ng/L	8.96	4.35	125	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	27.2	1.8	ng/L	8.37	14.9	147 *	63-143			MS-22
Perfluorodecanesulfonic acid (PFDS)	26.7	1.8	ng/L	8.64	19.0	88.7	53-142			
Perfluorooctanesulfonamide (FOSA)	23.3	1.8	ng/L	8.96	10.9	138 *	67-137			MS-22
Perfluorononanesulfonic acid (PFNS)	27.0	1.8	ng/L	8.60	14.6	145 *	69-127			MS-12
Perfluoro-1-hexanesulfonamide (FHxSA)	771	1.8	ng/L	8.96	725	516 *	64.2-154			E, MS-19
Perfluoro-1-butanefulfonamide (FBSA)	207	1.8	ng/L	8.96	192	162 *	65.9-140			E, MS-19
Perfluorohexanesulfonic acid (PFHxS)	577	1.8	ng/L	8.20	553	295 *	68-131			MS-19

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 B347705 - SOP 454-PFAAS

Matrix Spike (B347705-MS1)		Source: 23G4062-14		Prepared: 08/03/23 Analyzed: 08/07/23						
Perfluoro-4-oxapentanoic acid (PFMPA)	14.4	1.8	ng/L	8.96	ND	161	*	61.9-143		MS-12
Perfluoro-5-oxahexanoic acid (PFMBA)	10.8	1.8	ng/L	8.96	ND	120		61.4-142		
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	8.51	ND		*	64-140		E
Perfluoropentanesulfonic acid (PFPeS)	80.6	1.8	ng/L	8.42	73.7	82.2		71-127		
Perfluoroundecanoic acid (PFUnA)	128	1.8	ng/L	8.96	118	112		69-133		
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.99	1.8	ng/L	8.96	ND	100		62-138		
Perfluoroheptanoic acid (PFHpA)	200	1.8	ng/L	8.96	192	91.3		72-130		
Perfluorooctanoic acid (PFOA)	293	1.8	ng/L	8.96	283	116		71-133		
Perfluorooctanesulfonic acid (PFOS)	1470	1.8	ng/L	8.29	1440	445	*	65-140		MS-19
Perfluorononanoic acid (PFNA)	198	1.8	ng/L	8.96	192	72.2		69-130		

Matrix Spike Dup (B347705-MSD1)	Source: 23G4062-14			Prepared: 08/03/23 Analyzed: 08/07/23							
Perfluorobutanoic acid (PFBA)	160	1.9	ng/L	9.27	165	-55.7	*	73-129	7.43	30	MS-19
Perfluorobutanesulfonic acid (PFBS)	55.9	1.9	ng/L	8.21	52.5	41.4	*	72-130	9.47	30	MS-22
Perfluoropentanoic acid (PFPeA)	435	1.9	ng/L	9.27	472	-405	*	72-129	6.72	30	MS-19
Perfluorohexanoic acid (PFHxA)	396	1.9	ng/L	9.27	429	-356	*	72-129	7.46	30	E, MS-19
11Cl-PF3OUdS (F53B Major)	9.86	1.9	ng/L	8.73	ND	113		58.3-140	0.848	30	
9Cl-PF3ONS (F53B Minor)	9.18	1.9	ng/L	8.64	ND	106		61.4-144	10.2	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.78	1.9	ng/L	8.73	ND	89.1		62.4-128	8.95	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.85	1.9	ng/L	9.27	ND	106		36.7-171	24.5	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	8.90	ND		*	67-138	NC	30	E
Perfluorodecanoic acid (PFDA)	50.1	1.9	ng/L	9.27	42.3	83.9		71-129	4.73	30	
Perfluorododecanoic acid (PFDoA)	19.4	1.9	ng/L	9.27	8.10	122		72-134	1.85	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	7.82	1.9	ng/L	8.25	ND	94.8		54.3-149	5.12	30	
Perfluoroheptanesulfonic acid (PFHpS)	48.8	1.9	ng/L	8.86	37.5	128		69-134	12.8	30	
N-EtFOSAA (NEtFOSAA)	10.8	1.9	ng/L	9.27	ND	117		61-135	7.33	30	
N-MeFOSAA (NMeFOSAA)	12.1	1.9	ng/L	9.27	ND	130		65-136	1.06	30	
Perfluorotetradecanoic acid (PFTA)	10.8	1.9	ng/L	9.27	ND	116		71-132	9.72	30	
Perfluorotridecanoic acid (PFTrDA)	14.9	1.9	ng/L	9.27	4.35	114		65-144	4.18	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	24.8	1.9	ng/L	8.67	14.9	114		63-143	9.38	30	
Perfluorodecanesulfonic acid (PFDS)	24.8	1.9	ng/L	8.95	19.0	65.3		53-142	7.10	30	
Perfluorooctanesulfonamide (FOSA)	21.0	1.9	ng/L	9.27	10.9	109		67-137	10.3	30	
Perfluorononanesulfonic acid (PFNS)	28.0	1.9	ng/L	8.90	14.6	151	*	69-127	3.46	30	MS-12
Perfluoro-1-hexanesulfonamide (FHxSA)	638	1.9	ng/L	9.27	725	-940	*	64.2-154	18.9	30	E, MS-19
Perfluoro-1-butanesulfonamide (FBSA)	188	1.9	ng/L	9.27	192	-46.6	*	65.9-140	9.56	30	E, MS-19
Perfluorohexanesulfonic acid (PFHxS)	527	1.9	ng/L	8.48	553	-314	*	68-131	9.21	30	MS-19
Perfluoro-4-oxapentanoic acid (PFMPA)	14.1	1.9	ng/L	9.27	ND	152	*	61.9-143	2.30	30	MS-12
Perfluoro-5-oxahexanoic acid (PFMBA)	9.88	1.9	ng/L	9.27	ND	107		61.4-142	8.79	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	8.81	ND		*	64-140	NC	30	E
Perfluoropentanesulfonic acid (PFPeS)	78.3	1.9	ng/L	8.72	73.7	52.4	*	71-127	2.97	30	MS-19
Perfluoroundecanoic acid (PFUnA)	117	1.9	ng/L	9.27	118	-16.2	*	69-133	9.41	30	MS-19
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.47	1.9	ng/L	9.27	ND	91.3		62-138	5.99	30	
Perfluoroheptanoic acid (PFHpA)	179	1.9	ng/L	9.27	192	-143	*	72-130	11.3	30	MS-19
Perfluorooctanoic acid (PFOA)	262	1.9	ng/L	9.27	283	-222	*	71-133	11.1	30	MS-19
Perfluorooctanesulfonic acid (PFOS)	1420	1.9	ng/L	8.58	1440	-191	*	65-140	3.67	30	MS-19
Perfluorononanoic acid (PFNA)	182	1.9	ng/L	9.27	192	-106	*	69-130	8.57	30	MS-19

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 B347867 - SOP 454-PFAAS
Blank (B347867-BLK1)

Prepared: 08/04/23 Analyzed: 08/07/23

Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.9	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L							
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L							
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L							
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.7	1.9	ng/L							B
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L							

LCS (B347867-BS1)

Prepared: 08/04/23 Analyzed: 08/07/23

Perfluorobutanoic acid (PFBA)	12.2	1.9	ng/L	9.39		130	*	73-129		L-05
Perfluorobutanesulfonic acid (PFBS)	11.0	1.9	ng/L	8.31		132	*	72-130		L-05
Perfluoropentanoic acid (PFPeA)	11.7	1.9	ng/L	9.39		125		72-129		
Perfluorohexanoic acid (PFHxA)	11.8	1.9	ng/L	9.39		126		72-129		
11Cl-PF3OUdS (F53B Major)	9.98	1.9	ng/L	8.85		113		55.1-141		
9Cl-PF3ONS (F53B Minor)	9.34	1.9	ng/L	8.75		107		59.6-146		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	10.4	1.9	ng/L	8.85		118		60.3-131		
Hexafluoropropylene oxide dimer acid (HFPO-DA)	10.7	1.9	ng/L	9.39		114		37.6-167		
8:2 Fluorotelomersulfonic acid (8:2FTS A)	11.5	1.9	ng/L	9.02		128		67-138		
Perfluorodecanoic acid (PFDA)	11.8	1.9	ng/L	9.39		125		71-129		
Perfluorododecanoic acid (PFDoA)	12.6	1.9	ng/L	9.39		134		72-134		
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	9.27	1.9	ng/L	8.36		111		49.4-154		

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 B347867 - SOP 454-PFAAS
LCS (B347867-BS1)

Prepared: 08/04/23 Analyzed: 08/07/23

Perfluoroheptanesulfonic acid (PFHpS)	11.6	1.9	ng/L	8.97		129	69-134			
N-EtFOSAA (NEtFOSAA)	11.5	1.9	ng/L	9.39		123	61-135			
N-MeFOSAA (NMeFOSAA)	13.4	1.9	ng/L	9.39		142	* 65-136			S-29
Perfluorotetradecanoic acid (PFTA)	12.8	1.9	ng/L	9.39		136	* 71-132			L-01
Perfluorotridecanoic acid (PFTrDA)	12.4	1.9	ng/L	9.39		132	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	11.8	1.9	ng/L	8.78		134	63-143			
Perfluorodecanesulfonic acid (PFDS)	10.1	1.9	ng/L	9.06		112	53-142			
Perfluorooctanesulfonamide (FOSA)	12.5	1.9	ng/L	9.39		133	67-137			
Perfluorononanesulfonic acid (PFNS)	13.1	1.9	ng/L	9.02		145	* 69-127			L-01
Perfluoro-1-hexanesulfonamide (FHxSA)	10.0	1.9	ng/L	9.39		107	61.7-156			
Perfluoro-1-butanefulfonamide (FBSA)	11.4	1.9	ng/L	9.39		121	61.3-145			
Perfluorohexanesulfonic acid (PFHxS)	11.4	1.9	ng/L	8.59		133	* 68-131			L-05
Perfluoro-4-oxapentanoic acid (PFMPA)	11.5	1.9	ng/L	9.39		123	59.8-147			
Perfluoro-5-oxahexanoic acid (PFMBA)	11.1	1.9	ng/L	9.39		118	59.5-146			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	14.2	1.9	ng/L	8.92		159	* 64-140			B, L-05
Perfluoropentanesulfonic acid (PFPeS)	11.8	1.9	ng/L	8.83		134	* 71-127			L-05
Perfluoroundecanoic acid (PFUnA)	12.5	1.9	ng/L	9.39		133	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.4	1.9	ng/L	9.39		110	58.5-143			
Perfluoroheptanoic acid (PFHpA)	12.8	1.9	ng/L	9.39		136	* 72-130			L-05
Perfluorooctanoic acid (PFOA)	12.2	1.9	ng/L	9.39		130	71-133			
Perfluorooctanesulfonic acid (PFOS)	11.8	1.9	ng/L	8.69		136	65-140			
Perfluorononanoic acid (PFNA)	12.3	1.9	ng/L	9.39		131	* 69-130			L-05

Batch B348570 - SOP 454-PFAAS
Blank (B348570-BLK1)

Prepared: 08/10/23 Analyzed: 08/11/23

Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	1.9	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L							
Perfluoro-1-butanefulfonamide (FBSA)	ND	1.9	ng/L							

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 B348570 - SOP 454-PFAAS
Blank (B348570-BLK1)

Prepared: 08/10/23 Analyzed: 08/11/23

Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L

LCS (B348570-BS1)

Prepared: 08/10/23 Analyzed: 08/11/23

Perfluorobutanoic acid (PFBA)	8.70	2.0	ng/L	10.2	85.7	73-129
Perfluorobutanesulfonic acid (PFBS)	7.78	2.0	ng/L	8.98	86.6	72-130
Perfluoropentanoic acid (PFPeA)	8.48	2.0	ng/L	10.2	83.5	72-129
Perfluorohexanoic acid (PFHxA)	8.46	2.0	ng/L	10.2	83.4	72-129
11Cl-PF3OUdS (F53B Major)	8.78	2.0	ng/L	9.56	91.8	55.1-141
9Cl-PF3ONS (F53B Minor)	7.93	2.0	ng/L	9.46	83.8	59.6-146
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.17	2.0	ng/L	9.56	85.4	60.3-131
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.60	2.0	ng/L	10.2	94.5	37.6-167
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.39	2.0	ng/L	9.75	86.0	67-138
Perfluorodecanoic acid (PFDA)	8.86	2.0	ng/L	10.2	87.3	71-129
Perfluorododecanoic acid (PFDoA)	8.86	2.0	ng/L	10.2	87.3	72-134
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	7.71	2.0	ng/L	9.04	85.3	49.4-154
Perfluoroheptanesulfonic acid (PFHpS)	9.30	2.0	ng/L	9.70	95.9	69-134
N-EtFOSAA (NEtFOSAA)	7.83	2.0	ng/L	10.2	77.1	61-135
N-MeFOSAA (NMeFOSAA)	9.53	2.0	ng/L	10.2	93.9	65-136
Perfluorotetradecanoic acid (PFTA)	9.53	2.0	ng/L	10.2	93.9	71-132
Perfluorotridecanoic acid (PFTrDA)	9.60	2.0	ng/L	10.2	94.6	65-144
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.48	2.0	ng/L	9.49	89.3	63-143
Perfluorodecanesulfonic acid (PFDS)	7.72	2.0	ng/L	9.80	78.8	53-142
Perfluorooctanesulfonamide (FOSA)	8.40	2.0	ng/L	10.2	82.7	67-137
Perfluorononanesulfonic acid (PFNS)	8.37	2.0	ng/L	9.75	85.9	69-127
Perfluoro-1-hexanesulfonamide (FHxSA)	7.22	2.0	ng/L	10.2	71.1	61.7-156
Perfluoro-1-butanesulfonamide (FBSA)	8.01	2.0	ng/L	10.2	78.9	61.3-145
Perfluorohexanesulfonic acid (PFHxS)	7.71	2.0	ng/L	9.29	83.1	68-131
Perfluoro-4-oxapentanoic acid (PFMPA)	9.06	2.0	ng/L	10.2	89.3	59.8-147
Perfluoro-5-oxahexanoic acid (PFMBA)	8.19	2.0	ng/L	10.2	80.7	59.5-146
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.97	2.0	ng/L	9.64	93.0	64-140
Perfluoropentanesulfonic acid (PFPeS)	8.75	2.0	ng/L	9.54	91.7	71-127
Perfluoroundecanoic acid (PFUnA)	9.10	2.0	ng/L	10.2	89.7	69-133
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.15	2.0	ng/L	10.2	80.3	58.5-143
Perfluoroheptanoic acid (PFHpA)	9.01	2.0	ng/L	10.2	88.7	72-130
Perfluorooctanoic acid (PFOA)	8.49	2.0	ng/L	10.2	83.7	71-133
Perfluorooctanesulfonic acid (PFOS)	8.29	2.0	ng/L	9.39	88.3	65-140
Perfluorononanoic acid (PFNA)	9.11	2.0	ng/L	10.2	89.8	69-130

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 B348570 - SOP 454-PFAAS
LCS Dup (B348570-BSD1)

Prepared: 08/10/23 Analyzed: 08/11/23

Perfluorobutanoic acid (PFBA)	9.36	2.0	ng/L	9.78		95.7	73-129	7.26	30	
Perfluorobutanesulfonic acid (PFBS)	8.32	2.0	ng/L	8.66		96.1	72-130	6.65	30	
Perfluoropentanoic acid (PFPeA)	8.95	2.0	ng/L	9.78		91.5	72-129	5.38	30	
Perfluorohexanoic acid (PFHxA)	9.17	2.0	ng/L	9.78		93.8	72-129	8.06	30	
11Cl-PF3OUdS (F53B Major)	8.46	2.0	ng/L	9.21		91.8	55.1-141	3.73	30	
9Cl-PF3ONS (F53B Minor)	8.51	2.0	ng/L	9.12		93.3	59.6-146	7.02	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.72	2.0	ng/L	9.21		94.7	60.3-131	6.55	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.98	2.0	ng/L	9.78		91.8	37.6-167	6.71	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.65	2.0	ng/L	9.39		103	67-138	14.1	30	
Perfluorodecanoic acid (PFDA)	9.71	2.0	ng/L	9.78		99.3	71-129	9.23	30	
Perfluorododecanoic acid (PFDoA)	8.90	2.0	ng/L	9.78		91.0	72-134	0.390	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.16	2.0	ng/L	8.70		93.7	49.4-154	5.68	30	
Perfluoroheptanesulfonic acid (PFHpS)	9.53	2.0	ng/L	9.34		102	69-134	2.45	30	
N-EtFOSAA (NEtFOSAA)	8.05	2.0	ng/L	9.78		82.3	61-135	2.84	30	
N-MeFOSAA (NMeFOSAA)	9.34	2.0	ng/L	9.78		95.5	65-136	2.09	30	
Perfluorotetradecanoic acid (PFTA)	9.51	2.0	ng/L	9.78		97.2	71-132	0.246	30	
Perfluorotridecanoic acid (PFTrDA)	13.6	2.0	ng/L	9.78		139	65-144	34.4 *	30	R-05
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.27	2.0	ng/L	9.14		101	63-143	8.87	30	
Perfluorodecanesulfonic acid (PFDS)	8.45	2.0	ng/L	9.44		89.5	53-142	9.02	30	
Perfluorooctanesulfonamide (FOSA)	9.34	2.0	ng/L	9.78		95.5	67-137	10.6	30	
Perfluorononanesulfonic acid (PFNS)	10.3	2.0	ng/L	9.39		109	69-127	20.4	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	8.52	2.0	ng/L	9.78		87.1	61.7-156	16.5	30	
Perfluoro-1-butanefulfonamide (FBSA)	9.01	2.0	ng/L	9.78		92.1	61.3-145	11.7	30	
Perfluorohexanesulfonic acid (PFHxS)	8.41	2.0	ng/L	8.95		94.0	68-131	8.65	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	9.67	2.0	ng/L	9.78		98.9	59.8-147	6.49	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	8.79	2.0	ng/L	9.78		89.9	59.5-146	7.05	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	7.51	2.0	ng/L	9.29		80.8	64-140	17.7	30	
Perfluoropentanesulfonic acid (PFPeS)	9.14	2.0	ng/L	9.19		99.4	71-127	4.33	30	
Perfluoroundecanoic acid (PFUnA)	9.90	2.0	ng/L	9.78		101	69-133	8.43	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.89	2.0	ng/L	9.78		90.9	58.5-143	8.69	30	
Perfluoroheptanoic acid (PFHpA)	9.51	2.0	ng/L	9.78		97.2	72-130	5.38	30	
Perfluorooctanoic acid (PFOA)	9.73	2.0	ng/L	9.78		99.5	71-133	13.6	30	
Perfluorooctanesulfonic acid (PFOS)	9.00	2.0	ng/L	9.05		99.5	65-140	8.14	30	
Perfluorononanoic acid (PFNA)	9.03	2.0	ng/L	9.78		92.4	69-130	0.895	30	

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.
B	Analyte is found in the associated laboratory blank as well as in the sample.
B-05	Data is not affected by elevated level in laboratory blank since sample(s) result is "Not Detected".
D-01	Sample extracted/prepared at a dilution due to sample matrix.
E	Reported result is estimated. Value reported over verified calibration range.
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.
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-19	Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.
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.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
PF-19	Sample re-analyzed at a dilution that was re-fortified with internal standard.
PF-20	Quantifying ion signal to noise ratio is <10. Detection is suspect.
PF-23	Qualifier ion ratio <50% of associated calibration. Detection is suspect.
R-05	Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.
S-29	Extracted Internal Standard is outside of control limits.
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.

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-16D (23G4062-01RE2) Lab File ID: 23G4062-01RE2.d Analyzed: 08/11/23 11:23									
M8FOSA	228999.2	3.972583	287,815.00	3.972583	80	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	48904.16	2.496817	56,342.00	2.496817	87	50 - 150	0.0000	+/-0.50	
M2PFTA	333486.6	4.30535	480,520.00	4.30535	69	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	96711.49	3.778883	58,511.00	3.778883	165	50 - 150	0.0000	+/-0.50	*
MPFBA	319226	1.058467	415,125.00	1.058467	77	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	174163.5	2.831117	173,313.00	2.831117	100	50 - 150	0.0000	+/-0.50	
M6PFDA	635055.2	3.779417	659,331.00	3.779417	96	50 - 150	0.0000	+/-0.50	
M3PFBS	179831.4	1.894967	198,372.00	1.886667	91	50 - 150	0.0083	+/-0.50	
M7PFUnA	522914.6	3.93005	560,946.00	3.93005	93	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	43465.79	3.4293	38,169.00	3.4293	114	50 - 150	0.0000	+/-0.50	
M5PFPeA	372858	1.714833	418,578.00	1.706567	89	50 - 150	0.0083	+/-0.50	
M5PFHxA	624521.1	2.588767	697,827.00	2.58055	89	50 - 150	0.0082	+/-0.50	
M3PFHxS	96796.23	3.193817	107,774.00	3.193817	90	50 - 150	0.0000	+/-0.50	
M4PFHpA	600013.5	3.1627	656,777.00	3.1627	91	50 - 150	0.0000	+/-0.50	
M8PFOA	652612.2	3.437833	693,830.00	3.437833	94	50 - 150	0.0000	+/-0.50	
M8PFOS	93701.98	3.6282	112,919.00	3.6282	83	50 - 150	0.0000	+/-0.50	
M9PFNA	567797.8	3.629233	636,673.00	3.629233	89	50 - 150	0.0000	+/-0.50	
MPFDoA	400399.2	4.064667	474,020.00	4.064667	84	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	134627.5	3.937517	154,296.00	3.937517	87	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	155476.3	3.85765	169,060.00	3.85765	92	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-401S (23G4062-02)		Lab File ID: 23G4062-02.d				Analyzed: 08/07/23 18:39			
M8FOSA	150971	3.964583	234,655.00	3.964583	64	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	49079.46	2.431017	46,178.00	2.431017	106	50 - 150	0.0000	+/-0.50	
M2PFTA	275858.7	4.281116	413,990.00	4.281116	67	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	50243.84	3.754983	54,885.00	3.754983	92	50 - 150	0.0000	+/-0.50	
MPFBA	259074.3	1.04185	369,907.00	1.04185	70	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	126612.9	2.782017	142,835.00	2.782017	89	50 - 150	0.0000	+/-0.50	
M6PFDA	374924	3.7555	543,778.00	3.7555	69	50 - 150	0.0000	+/-0.50	
M3PFBS	140453.8	1.83695	175,551.00	1.83695	80	50 - 150	0.0000	+/-0.50	
M7PFUnA	302259.4	3.897867	497,927.00	3.906067	61	50 - 150	-0.0082	+/-0.50	
M2-6:2FTS	40410.7	3.4044	34,993.00	3.4044	115	50 - 150	0.0000	+/-0.50	
M5PFPeA	272535.1	1.6652	352,853.00	1.6652	77	50 - 150	0.0000	+/-0.50	
M5PFHxA	466010.8	2.51485	583,759.00	2.51485	80	50 - 150	0.0000	+/-0.50	
M3PFHxS	74416.71	3.1615	91,916.00	3.169583	81	50 - 150	-0.0081	+/-0.50	
M4PFHpA	459039.5	3.1304	539,353.00	3.1304	85	50 - 150	0.0000	+/-0.50	
M8PFOA	465346.5	3.413117	571,242.00	3.413117	81	50 - 150	0.0000	+/-0.50	
M8PFOS	68052.1	3.60425	94,602.00	3.60425	72	50 - 150	0.0000	+/-0.50	
M9PFNA	433875.9	3.605283	543,849.00	3.605283	80	50 - 150	0.0000	+/-0.50	
MPFDaA	249710.6	4.040683	399,784.00	4.040683	62	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	72455.97	3.905533	126,657.00	3.913533	57	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	78826.04	3.833783	139,830.00	3.833783	56	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-401D (23G4062-03) Lab File ID: 23G4062-03.d Analyzed: 08/07/23 18:47									
M8FOSA	136491	3.9566	234,655.00	3.964583	58	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	36118.04	2.431017	46,178.00	2.431017	78	50 - 150	0.0000	+/-0.50	
M2PFTA	265763.4	4.281116	413,990.00	4.281116	64	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	48727.2	3.754983	54,885.00	3.754983	89	50 - 150	0.0000	+/-0.50	
MPFBA	263074	1.033533	369,907.00	1.04185	71	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	136991.8	2.773833	142,835.00	2.782017	96	50 - 150	-0.0082	+/-0.50	
M6PFDA	362410.9	3.7555	543,778.00	3.7555	67	50 - 150	0.0000	+/-0.50	
M3PFBS	133969.9	1.83695	175,551.00	1.83695	76	50 - 150	0.0000	+/-0.50	
M7PFUnA	269766	3.906067	497,927.00	3.906067	54	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	31213.62	3.4044	34,993.00	3.4044	89	50 - 150	0.0000	+/-0.50	
M5PFPeA	263290.6	1.6652	352,853.00	1.6652	75	50 - 150	0.0000	+/-0.50	
M5PFHxA	442891.8	2.51485	583,759.00	2.51485	76	50 - 150	0.0000	+/-0.50	
M3PFHxS	75620.98	3.169583	91,916.00	3.169583	82	50 - 150	0.0000	+/-0.50	
M4PFHpA	420850.8	3.1304	539,353.00	3.1304	78	50 - 150	0.0000	+/-0.50	
M8PFOA	456571.7	3.413117	571,242.00	3.413117	80	50 - 150	0.0000	+/-0.50	
M8PFOS	62235.93	3.60425	94,602.00	3.60425	66	50 - 150	0.0000	+/-0.50	
M9PFNA	417967.6	3.605283	543,849.00	3.605283	77	50 - 150	0.0000	+/-0.50	
MPFDoA	225472.2	4.032683	399,784.00	4.040683	56	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	66786.39	3.905533	126,657.00	3.913533	53	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	78685.13	3.833783	139,830.00	3.833783	56	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-403S (23G4062-04) Lab File ID: 23G4062-04.d Analyzed: 08/07/23 18:54									
M8FOSA	161875	3.964583	234,655.00	3.964583	69	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	72736.86	2.431017	46,178.00	2.431017	158	50 - 150	0.0000	+/-0.50	*
M2PFTA	298959.5	4.281116	413,990.00	4.281116	72	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	55663.13	3.754983	54,885.00	3.754983	101	50 - 150	0.0000	+/-0.50	
MPFBA	192101.2	1.033533	369,907.00	1.04185	52	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	117389.1	2.773833	142,835.00	2.782017	82	50 - 150	-0.0082	+/-0.50	
M6PFDA	413953.3	3.7555	543,778.00	3.7555	76	50 - 150	0.0000	+/-0.50	
M3PFBS	150511	1.83695	175,551.00	1.83695	86	50 - 150	0.0000	+/-0.50	
M7PFUnA	330474.7	3.897867	497,927.00	3.906067	66	50 - 150	-0.0082	+/-0.50	
M5PFPeA	264421	1.6652	352,853.00	1.6652	75	50 - 150	0.0000	+/-0.50	
M5PFHxA	509423.2	2.51485	583,759.00	2.51485	87	50 - 150	0.0000	+/-0.50	
M3PFHxS	89183.88	3.169583	91,916.00	3.169583	97	50 - 150	0.0000	+/-0.50	
M4PFHpA	489327.7	3.1304	539,353.00	3.1304	91	50 - 150	0.0000	+/-0.50	
M8PFOA	517663.1	3.413117	571,242.00	3.413117	91	50 - 150	0.0000	+/-0.50	
M8PFOS	70876.18	3.60425	94,602.00	3.60425	75	50 - 150	0.0000	+/-0.50	
M9PFNA	484498.7	3.605283	543,849.00	3.605283	89	50 - 150	0.0000	+/-0.50	
MPFDaA	256569	4.040683	399,784.00	4.040683	64	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	73743.45	3.90555	126,657.00	3.913533	58	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	81148.11	3.833783	139,830.00	3.833783	58	50 - 150	0.0000	+/-0.50	
MW-403S (23G4062-04RE1) Lab File ID: 23G4062-04RE1.d Analyzed: 08/09/23 13:50									
M2-6:2FTS	44805.77	3.41245	38,644.00	3.4044	116	50 - 150	0.0081	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-403D (23G4062-05) Lab File ID: 23G4062-05.d Analyzed: 08/07/23 19:01									
M8FOSA	157931	3.964583	234,655.00	3.964583	67	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	53257.86	2.431017	46,178.00	2.431017	115	50 - 150	0.0000	+/-0.50	
M2PFTA	316256.1	4.281116	413,990.00	4.281116	76	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	62147.79	3.754983	54,885.00	3.754983	113	50 - 150	0.0000	+/-0.50	
MPFBA	228437.8	1.033533	369,907.00	1.04185	62	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	119972.4	2.773833	142,835.00	2.782017	84	50 - 150	-0.0082	+/-0.50	
M6PFDA	430584.1	3.7555	543,778.00	3.7555	79	50 - 150	0.0000	+/-0.50	
M3PFBS	149045.1	1.83695	175,551.00	1.83695	85	50 - 150	0.0000	+/-0.50	
M7PFUnA	359908.3	3.897867	497,927.00	3.906067	72	50 - 150	-0.0082	+/-0.50	
M2-6:2FTS	56897.89	3.39635	34,993.00	3.4044	163	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	275337.1	1.6652	352,853.00	1.6652	78	50 - 150	0.0000	+/-0.50	
M5PFHxA	490539.5	2.51485	583,759.00	2.51485	84	50 - 150	0.0000	+/-0.50	
M3PFHxS	82945.98	3.1615	91,916.00	3.169583	90	50 - 150	-0.0081	+/-0.50	
M4PFHpA	489624.8	3.1304	539,353.00	3.1304	91	50 - 150	0.0000	+/-0.50	
M8PFOA	517968.3	3.413117	571,242.00	3.413117	91	50 - 150	0.0000	+/-0.50	
M8PFOS	75657.88	3.60425	94,602.00	3.60425	80	50 - 150	0.0000	+/-0.50	
M9PFNA	474233.3	3.605283	543,849.00	3.605283	87	50 - 150	0.0000	+/-0.50	
MPFDoA	288333.4	4.040683	399,784.00	4.040683	72	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	83862.38	3.905533	126,657.00	3.913533	66	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	91086.18	3.833783	139,830.00	3.833783	65	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-402S (23G4062-06) Lab File ID: 23G4062-06.d Analyzed: 08/07/23 19:08									
M8FOSA	186415.6	3.964583	234,655.00	3.964583	79	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	46929.63	2.4228	46,178.00	2.431017	102	50 - 150	-0.0082	+/-0.50	
M2PFTA	320442	4.27305	413,990.00	4.281116	77	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	80480.77	3.754983	54,885.00	3.754983	147	50 - 150	0.0000	+/-0.50	
MPFBA	289598.6	1.04185	369,907.00	1.04185	78	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	133413.6	2.773833	142,835.00	2.782017	93	50 - 150	-0.0082	+/-0.50	
M6PFDA	468447.5	3.7555	543,778.00	3.7555	86	50 - 150	0.0000	+/-0.50	
M3PFBS	154091.1	1.83695	175,551.00	1.83695	88	50 - 150	0.0000	+/-0.50	
M7PFUnA	394485.1	3.897867	497,927.00	3.906067	79	50 - 150	-0.0082	+/-0.50	
M2-6:2FTS	41682.11	3.39635	34,993.00	3.4044	119	50 - 150	-0.0080	+/-0.50	
M5PFPeA	320848.8	1.6652	352,853.00	1.6652	91	50 - 150	0.0000	+/-0.50	
M5PFHxA	502213.8	2.51485	583,759.00	2.51485	86	50 - 150	0.0000	+/-0.50	
M3PFHxS	83849.16	3.169583	91,916.00	3.169583	91	50 - 150	0.0000	+/-0.50	
M4PFHpA	477854.7	3.1304	539,353.00	3.1304	89	50 - 150	0.0000	+/-0.50	
M8PFOA	520313.7	3.413117	571,242.00	3.413117	91	50 - 150	0.0000	+/-0.50	
M8PFOS	75917.21	3.60425	94,602.00	3.60425	80	50 - 150	0.0000	+/-0.50	
M9PFNA	493175.2	3.605283	543,849.00	3.605283	91	50 - 150	0.0000	+/-0.50	
MPFDoA	301727.6	4.040683	399,784.00	4.040683	75	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	101898.8	3.913533	126,657.00	3.913533	80	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	113350.5	3.833783	139,830.00	3.833783	81	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-402D (23G4062-07) Lab File ID: 23G4062-07.d Analyzed: 08/07/23 19:16									
M8FOSA	165932.7	3.964583	234,655.00	3.964583	71	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	41781.62	2.431017	46,178.00	2.431017	90	50 - 150	0.0000	+/-0.50	
M2PFTA	334418.2	4.27305	413,990.00	4.281116	81	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	119044.9	3.747017	54,885.00	3.754983	217	50 - 150	-0.0080	+/-0.50	*
MPFBA	255851.7	1.04185	369,907.00	1.04185	69	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	157054.4	2.782017	142,835.00	2.782017	110	50 - 150	0.0000	+/-0.50	
M6PFDA	459887.8	3.7555	543,778.00	3.7555	85	50 - 150	0.0000	+/-0.50	
M3PFBS	143795.2	1.83695	175,551.00	1.83695	82	50 - 150	0.0000	+/-0.50	
M7PFUnA	382841	3.897867	497,927.00	3.906067	77	50 - 150	-0.0082	+/-0.50	
M2-6:2FTS	40301.08	3.4044	34,993.00	3.4044	115	50 - 150	0.0000	+/-0.50	
M5PFPeA	279281.2	1.6652	352,853.00	1.6652	79	50 - 150	0.0000	+/-0.50	
M5PFHxA	477054.1	2.51485	583,759.00	2.51485	82	50 - 150	0.0000	+/-0.50	
M3PFHxS	80613.44	3.169583	91,916.00	3.169583	88	50 - 150	0.0000	+/-0.50	
M4PFHpA	467096.2	3.1304	539,353.00	3.1304	87	50 - 150	0.0000	+/-0.50	
M8PFOA	495918.5	3.413117	571,242.00	3.413117	87	50 - 150	0.0000	+/-0.50	
M8PFOS	76676.27	3.60425	94,602.00	3.60425	81	50 - 150	0.0000	+/-0.50	
M9PFNA	475674.3	3.605283	543,849.00	3.605283	87	50 - 150	0.0000	+/-0.50	
MPFDoA	285923.1	4.040683	399,784.00	4.040683	72	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	85507.53	3.905533	126,657.00	3.913533	68	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	104898.4	3.825833	139,830.00	3.833783	75	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-39 (23G4062-08) Lab File ID: 23G4062-08.d Analyzed: 08/07/23 19:23									
M8FOSA	79020.97	3.964583	234,655.00	3.964583	34	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	52780.93	2.431017	46,178.00	2.431017	114	50 - 150	0.0000	+/-0.50	
M2PFTA	26252.84	4.27305	413,990.00	4.281116	06	50 - 150	-0.0081	+/-0.50	*
M2-8:2FTS	82278.42	3.747017	54,885.00	3.754983	150	50 - 150	-0.0080	+/-0.50	
MPFBA	200515.7	1.04185	369,907.00	1.04185	54	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	130503.6	2.773833	142,835.00	2.782017	91	50 - 150	-0.0082	+/-0.50	
M6PFDA	398278.4	3.7555	543,778.00	3.7555	73	50 - 150	0.0000	+/-0.50	
M3PFBS	144543.7	1.83695	175,551.00	1.83695	82	50 - 150	0.0000	+/-0.50	
M7PFUnA	235613.3	3.897867	497,927.00	3.906067	47	50 - 150	-0.0082	+/-0.50	*
M2-6:2FTS	45351.21	3.39635	34,993.00	3.4044	130	50 - 150	-0.0080	+/-0.50	
M5PFPeA	260091.5	1.6652	352,853.00	1.6652	74	50 - 150	0.0000	+/-0.50	
M5PFHxA	477546.2	2.51485	583,759.00	2.51485	82	50 - 150	0.0000	+/-0.50	
M3PFHxS	79567.2	3.169583	91,916.00	3.169583	87	50 - 150	0.0000	+/-0.50	
M4PFHpA	468047.4	3.1304	539,353.00	3.1304	87	50 - 150	0.0000	+/-0.50	
M8PFOA	493292.5	3.413117	571,242.00	3.413117	86	50 - 150	0.0000	+/-0.50	
M8PFOS	70076.2	3.60425	94,602.00	3.60425	74	50 - 150	0.0000	+/-0.50	
M9PFNA	429652.1	3.605283	543,849.00	3.605283	79	50 - 150	0.0000	+/-0.50	
MPFDoA	89738.79	4.040683	399,784.00	4.040683	22	50 - 150	0.0000	+/-0.50	*
D5-NEtFOSAA	41852.38	3.905533	126,657.00	3.913533	33	50 - 150	-0.0080	+/-0.50	*
D3-NMeFOSAA	64508.5	3.833783	139,830.00	3.833783	46	50 - 150	0.0000	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-39D (23G4062-09) Lab File ID: 23G4062-09.d Analyzed: 08/07/23 19:30									
M8FOSA	171513.9	3.964583	234,655.00	3.964583	73	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	45122.95	2.431017	46,178.00	2.431017	98	50 - 150	0.0000	+/-0.50	
M2PFTA	352859.1	4.27305	413,990.00	4.281116	85	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	89030.52	3.747017	54,885.00	3.754983	162	50 - 150	-0.0080	+/-0.50	*
MPFBA	245740.6	1.04185	369,907.00	1.04185	66	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	129072.6	2.782017	142,835.00	2.782017	90	50 - 150	0.0000	+/-0.50	
M6PFDA	462718.1	3.7555	543,778.00	3.7555	85	50 - 150	0.0000	+/-0.50	
M3PFBS	149160.4	1.83695	175,551.00	1.83695	85	50 - 150	0.0000	+/-0.50	
M7PFUnA	404189.3	3.897867	497,927.00	3.906067	81	50 - 150	-0.0082	+/-0.50	
M2-6:2FTS	42772.15	3.39635	34,993.00	3.4044	122	50 - 150	-0.0080	+/-0.50	
M5PFPeA	283599.6	1.6652	352,853.00	1.6652	80	50 - 150	0.0000	+/-0.50	
M5PFHxA	494587.8	2.51485	583,759.00	2.51485	85	50 - 150	0.0000	+/-0.50	
M3PFHxS	83889.92	3.1615	91,916.00	3.169583	91	50 - 150	-0.0081	+/-0.50	
M4PFHpA	482015.4	3.1304	539,353.00	3.1304	89	50 - 150	0.0000	+/-0.50	
M8PFOA	511686.2	3.413117	571,242.00	3.413117	90	50 - 150	0.0000	+/-0.50	
M8PFOS	76492.3	3.60425	94,602.00	3.60425	81	50 - 150	0.0000	+/-0.50	
M9PFNA	479334.4	3.605283	543,849.00	3.605283	88	50 - 150	0.0000	+/-0.50	
MPFDoA	325237	4.032683	399,784.00	4.040683	81	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	102002.3	3.905533	126,657.00	3.913533	81	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	110883.5	3.833783	139,830.00	3.833783	79	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
EB-7/25 (23G4062-10) Lab File ID: 23G4062-10.d Analyzed: 08/07/23 12:00									
M8FOSA	157461.7	3.964583	234,655.00	3.964583	67	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	41201.98	2.447533	46,178.00	2.447533	89	50 - 150	0.0000	+/-0.50	
M2PFTA	306620.5	4.2892	413,990.00	4.2892	74	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	121114.6	3.76295	54,885.00	3.76295	221	50 - 150	0.0000	+/-0.50	*
MPFBA	296475.7	1.050167	369,907.00	1.04185	80	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	117844.5	2.7902	142,835.00	2.7902	83	50 - 150	0.0000	+/-0.50	
M6PFDA	441905.5	3.763467	543,778.00	3.763467	81	50 - 150	0.0000	+/-0.50	
M3PFBS	135649.1	1.853533	175,551.00	1.853533	77	50 - 150	0.0000	+/-0.50	
M7PFUnA	368305.1	3.91405	497,927.00	3.914067	74	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	29646.11	3.41245	34,993.00	3.41245	85	50 - 150	0.0000	+/-0.50	
M5PFPeA	264141.7	1.681733	352,853.00	1.681733	75	50 - 150	0.0000	+/-0.50	
M5PFHxA	445680.8	2.531267	583,759.00	2.531267	76	50 - 150	0.0000	+/-0.50	
M3PFHxS	73398.52	3.17765	91,916.00	3.177667	80	50 - 150	0.0000	+/-0.50	
M4PFHpA	423833.8	3.138483	539,353.00	3.14655	79	50 - 150	-0.0081	+/-0.50	
M8PFOA	440093.9	3.421167	571,242.00	3.421167	77	50 - 150	0.0000	+/-0.50	
M8PFOS	71494.55	3.612233	94,602.00	3.612233	76	50 - 150	0.0000	+/-0.50	
M9PFNA	433363	3.613267	543,849.00	3.613267	80	50 - 150	0.0000	+/-0.50	
MPFDoA	277274.1	4.048683	399,784.00	4.048683	69	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	98220.92	3.921533	126,657.00	3.921533	78	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	114314.4	3.841733	139,830.00	3.84175	82	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PFW-5 (23G4062-11) Lab File ID: 23G4062-11.d Analyzed: 08/07/23 19:38									
M8FOSA	174824.1	3.964583	234,655.00	3.964583	75	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	47890.96	2.431017	46,178.00	2.431017	104	50 - 150	0.0000	+/-0.50	
M2PFTA	314686	4.27305	413,990.00	4.281116	76	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	125863	3.747017	54,885.00	3.754983	229	50 - 150	-0.0080	+/-0.50	*
MPFBA	207940.5	1.04185	369,907.00	1.04185	56	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	150040.2	2.773833	142,835.00	2.782017	105	50 - 150	-0.0082	+/-0.50	
M6PFDA	499208.5	3.7555	543,778.00	3.7555	92	50 - 150	0.0000	+/-0.50	
M3PFBS	161212.4	1.83695	175,551.00	1.83695	92	50 - 150	0.0000	+/-0.50	
M7PFUnA	401262.7	3.897867	497,927.00	3.906067	81	50 - 150	-0.0082	+/-0.50	
M2-6:2FTS	49480.5	3.39635	34,993.00	3.4044	141	50 - 150	-0.0080	+/-0.50	
M5PFPeA	308987.3	1.6652	352,853.00	1.6652	88	50 - 150	0.0000	+/-0.50	
M5PFHxA	538310.1	2.51485	583,759.00	2.51485	92	50 - 150	0.0000	+/-0.50	
M3PFHxS	80644.48	3.169583	91,916.00	3.169583	88	50 - 150	0.0000	+/-0.50	
M4PFHpA	498831.4	3.1304	539,353.00	3.1304	92	50 - 150	0.0000	+/-0.50	
M8PFOA	546315.1	3.413117	571,242.00	3.413117	96	50 - 150	0.0000	+/-0.50	
M8PFOS	62936.53	3.60425	94,602.00	3.60425	67	50 - 150	0.0000	+/-0.50	
M9PFNA	361385.6	3.605283	543,849.00	3.605283	66	50 - 150	0.0000	+/-0.50	
MPFDoA	336118.9	4.0327	399,784.00	4.040683	84	50 - 150	-0.0080	+/-0.50	
D5-NEtFOSAA	103767.3	3.90555	126,657.00	3.913533	82	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	117856.3	3.833783	139,830.00	3.833783	84	50 - 150	0.0000	+/-0.50	
PFW-5 (23G4062-11RE1) Lab File ID: 23G4062-11RE1.d Analyzed: 08/09/23 13:58									
M3PFHxS	109445.1	3.177667	99,885.00	3.177667	110	50 - 150	0.0000	+/-0.50	
M8PFOA	702428.5	3.421167	630,424.00	3.421167	111	50 - 150	0.0000	+/-0.50	
M8PFOS	110066.7	3.612233	101,702.00	3.612233	108	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
OW-8A (23G4062-12) Lab File ID: 23G4062-12.d Analyzed: 08/07/23 20:00									
M8FOSA	99749.22	3.964583	234,655.00	3.964583	43	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	119012.2	2.4146	46,178.00	2.4228	258	50 - 150	-0.0082	+/-0.50	*
M2PFTA	44766.91	4.27305	413,990.00	4.27305	11	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	123074.6	3.754983	54,885.00	3.747017	224	50 - 150	0.0080	+/-0.50	*
MPFBA	190013.5	1.04185	369,907.00	1.033533	51	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	99763.11	2.757467	142,835.00	2.773833	70	50 - 150	-0.0164	+/-0.50	
M6PFDA	414674.4	3.7555	543,778.00	3.7555	76	50 - 150	0.0000	+/-0.50	
M3PFBS	153283.8	1.828667	175,551.00	1.828667	87	50 - 150	0.0000	+/-0.50	
M7PFUnA	347242.5	3.897867	497,927.00	3.897867	70	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	121227.4	3.39635	34,993.00	3.39635	346	50 - 150	0.0000	+/-0.50	*
M5PFPeA	298344.2	1.656917	352,853.00	1.656917	85	50 - 150	0.0000	+/-0.50	
M5PFHxA	574700	2.490217	583,759.00	2.506633	98	50 - 150	-0.0164	+/-0.50	
M3PFHxS	83434.38	3.153433	91,916.00	3.1615	91	50 - 150	-0.0081	+/-0.50	
M4PFHpA	542509.7	3.122333	539,353.00	3.1304	101	50 - 150	-0.0081	+/-0.50	
M8PFOA	573125.3	3.405067	571,242.00	3.413117	100	50 - 150	-0.0081	+/-0.50	
M8PFOS	67677.51	3.60425	94,602.00	3.60425	72	50 - 150	0.0000	+/-0.50	
M9PFNA	480340.5	3.605283	543,849.00	3.605283	88	50 - 150	0.0000	+/-0.50	
MPFDoA	169411.8	4.0327	399,784.00	4.0327	42	50 - 150	0.0000	+/-0.50	*
D5-NeiFOSAA	111497.7	3.90555	126,657.00	3.90555	88	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	127283.1	3.825833	139,830.00	3.825833	91	50 - 150	0.0000	+/-0.50	
PFW-1 (23G4062-13) Lab File ID: 23G4062-13.d Analyzed: 08/07/23 20:07									
M8FOSA	195397.1	3.964583	234,655.00	3.964583	83	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	56269	2.4146	46,178.00	2.4228	122	50 - 150	-0.0082	+/-0.50	
M2PFTA	358104.3	4.27305	413,990.00	4.27305	87	50 - 150	0.0000	+/-0.50	
MPFBA	230309.1	1.033533	369,907.00	1.033533	62	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	141360.9	2.76565	142,835.00	2.773833	99	50 - 150	-0.0082	+/-0.50	
M6PFDA	423157.8	3.755517	543,778.00	3.7555	78	50 - 150	0.0000	+/-0.50	
M3PFBS	164792.9	1.828667	175,551.00	1.828667	94	50 - 150	0.0000	+/-0.50	
M7PFUnA	430275.5	3.897883	497,927.00	3.897867	86	50 - 150	0.0000	+/-0.50	
M5PFPeA	302010.9	1.656917	352,853.00	1.656917	86	50 - 150	0.0000	+/-0.50	
M5PFHxA	520306	2.506633	583,759.00	2.506633	89	50 - 150	0.0000	+/-0.50	
M3PFHxS	57978.96	3.1615	91,916.00	3.1615	63	50 - 150	0.0000	+/-0.50	
M4PFHpA	416897.1	3.122333	539,353.00	3.1304	77	50 - 150	-0.0081	+/-0.50	
M8PFOA	400299.9	3.413133	571,242.00	3.413117	70	50 - 150	0.0000	+/-0.50	
M8PFOS	29982.65	3.612233	94,602.00	3.60425	32	50 - 150	0.0080	+/-0.50	*
MPFDoA	353056.4	4.0327	399,784.00	4.0327	88	50 - 150	0.0000	+/-0.50	
D5-NeiFOSAA	102124.5	3.90555	126,657.00	3.90555	81	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	107589.4	3.825833	139,830.00	3.825833	77	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PFW-1 (23G4062-13RE1) Lab File ID: 23G4062-13RE1.d Analyzed: 08/09/23 14:05									
M2-8:2FTS	92635.48	3.76295	75,328.00	3.76295	123	50 - 150	0.0000	+/-0.50	
MPFBA	414549.5	1.04185	400,836.00	1.050167	103	50 - 150	-0.0083	+/-0.50	
M2-6:2FTS	51340.7	3.41245	38,644.00	3.4044	133	50 - 150	0.0081	+/-0.50	
M5PFPeA	413927	1.681733	393,535.00	1.681733	105	50 - 150	0.0000	+/-0.50	
M5PFHxA	677899.1	2.539483	649,360.00	2.531267	104	50 - 150	0.0082	+/-0.50	
M3PFHxS	108993.3	3.177667	99,885.00	3.177667	109	50 - 150	0.0000	+/-0.50	
M4PFHpA	641292.2	3.138483	612,608.00	3.138483	105	50 - 150	0.0000	+/-0.50	
M8PFOA	671263.8	3.421183	630,424.00	3.421167	106	50 - 150	0.0000	+/-0.50	
M8PFOS	96513.73	3.612233	101,702.00	3.612233	95	50 - 150	0.0000	+/-0.50	
M9PFNA	592774.7	3.613267	609,134.00	3.613267	97	50 - 150	0.0000	+/-0.50	
PFW-1 (23G4062-13RE2) Lab File ID: 23G4062-13RE2.d Analyzed: 08/09/23 17:04									
M8PFOS	107588.6	3.60425	101,702.00	3.612233	106	50 - 150	-0.0080	+/-0.50	
PFW-2 (23G4062-14) Lab File ID: 23G4062-14.d Analyzed: 08/07/23 20:14									
M8FOSA	146507.7	3.9566	234,655.00	3.964583	62	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	85904.56	2.4146	46,178.00	2.4228	186	50 - 150	-0.0082	+/-0.50	*
M2PFTA	129489	4.27305	413,990.00	4.27305	31	50 - 150	0.0000	+/-0.50	*
MPFBA	138848.7	1.033533	369,907.00	1.033533	38	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	134503.8	2.773833	142,835.00	2.773833	94	50 - 150	0.0000	+/-0.50	
M6PFDA	398581.7	3.755517	543,778.00	3.7555	73	50 - 150	0.0000	+/-0.50	
M3PFBS	137602.1	1.828667	175,551.00	1.828667	78	50 - 150	0.0000	+/-0.50	
M7PFUnA	358748.3	3.897883	497,927.00	3.897867	72	50 - 150	0.0000	+/-0.50	
M5PFPeA	246317.7	1.656917	352,853.00	1.656917	70	50 - 150	0.0000	+/-0.50	
M5PFHxA	467337	2.506633	583,759.00	2.506633	80	50 - 150	0.0000	+/-0.50	
M3PFHxS	75719.4	3.1615	91,916.00	3.1615	82	50 - 150	0.0000	+/-0.50	
M4PFHpA	435210	3.122333	539,353.00	3.1304	81	50 - 150	-0.0081	+/-0.50	
M8PFOA	458215.1	3.413133	571,242.00	3.413117	80	50 - 150	0.0000	+/-0.50	
M8PFOS	58444.62	3.60425	94,602.00	3.60425	62	50 - 150	0.0000	+/-0.50	
MPFDoA	251043.5	4.0327	399,784.00	4.0327	63	50 - 150	0.0000	+/-0.50	
D5-NeFOSAA	90011.03	3.90555	126,657.00	3.90555	71	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	102119.3	3.825833	139,830.00	3.825833	73	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PFW-2 (23G4062-14RE1) Lab File ID: 23G4062-14RE1.d Analyzed: 08/09/23 14:12									
M2-8:2FTS	75278.35	3.76295	75,328.00	3.76295	100	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	41836.8	3.41245	38,644.00	3.4044	108	50 - 150	0.0081	+/-0.50	
M5PFPeA	386709.4	1.681733	393,535.00	1.681733	98	50 - 150	0.0000	+/-0.50	
M5PFHxA	639889.3	2.531267	649,360.00	2.531267	99	50 - 150	0.0000	+/-0.50	
M3PFHxS	101328.1	3.177667	99,885.00	3.177667	101	50 - 150	0.0000	+/-0.50	
M4PFHpA	610685.6	3.138483	612,608.00	3.138483	100	50 - 150	0.0000	+/-0.50	
M8PFOA	641846	3.421167	630,424.00	3.421167	102	50 - 150	0.0000	+/-0.50	
M8PFOS	95763.78	3.612233	101,702.00	3.612233	94	50 - 150	0.0000	+/-0.50	
M9PFNA	603056.8	3.613267	609,134.00	3.613267	99	50 - 150	0.0000	+/-0.50	
MW-12S (23G4062-15) Lab File ID: 23G4062-15.d Analyzed: 08/07/23 20:22									
M8FOSA	169552.2	3.964583	234,655.00	3.964583	72	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	259047.5	2.3736	46,178.00	2.4228	561	50 - 150	-0.0492	+/-0.50	*
M2PFTA	237298.8	4.27305	413,990.00	4.27305	57	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	148351.4	3.754983	54,885.00	3.747017	270	50 - 150	0.0080	+/-0.50	*
MPFBA	60882.63	1.016917	369,907.00	1.033533	16	50 - 150	-0.0166	+/-0.50	*
M3HFPO-DA	91048.47	2.732933	142,835.00	2.773833	64	50 - 150	-0.0409	+/-0.50	
M6PFDA	415967.1	3.755517	543,778.00	3.7555	76	50 - 150	0.0000	+/-0.50	
M3PFBS	135436.6	1.777867	175,551.00	1.828667	77	50 - 150	-0.0508	+/-0.50	
M7PFUnA	395692.5	3.897883	497,927.00	3.897867	79	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	182999.9	3.3883	34,993.00	3.39635	523	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	178062.5	1.615567	352,853.00	1.656917	50	50 - 150	-0.0414	+/-0.50	
M5PFHxA	482809	2.44915	583,759.00	2.506633	83	50 - 150	-0.0575	+/-0.50	
M3PFHxS	77129.96	3.153433	91,916.00	3.1615	84	50 - 150	-0.0081	+/-0.50	
M4PFHpA	466218.1	3.113417	539,353.00	3.1304	86	50 - 150	-0.0170	+/-0.50	
M8PFOA	515252.6	3.405083	571,242.00	3.413117	90	50 - 150	-0.0080	+/-0.50	
M8PFOS	63093.67	3.596267	94,602.00	3.60425	67	50 - 150	-0.0080	+/-0.50	
M9PFNA	410059.7	3.605283	543,849.00	3.605283	75	50 - 150	0.0000	+/-0.50	
MPFDoA	292019.6	4.0327	399,784.00	4.0327	73	50 - 150	0.0000	+/-0.50	
D5-NeFOSAA	121582	3.90555	126,657.00	3.90555	96	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	125818.5	3.825833	139,830.00	3.825833	90	50 - 150	0.0000	+/-0.50	
MW-12S (23G4062-15RE1) Lab File ID: 23G4062-15RE1.d Analyzed: 08/09/23 14:19									
M8FOSA	275895.9	3.964583	261,250.00	3.964583	106	50 - 150	0.0000	+/-0.50	
M5PFPeA	428275.1	1.681733	393,535.00	1.681733	109	50 - 150	0.0000	+/-0.50	
M5PFHxA	707418.9	2.531267	649,360.00	2.531267	109	50 - 150	0.0000	+/-0.50	
M3PFHxS	107509.2	3.177667	99,885.00	3.177667	108	50 - 150	0.0000	+/-0.50	
M8PFOA	721220.4	3.421183	630,424.00	3.421167	114	50 - 150	0.0000	+/-0.50	
M8PFOS	108784.2	3.612233	101,702.00	3.612233	107	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
MW-22 (23G4062-16) Lab File ID: 23G4062-16.d Analyzed: 08/07/23 20:29									
M8FOSA	164169	3.964583	234,655.00	3.964583	70	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	55416.56	2.4228	46,178.00	2.4228	120	50 - 150	0.0000	+/-0.50	
M2PFTA	334643.7	4.27305	413,990.00	4.27305	81	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	79491.37	3.747017	54,885.00	3.747017	145	50 - 150	0.0000	+/-0.50	
MPFBA	208625.5	1.033533	369,907.00	1.033533	56	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	123492.9	2.76565	142,835.00	2.773833	86	50 - 150	-0.0082	+/-0.50	
M6PFDA	441587.1	3.7555	543,778.00	3.7555	81	50 - 150	0.0000	+/-0.50	
M3PFBS	145167.1	1.828667	175,551.00	1.828667	83	50 - 150	0.0000	+/-0.50	
M7PFUnA	365385.7	3.897867	497,927.00	3.897867	73	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	45220.53	3.39635	34,993.00	3.39635	129	50 - 150	0.0000	+/-0.50	
M5PFPeA	268614.1	1.656917	352,853.00	1.656917	76	50 - 150	0.0000	+/-0.50	
M5PFHxA	480432.3	2.506633	583,759.00	2.506633	82	50 - 150	0.0000	+/-0.50	
M3PFHxS	82124.13	3.1615	91,916.00	3.1615	89	50 - 150	0.0000	+/-0.50	
M4PFHpA	470298.7	3.122317	539,353.00	3.1304	87	50 - 150	-0.0081	+/-0.50	
M8PFOA	503661.3	3.405067	571,242.00	3.413117	88	50 - 150	-0.0081	+/-0.50	
M8PFOS	75440.43	3.596267	94,602.00	3.60425	80	50 - 150	-0.0080	+/-0.50	
M9PFNA	447618.2	3.605283	543,849.00	3.605283	82	50 - 150	0.0000	+/-0.50	
MPFDoA	292759.8	4.032683	399,784.00	4.0327	73	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	91887	3.905533	126,657.00	3.90555	73	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	108744.7	3.825833	139,830.00	3.825833	78	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-28 (23G4062-17) Lab File ID: 23G4062-17.d Analyzed: 08/07/23 20:36									
M8FOSA	187333.9	3.9566	234,655.00	3.964583	80	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	59667.62	2.4146	46,178.00	2.4228	129	50 - 150	-0.0082	+/-0.50	
M2PFTA	355418.7	4.27305	413,990.00	4.27305	86	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	124274.5	3.747017	54,885.00	3.747017	226	50 - 150	0.0000	+/-0.50	*
MPFBA	220529.5	1.033533	369,907.00	1.033533	60	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	123714.5	2.76565	142,835.00	2.773833	87	50 - 150	-0.0082	+/-0.50	
M6PFDA	516870.1	3.7555	543,778.00	3.7555	95	50 - 150	0.0000	+/-0.50	
M3PFBS	162505.7	1.820383	175,551.00	1.828667	93	50 - 150	-0.0083	+/-0.50	
M7PFUnA	421473.3	3.897867	497,927.00	3.897867	85	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	48758.73	3.39635	34,993.00	3.39635	139	50 - 150	0.0000	+/-0.50	
M5PFPeA	302229.1	1.656917	352,853.00	1.656917	86	50 - 150	0.0000	+/-0.50	
M5PFHxA	545301	2.498417	583,759.00	2.506633	93	50 - 150	-0.0082	+/-0.50	
M3PFHxS	91818.99	3.1615	91,916.00	3.1615	100	50 - 150	0.0000	+/-0.50	
M4PFHpA	529747.9	3.122333	539,353.00	3.1304	98	50 - 150	-0.0081	+/-0.50	
M8PFOA	566170.1	3.405067	571,242.00	3.413117	99	50 - 150	-0.0081	+/-0.50	
M8PFOS	77908.23	3.60425	94,602.00	3.60425	82	50 - 150	0.0000	+/-0.50	
M9PFNA	494703.5	3.605283	543,849.00	3.605283	91	50 - 150	0.0000	+/-0.50	
MPFDoA	328310.3	4.0327	399,784.00	4.0327	82	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	108953.4	3.90555	126,657.00	3.90555	86	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	124114.2	3.825833	139,830.00	3.825833	89	50 - 150	0.0000	+/-0.50	
PC-28 (23G4062-17RE1) Lab File ID: 23G4062-17RE1.d Analyzed: 08/09/23 14:27									
M8PFOS	101363.3	3.612233	101,702.00	3.612233	100	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-1 (23G4062-18) Lab File ID: 23G4062-18.d Analyzed: 08/07/23 20:44									
M8FOSA	185050.3	3.964583	234,655.00	3.964583	79	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	68694.93	2.4146	46,178.00	2.4228	149	50 - 150	-0.0082	+/-0.50	
M2PFTA	331283.6	4.27305	413,990.00	4.27305	80	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	140313	3.747017	54,885.00	3.747017	256	50 - 150	0.0000	+/-0.50	*
MPFBA	172894.5	1.033533	369,907.00	1.033533	47	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	128082.2	2.76565	142,835.00	2.773833	90	50 - 150	-0.0082	+/-0.50	
M6PFDA	443739.9	3.7555	543,778.00	3.7555	82	50 - 150	0.0000	+/-0.50	
M3PFBS	151207.8	1.828667	175,551.00	1.828667	86	50 - 150	0.0000	+/-0.50	
M7PFUnA	373345.2	3.897867	497,927.00	3.897867	75	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	84211.92	3.39635	34,993.00	3.39635	241	50 - 150	0.0000	+/-0.50	*
M5PFPeA	279240.3	1.656917	352,853.00	1.656917	79	50 - 150	0.0000	+/-0.50	
M5PFHxA	522813.5	2.498417	583,759.00	2.506633	90	50 - 150	-0.0082	+/-0.50	
M3PFHxS	84573.12	3.1615	91,916.00	3.1615	92	50 - 150	0.0000	+/-0.50	
M4PFHpA	496542.7	3.122333	539,353.00	3.1304	92	50 - 150	-0.0081	+/-0.50	
M8PFOA	516237.4	3.405067	571,242.00	3.413117	90	50 - 150	-0.0081	+/-0.50	
M8PFOS	67387.29	3.60425	94,602.00	3.60425	71	50 - 150	0.0000	+/-0.50	
M9PFNA	428616.9	3.5973	543,849.00	3.605283	79	50 - 150	-0.0080	+/-0.50	
MPFDoA	312065.6	4.0327	399,784.00	4.0327	78	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	95236.14	3.90555	126,657.00	3.90555	75	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	109703.5	3.825833	139,830.00	3.825833	78	50 - 150	0.0000	+/-0.50	
PC-1 (23G4062-18RE1) Lab File ID: 23G4062-18RE1.d Analyzed: 08/09/23 14:34									
M5PFPeA	411837.9	1.681733	393,535.00	1.681733	105	50 - 150	0.0000	+/-0.50	
M3PFHxS	106283.8	3.17765	99,885.00	3.177667	106	50 - 150	0.0000	+/-0.50	
M8PFOS	102802.2	3.612233	101,702.00	3.612233	101	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-30 (23G4062-19RE2) Lab File ID: 23G4062-19RE2.d Analyzed: 08/11/23 12:01									
M8FOSA	161669	3.972583	287,815.00	3.972583	56	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	47280.97	2.496817	56,342.00	2.496817	84	50 - 150	0.0000	+/-0.50	
M2PFTA	285293.1	4.30535	480,520.00	4.30535	59	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	92228.58	3.778883	58,511.00	3.778883	158	50 - 150	0.0000	+/-0.50	*
MPFBA	202368.2	1.058467	415,125.00	1.058467	49	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	123620.8	2.831117	173,313.00	2.831117	71	50 - 150	0.0000	+/-0.50	
M6PFDA	457284.6	3.779417	659,331.00	3.779417	69	50 - 150	0.0000	+/-0.50	
M3PFBS	127607.8	1.886667	198,372.00	1.886667	64	50 - 150	0.0000	+/-0.50	
M7PFUnA	375224.6	3.92205	560,946.00	3.93005	67	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	61655.15	3.4205	38,169.00	3.4293	162	50 - 150	-0.0088	+/-0.50	*
M5PFPeA	254850.1	1.714833	418,578.00	1.706567	61	50 - 150	0.0083	+/-0.50	
M5PFHxA	441274.8	2.58055	697,827.00	2.58055	63	50 - 150	0.0000	+/-0.50	
M3PFHxS	72422.7	3.193817	107,774.00	3.193817	67	50 - 150	0.0000	+/-0.50	
M4PFHpA	446671.7	3.1627	656,777.00	3.1627	68	50 - 150	0.0000	+/-0.50	
M8PFOA	492513.8	3.437833	693,830.00	3.437833	71	50 - 150	0.0000	+/-0.50	
M8PFOS	63987.68	3.620217	112,919.00	3.6282	57	50 - 150	-0.0080	+/-0.50	
M9PFNA	408567.7	3.629233	636,673.00	3.629233	64	50 - 150	0.0000	+/-0.50	
MPFDoA	238894.7	4.064667	474,020.00	4.064667	50	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	101361.4	3.937517	154,296.00	3.937517	66	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	114984.7	3.85765	169,060.00	3.85765	68	50 - 150	0.0000	+/-0.50	
PC-30 (23G4062-19RE3) Lab File ID: 23G4062-19RE3.d Analyzed: 08/11/23 15:14									
M8PFOS	111323.9	3.620217	112,919.00	3.620217	99	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
PC-6A (23G4062-20) Lab File ID: 23G4062-20.d Analyzed: 08/07/23 20:58									
M8FOSA	147343.7	3.9566	234,655.00	3.964583	63	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	82650.27	2.4146	46,178.00	2.4228	179	50 - 150	-0.0082	+/-0.50	*
M2PFTA	238276.9	4.27305	413,990.00	4.27305	58	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	95636.63	3.747017	54,885.00	3.747017	174	50 - 150	0.0000	+/-0.50	*
MPFBA	163742.9	1.033533	369,907.00	1.033533	44	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	120900.1	2.76565	142,835.00	2.773833	85	50 - 150	-0.0082	+/-0.50	
M6PFDA	462475	3.7555	543,778.00	3.7555	85	50 - 150	0.0000	+/-0.50	
M3PFBS	149945.7	1.828667	175,551.00	1.828667	85	50 - 150	0.0000	+/-0.50	
M7PFUnA	393525.7	3.897883	497,927.00	3.897867	79	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	81576.27	3.39635	34,993.00	3.39635	233	50 - 150	0.0000	+/-0.50	*
M5PFPeA	275271.5	1.656917	352,853.00	1.656917	78	50 - 150	0.0000	+/-0.50	
M5PFHxA	514611.8	2.506633	583,759.00	2.506633	88	50 - 150	0.0000	+/-0.50	
M3PFHxS	86745.28	3.1615	91,916.00	3.1615	94	50 - 150	0.0000	+/-0.50	
M4PFHpA	506882.4	3.122333	539,353.00	3.1304	94	50 - 150	-0.0081	+/-0.50	
M8PFOA	540772.2	3.405067	571,242.00	3.413117	95	50 - 150	-0.0081	+/-0.50	
M8PFOS	77129.62	3.596267	94,602.00	3.60425	82	50 - 150	-0.0080	+/-0.50	
M9PFNA	460661.1	3.5973	543,849.00	3.605283	85	50 - 150	-0.0080	+/-0.50	
MPFDoA	310591.4	4.0327	399,784.00	4.0327	78	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	102423.5	3.90555	126,657.00	3.90555	81	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	116920.2	3.825833	139,830.00	3.825833	84	50 - 150	0.0000	+/-0.50	
PC-6A (23G4062-20RE1) Lab File ID: 23G4062-20RE1.d Analyzed: 08/09/23 14:49									
M8PFOS	104005.3	3.612233	101,702.00	3.612233	102	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
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Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
DUP - PFW-1 (23G4062-21) Lab File ID: 23G4062-21.d Analyzed: 08/07/23 21:05									
M8FOSA	197724.7	3.9566	234,655.00	3.964583	84	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	57798.23	2.4146	46,178.00	2.4228	125	50 - 150	-0.0082	+/-0.50	
M2PFTA	367888.3	4.27305	413,990.00	4.27305	89	50 - 150	0.0000	+/-0.50	
MPFBA	238188.9	1.033533	369,907.00	1.033533	64	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	135938.9	2.76565	142,835.00	2.773833	95	50 - 150	-0.0082	+/-0.50	
M6PFDA	412746.8	3.755517	543,778.00	3.7555	76	50 - 150	0.0000	+/-0.50	
M3PFBS	167635.3	1.820383	175,551.00	1.828667	95	50 - 150	-0.0083	+/-0.50	
M7PFUnA	418656.1	3.897883	497,927.00	3.897867	84	50 - 150	0.0000	+/-0.50	
M5PFPeA	301524.6	1.656917	352,853.00	1.656917	85	50 - 150	0.0000	+/-0.50	
M5PFHxA	520617.5	2.498417	583,759.00	2.506633	89	50 - 150	-0.0082	+/-0.50	
M3PFHxS	59867.8	3.1615	91,916.00	3.1615	65	50 - 150	0.0000	+/-0.50	
M4PFHpA	417235.6	3.113417	539,353.00	3.1304	77	50 - 150	-0.0170	+/-0.50	
M8PFOA	405788.7	3.413133	571,242.00	3.413117	71	50 - 150	0.0000	+/-0.50	
M8PFOS	28087.83	3.612233	94,602.00	3.60425	30	50 - 150	0.0080	+/-0.50	*
M9PFNA	115197.1	3.605283	543,849.00	3.605283	21	50 - 150	0.0000	+/-0.50	*
MPFDaA	335358.8	4.0327	399,784.00	4.0327	84	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	105488.5	3.90555	126,657.00	3.90555	83	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	105573.9	3.825833	139,830.00	3.825833	76	50 - 150	0.0000	+/-0.50	
DUP - PFW-1 (23G4062-21RE1) Lab File ID: 23G4062-21RE1.d Analyzed: 08/09/23 15:11									
M2-8:2FTS	92567.39	3.76295	75,328.00	3.76295	123	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	55779.5	3.41245	38,644.00	3.41245	144	50 - 150	0.0000	+/-0.50	
M5PFPeA	421712.5	1.681733	393,535.00	1.681733	107	50 - 150	0.0000	+/-0.50	
M5PFHxA	684754.6	2.531267	649,360.00	2.531267	105	50 - 150	0.0000	+/-0.50	
M3PFHxS	106834.9	3.177667	99,885.00	3.177667	107	50 - 150	0.0000	+/-0.50	
M4PFHpA	644681.9	3.138483	612,608.00	3.138483	105	50 - 150	0.0000	+/-0.50	
M8PFOA	682813.4	3.421167	630,424.00	3.421183	108	50 - 150	0.0000	+/-0.50	
M8PFOS	103750.6	3.612233	101,702.00	3.612233	102	50 - 150	0.0000	+/-0.50	
M9PFNA	590511.9	3.613267	609,134.00	3.613267	97	50 - 150	0.0000	+/-0.50	
DUP - PFW-1 (23G4062-21RE2) Lab File ID: 23G4062-21RE2.d Analyzed: 08/09/23 17:12									
M8PFOS	100819.4	3.60425	101,702.00	3.612233	99	50 - 150	-0.0080	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
EB-7.26.23 (23G4062-22RE1) Lab File ID: 23G4062-22RE1.d Analyzed: 08/11/23 12:09									
M8FOSA	246119.7	3.972583	287,815.00	3.972583	86	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	60005.45	2.496817	56,342.00	2.496817	107	50 - 150	0.0000	+/-0.50	
M2PFTA	473031.1	4.30535	480,520.00	4.30535	98	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	164114.3	3.778883	58,511.00	3.778883	280	50 - 150	0.0000	+/-0.50	*
MPFBA	410538.8	1.058467	415,125.00	1.058467	99	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	154976.2	2.831117	173,313.00	2.831117	89	50 - 150	0.0000	+/-0.50	
M6PFDA	680950.9	3.779417	659,331.00	3.779417	103	50 - 150	0.0000	+/-0.50	
M3PFBS	192108	1.886667	198,372.00	1.886667	97	50 - 150	0.0000	+/-0.50	
M7PFUnA	598767.6	3.93005	560,946.00	3.93005	107	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	42432.35	3.4205	38,169.00	3.4293	111	50 - 150	-0.0088	+/-0.50	
M5PFPeA	388871.8	1.706567	418,578.00	1.706567	93	50 - 150	0.0000	+/-0.50	
M5PFHxA	643693.8	2.58055	697,827.00	2.58055	92	50 - 150	0.0000	+/-0.50	
M3PFHxS	101676	3.193817	107,774.00	3.193817	94	50 - 150	0.0000	+/-0.50	
M4PFHpA	608830.8	3.1627	656,777.00	3.1627	93	50 - 150	0.0000	+/-0.50	
M8PFOA	666878.2	3.437833	693,830.00	3.437833	96	50 - 150	0.0000	+/-0.50	
M8PFOS	102818.3	3.6282	112,919.00	3.6282	91	50 - 150	0.0000	+/-0.50	
M9PFNA	637143.8	3.629233	636,673.00	3.629233	100	50 - 150	0.0000	+/-0.50	
MPFDoA	416175.9	4.064667	474,020.00	4.064667	88	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	160651.3	3.937517	154,296.00	3.937517	104	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	168380.3	3.85765	169,060.00	3.85765	100	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B347705-BLK1)			Lab File ID: B347705-BLK1.d			Analyzed: 08/07/23 18:10			
M8FOSA	156067.5	3.956583	234,655.00	3.964583	67	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	46330.26	2.439333	46,178.00	2.431017	100	50 - 150	0.0083	+/-0.50	
M2PFTA	223381.9	4.281116	413,990.00	4.281116	54	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	51697.9	3.754983	54,885.00	3.754983	94	50 - 150	0.0000	+/-0.50	
MPFBA	268873.9	1.04185	369,907.00	1.04185	73	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	125483.6	2.782017	142,835.00	2.782017	88	50 - 150	0.0000	+/-0.50	
M6PFDA	404575	3.7555	543,778.00	3.7555	74	50 - 150	0.0000	+/-0.50	
M3PFBS	119377.9	1.845233	175,551.00	1.83695	68	50 - 150	0.0083	+/-0.50	
M7PFUnA	343225	3.906067	497,927.00	3.906067	69	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	30228.16	3.4044	34,993.00	3.4044	86	50 - 150	0.0000	+/-0.50	
M5PFPeA	276263.2	1.673467	352,853.00	1.6652	78	50 - 150	0.0083	+/-0.50	
M5PFHxA	465106.3	2.51485	583,759.00	2.51485	80	50 - 150	0.0000	+/-0.50	
M3PFHxS	63385.62	3.169583	91,916.00	3.169583	69	50 - 150	0.0000	+/-0.50	
M4PFHpA	439988.6	3.1304	539,353.00	3.1304	82	50 - 150	0.0000	+/-0.50	
M8PFOA	464684	3.413117	571,242.00	3.413117	81	50 - 150	0.0000	+/-0.50	
M8PFOS	58953.86	3.60425	94,602.00	3.60425	62	50 - 150	0.0000	+/-0.50	
M9PFNA	435544.8	3.605283	543,849.00	3.605283	80	50 - 150	0.0000	+/-0.50	
MPFDoA	264071.5	4.040683	399,784.00	4.040683	66	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	90778.05	3.913533	126,657.00	3.913533	72	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	98660.48	3.833783	139,830.00	3.833783	71	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B347705-BS1)			Lab File ID: B347705-BS1.d			Analyzed: 08/07/23 18:03			
M8FOSA	181360.4	3.964583	234,655.00	3.964583	77	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	50759.4	2.431017	46,178.00	2.431017	110	50 - 150	0.0000	+/-0.50	
M2PFTA	357492.6	4.281116	413,990.00	4.281116	86	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	66890.21	3.754983	54,885.00	3.754983	122	50 - 150	0.0000	+/-0.50	
MPFBA	305692.8	1.033533	369,907.00	1.04185	83	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	144224	2.782017	142,835.00	2.782017	101	50 - 150	0.0000	+/-0.50	
M6PFDA	490774	3.7555	543,778.00	3.7555	90	50 - 150	0.0000	+/-0.50	
M3PFBS	156864	1.83695	175,551.00	1.83695	89	50 - 150	0.0000	+/-0.50	
M7PFUnA	411743.3	3.906067	497,927.00	3.906067	83	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	37891.53	3.4044	34,993.00	3.4044	108	50 - 150	0.0000	+/-0.50	
M5PFPeA	312240.9	1.6652	352,853.00	1.6652	88	50 - 150	0.0000	+/-0.50	
M5PFHxA	524265.1	2.51485	583,759.00	2.51485	90	50 - 150	0.0000	+/-0.50	
M3PFHxS	83509.46	3.169583	91,916.00	3.169583	91	50 - 150	0.0000	+/-0.50	
M4PFHpA	506359.4	3.1304	539,353.00	3.1304	94	50 - 150	0.0000	+/-0.50	
M8PFOA	545760.1	3.413117	571,242.00	3.413117	96	50 - 150	0.0000	+/-0.50	
M8PFOS	80549.05	3.60425	94,602.00	3.60425	85	50 - 150	0.0000	+/-0.50	
M9PFNA	507004.2	3.605283	543,849.00	3.605283	93	50 - 150	0.0000	+/-0.50	
MPFDoA	322346.9	4.040683	399,784.00	4.040683	81	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	98263.45	3.913533	126,657.00	3.913533	78	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	115052.6	3.833783	139,830.00	3.833783	82	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B347705-MS1) Lab File ID: B347705-MS1.d Analyzed: 08/07/23 18:18									
M8FOSA	137990.8	3.964583	234,655.00	3.964583	59	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	87297.3	2.431017	46,178.00	2.431017	189	50 - 150	0.0000	+/-0.50	*
M2PFTA	247720.3	4.281133	413,990.00	4.281116	60	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	301101.1	3.754983	54,885.00	3.754983	549	50 - 150	0.0000	+/-0.50	*
MPFBA	135627	1.04185	369,907.00	1.04185	37	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	128214.3	2.773833	142,835.00	2.782017	90	50 - 150	-0.0082	+/-0.50	
M6PFDA	386732.6	3.763483	543,778.00	3.7555	71	50 - 150	0.0080	+/-0.50	
M3PFBS	134361.2	1.83695	175,551.00	1.83695	77	50 - 150	0.0000	+/-0.50	
M7PFUnA	334320.1	3.906067	497,927.00	3.906067	67	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	272013.5	3.4044	34,993.00	3.4044	777	50 - 150	0.0000	+/-0.50	*
M5PFPeA	239659.4	1.6652	352,853.00	1.6652	68	50 - 150	0.0000	+/-0.50	
M5PFHxA	455807.3	2.51485	583,759.00	2.51485	78	50 - 150	0.0000	+/-0.50	
M3PFHxS	68740.71	3.169583	91,916.00	3.169583	75	50 - 150	0.0000	+/-0.50	
M4PFHpA	413532.3	3.1304	539,353.00	3.1304	77	50 - 150	0.0000	+/-0.50	
M8PFOA	431613.4	3.413133	571,242.00	3.413117	76	50 - 150	0.0000	+/-0.50	
M8PFOS	50687.04	3.612233	94,602.00	3.60425	54	50 - 150	0.0080	+/-0.50	
M9PFNA	252288.9	3.613267	543,849.00	3.605283	46	50 - 150	0.0080	+/-0.50	*
MPFDaA	256384.6	4.040683	399,784.00	4.040683	64	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	78092.32	3.90555	126,657.00	3.913533	62	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	91704.87	3.833783	139,830.00	3.833783	66	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B347705-MSD1)			Lab File ID: B347705-MSD1.d			Analyzed: 08/07/23 18:25			
M8FOSA	129435.7	3.9646	234,655.00	3.964583	55	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	91549.66	2.431017	46,178.00	2.431017	198	50 - 150	0.0000	+/-0.50	*
M2PFTA	235019.3	4.281133	413,990.00	4.281116	57	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	272851.1	3.754983	54,885.00	3.754983	497	50 - 150	0.0000	+/-0.50	*
MPFBA	146426.1	1.04185	369,907.00	1.04185	40	50 - 150	0.0000	+/-0.50	*
M3HFPO-DA	112663.6	2.773833	142,835.00	2.782017	79	50 - 150	-0.0082	+/-0.50	
M6PFDA	409931.3	3.755517	543,778.00	3.7555	75	50 - 150	0.0000	+/-0.50	
M3PFBS	143507.8	1.83695	175,551.00	1.83695	82	50 - 150	0.0000	+/-0.50	
M7PFUnA	368245.4	3.906067	497,927.00	3.906067	74	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	257686.5	3.39635	34,993.00	3.4044	736	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	261191.2	1.6652	352,853.00	1.6652	74	50 - 150	0.0000	+/-0.50	
M5PFHxA	488142.6	2.51485	583,759.00	2.51485	84	50 - 150	0.0000	+/-0.50	
M3PFHxS	75318.77	3.169583	91,916.00	3.169583	82	50 - 150	0.0000	+/-0.50	
M4PFHpA	469342.4	3.1304	539,353.00	3.1304	87	50 - 150	0.0000	+/-0.50	
M8PFOA	480388.6	3.413133	571,242.00	3.413117	84	50 - 150	0.0000	+/-0.50	
M8PFOS	55741.86	3.60425	94,602.00	3.60425	59	50 - 150	0.0000	+/-0.50	
M9PFNA	283481.3	3.613267	543,849.00	3.605283	52	50 - 150	0.0080	+/-0.50	
MPFDoA	263926.8	4.040683	399,784.00	4.040683	66	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	90582.3	3.913533	126,657.00	3.913533	72	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	104522.5	3.833783	139,830.00	3.833783	75	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B347867-BLK1)			Lab File ID: B347867-BLK1.d			Analyzed: 08/07/23 10:48			
M8FOSA	139256.3	3.964583	234,655.00	3.964583	59	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	38407.7	2.447533	46,178.00	2.447533	83	50 - 150	0.0000	+/-0.50	
M2PFTA	253276.5	4.2892	413,990.00	4.2892	61	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	53825.86	3.76295	54,885.00	3.76295	98	50 - 150	0.0000	+/-0.50	
MPFBA	239882.2	1.050167	369,907.00	1.04185	65	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	103118.7	2.798383	142,835.00	2.7902	72	50 - 150	0.0082	+/-0.50	
M6PFDA	363058	3.771433	543,778.00	3.763467	67	50 - 150	0.0080	+/-0.50	
M3PFBS	123288.6	1.853533	175,551.00	1.853533	70	50 - 150	0.0000	+/-0.50	
M7PFUnA	288334	3.91405	497,927.00	3.914067	58	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	25026.28	3.41245	34,993.00	3.41245	72	50 - 150	0.0000	+/-0.50	
M5PFPeA	240629.2	1.681733	352,853.00	1.681733	68	50 - 150	0.0000	+/-0.50	
M5PFHxA	409891.1	2.539483	583,759.00	2.531267	70	50 - 150	0.0082	+/-0.50	
M3PFHxS	64225.32	3.17765	91,916.00	3.177667	70	50 - 150	0.0000	+/-0.50	
M4PFHpA	380288.4	3.14655	539,353.00	3.14655	71	50 - 150	0.0000	+/-0.50	
M8PFOA	415729.1	3.421167	571,242.00	3.421167	73	50 - 150	0.0000	+/-0.50	
M8PFOS	59645.87	3.612233	94,602.00	3.612233	63	50 - 150	0.0000	+/-0.50	
M9PFNA	378087.5	3.613267	543,849.00	3.613267	70	50 - 150	0.0000	+/-0.50	
MPFDoA	235450.6	4.048683	399,784.00	4.048683	59	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	77466.88	3.921533	126,657.00	3.921533	61	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	90408.52	3.841733	139,830.00	3.84175	65	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B347867-BS1)		Lab File ID: B347867-BS1.d				Analyzed: 08/07/23 10:40			
M8FOSA	148357.8	3.964583	234,655.00	3.964583	63	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	41332.74	2.447533	46,178.00	2.447533	90	50 - 150	0.0000	+/-0.50	
M2PFTA	280833.1	4.2892	413,990.00	4.2892	68	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	56124.76	3.76295	54,885.00	3.76295	102	50 - 150	0.0000	+/-0.50	
MPFBA	245600.5	1.050167	369,907.00	1.04185	66	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	101154.2	2.798383	142,835.00	2.7902	71	50 - 150	0.0082	+/-0.50	
M6PFDA	382922.5	3.77145	543,778.00	3.763467	70	50 - 150	0.0080	+/-0.50	
M3PFBS	127793.7	1.853533	175,551.00	1.853533	73	50 - 150	0.0000	+/-0.50	
M7PFUnA	309660.7	3.914067	497,927.00	3.914067	62	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	30811.67	3.41245	34,993.00	3.41245	88	50 - 150	0.0000	+/-0.50	
M5PFPeA	247987.8	1.681733	352,853.00	1.681733	70	50 - 150	0.0000	+/-0.50	
M5PFHxA	422332	2.539483	583,759.00	2.531267	72	50 - 150	0.0082	+/-0.50	
M3PFHxS	68233.92	3.177667	91,916.00	3.177667	74	50 - 150	0.0000	+/-0.50	
M4PFHpA	392623.3	3.14655	539,353.00	3.14655	73	50 - 150	0.0000	+/-0.50	
M8PFOA	421825.3	3.421183	571,242.00	3.421167	74	50 - 150	0.0000	+/-0.50	
M8PFOS	62281.26	3.612233	94,602.00	3.612233	66	50 - 150	0.0000	+/-0.50	
M9PFNA	389425	3.613267	543,849.00	3.613267	72	50 - 150	0.0000	+/-0.50	
MPFDoA	245887.6	4.048683	399,784.00	4.048683	62	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	76410.12	3.921533	126,657.00	3.921533	60	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	85740.3	3.84175	139,830.00	3.84175	61	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B348570-BLK1)			Lab File ID: B348570-BLK1.d			Analyzed: 08/11/23 10:02			
M8FOSA	190974.2	3.972583	287,815.00	3.972583	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	44634.98	2.51325	56,342.00	2.51325	79	50 - 150	0.0000	+/-0.50	
M2PFTA	272994.5	4.313416	480,520.00	4.313416	57	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	50819.35	3.78685	58,511.00	3.78685	87	50 - 150	0.0000	+/-0.50	
MPFBA	299066.9	1.058467	415,125.00	1.058467	72	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	154730.4	2.8393	173,313.00	2.8393	89	50 - 150	0.0000	+/-0.50	
M6PFDA	482211.2	3.787383	659,331.00	3.787383	73	50 - 150	0.0000	+/-0.50	
M3PFBS	153794.6	1.894967	198,372.00	1.894967	78	50 - 150	0.0000	+/-0.50	
M7PFUnA	349355.2	3.93005	560,946.00	3.938033	62	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	31484.81	3.4293	38,169.00	3.4293	82	50 - 150	0.0000	+/-0.50	
M5PFPeA	314961.2	1.7231	418,578.00	1.7231	75	50 - 150	0.0000	+/-0.50	
M5PFHxA	532696.7	2.596967	697,827.00	2.596983	76	50 - 150	0.0000	+/-0.50	
M3PFHxS	81363.6	3.201883	107,774.00	3.201883	75	50 - 150	0.0000	+/-0.50	
M4PFHpA	512785.2	3.170783	656,777.00	3.170783	78	50 - 150	0.0000	+/-0.50	
M8PFOA	528073.1	3.437833	693,830.00	3.445833	76	50 - 150	-0.0080	+/-0.50	
M8PFOS	74254.83	3.6282	112,919.00	3.6282	66	50 - 150	0.0000	+/-0.50	
M9PFNA	455624	3.629233	636,673.00	3.629233	72	50 - 150	0.0000	+/-0.50	
MPFDoA	290611.7	4.07265	474,020.00	4.072667	61	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	98760.29	3.937517	154,296.00	3.945517	64	50 - 150	-0.0080	+/-0.50	
D3-NMeFOSAA	111730	3.865617	169,060.00	3.865617	66	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B348570-BS1) Lab File ID: B348570-BS1.d Analyzed: 08/11/23 09:47									
M8FOSA	199788.8	3.972583	287,815.00	3.972583	69	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	50953.1	2.51325	56,342.00	2.51325	90	50 - 150	0.0000	+/-0.50	
M2PFTA	395222.5	4.313416	480,520.00	4.313416	82	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	56505.63	3.78685	58,511.00	3.78685	97	50 - 150	0.0000	+/-0.50	
MPFBA	324000.7	1.066783	415,125.00	1.058467	78	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	148797	2.8393	173,313.00	2.8393	86	50 - 150	0.0000	+/-0.50	
M6PFDA	516593.8	3.787383	659,331.00	3.787383	78	50 - 150	0.0000	+/-0.50	
M3PFBS	172402.1	1.90325	198,372.00	1.894967	87	50 - 150	0.0083	+/-0.50	
M7PFUnA	409864.1	3.938033	560,946.00	3.938033	73	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	34498.65	3.4293	38,169.00	3.4293	90	50 - 150	0.0000	+/-0.50	
M5PFPeA	345330.7	1.7231	418,578.00	1.7231	83	50 - 150	0.0000	+/-0.50	
M5PFHxA	598965.9	2.596983	697,827.00	2.596983	86	50 - 150	0.0000	+/-0.50	
M3PFHxS	89501.87	3.201883	107,774.00	3.201883	83	50 - 150	0.0000	+/-0.50	
M4PFHpA	559637.9	3.170783	656,777.00	3.170783	85	50 - 150	0.0000	+/-0.50	
M8PFOA	614478.4	3.437833	693,830.00	3.445833	89	50 - 150	-0.0080	+/-0.50	
M8PFOS	80001.98	3.6282	112,919.00	3.6282	71	50 - 150	0.0000	+/-0.50	
M9PFNA	498771.6	3.629233	636,673.00	3.629233	78	50 - 150	0.0000	+/-0.50	
MPFDoA	339542.4	4.07265	474,020.00	4.072667	72	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	103390	3.945517	154,296.00	3.945517	67	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	120514.3	3.865617	169,060.00	3.865617	71	50 - 150	0.0000	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS Dup (B348570-BSD1) Lab File ID: B348570-BSD1.d Analyzed: 08/11/23 09:55									
M8FOSA	183317.6	3.972583	287,815.00	3.972583	64	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	48059.06	2.51325	56,342.00	2.51325	85	50 - 150	0.0000	+/-0.50	
M2PFTA	240248.5	4.313416	480,520.00	4.313416	50	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	46754.64	3.78685	58,511.00	3.78685	80	50 - 150	0.0000	+/-0.50	
MPFBA	295598.3	1.066783	415,125.00	1.058467	71	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	147255.5	2.8393	173,313.00	2.8393	85	50 - 150	0.0000	+/-0.50	
M6PFDA	484021.7	3.787383	659,331.00	3.787383	73	50 - 150	0.0000	+/-0.50	
M3PFBS	157423.8	1.90325	198,372.00	1.894967	79	50 - 150	0.0083	+/-0.50	
M7PFUnA	390492.5	3.93005	560,946.00	3.938033	70	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	34677.39	3.4293	38,169.00	3.4293	91	50 - 150	0.0000	+/-0.50	
M5PFPeA	313318.3	1.7231	418,578.00	1.7231	75	50 - 150	0.0000	+/-0.50	
M5PFHxA	544027.6	2.596983	697,827.00	2.596983	78	50 - 150	0.0000	+/-0.50	
M3PFHxS	82174.81	3.201883	107,774.00	3.201883	76	50 - 150	0.0000	+/-0.50	
M4PFHpA	520069	3.170783	656,777.00	3.170783	79	50 - 150	0.0000	+/-0.50	
M8PFOA	526017.6	3.437833	693,830.00	3.445833	76	50 - 150	-0.0080	+/-0.50	
M8PFOS	77094.91	3.6282	112,919.00	3.6282	68	50 - 150	0.0000	+/-0.50	
M9PFNA	494919.1	3.629233	636,673.00	3.629233	78	50 - 150	0.0000	+/-0.50	
MPFDoA	360725.3	4.072667	474,020.00	4.072667	76	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	102673.8	3.945517	154,296.00	3.945517	67	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	112949.9	3.865617	169,060.00	3.865617	67	50 - 150	0.0000	+/-0.50	

CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>SOP-454 PFAS in Water</i>	
Perfluorobutanoic acid (PFBA)	NH-P,PA
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA
Perfluorohexanoic acid (PFHxA)	NH-P,PA
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA
Perfluorododecanoic acid (PFDoA)	NH-P,PA
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanefulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA
Perfluorooctanoic acid (PFOA)	NH-P,PA
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA
Perfluorononanoic acid (PFNA)	NH-P,PA

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024



Phone: 612-607-6400
Fax: 612-607-6344

Contact: <https://www.pacelabs.com/contact-us/contact-environmental-sciences/>

Company Name: Barnstable County

Address: 3195 Main St. PO Box 427

Phone: BFTA

Project Name: Barnstable, MA

Project Location: 6206

Project Manager: Roger Thibault

Pace Analytical Quote Name/Number: *SWildanger @ BETA Inc. 6/23/2023*

Invoice Recipient: *Pigalle Elie - police/barnstable.com*

Sampled By: Chirs Otin, Laura Bouley, Amanda Ray

Client Sample ID / Description

Beginning Date/Time

Ending Date/Time

COMP/GRAB

Matrix Code

Conc Code

VIALS

GLASS

PLASTIC

BACTERIA

ENCORE

PC-16D

MW-401S

MW-401D

MW-403S

MW-403D

MW-402S

MW-402D

PC-39

PC-39D

EB-7/25

Client Comments:

Date/Time: 7/26/23 16:00

Date/Time: 7/28/23 13:10

Date/Time: 7/28/23 20:30

Date/Time:

Date/Time:

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<https://www.pacelabs.com/>

1800 Elm Street SE
Minneapolis, MN 55414

CHAIN OF CUSTODY RECORD

1800 Elm Street SE
Minneapolis, MN 55414

ANALYSIS REQUESTED

Requested Turnaround Time

7-Day

10-Day

Due Date:

PFAS 10-Day (std)

Field Filtered

Lab to Filter

Orthophosphate Samples

Field Filtered

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Requested Turnaround Time

7-Day

10-Day

Due Date:

PFAS 10-Day (std)

Field Filtered

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Orthophosphate Samples

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Requested Turnaround Time

7-Day

10-Day

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PFAS 10-Day (std)

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PFAS 10-Day (std)

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Due Date:

PFAS 10-Day (std)

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23G4062

Doc # 381 Rev 4_01/08/2020

Page 2 of 3

1800 Elm Street SE
Minneapolis, MN 55414

https://www.pacelabs.com/

CHAIN OF CUSTODY RECORD

Requested Turnaround Time
7-Day ☐ 10-Day ☐ 15-Day ☐
PFAS 10-Day (std) ☒ Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐ 4-Day ☐
2-Day ☐ Lab to Filter

Orthophosphate Samples
Field Filtered
Lab to Filter

Company Name:
Address:
Phone:
Project Name:
Project Location:
Project Number:
Project Manager:

Company Name: Barnstable County
Address: 3195 Main St. PO Box 427
Phone: BFTA
Project Name: Barnstable, MA
Project Location: 6206
Project Number:
Project Manager: Roger Thibault

Pace Analytical Quote Name/Number
Invoice Recipient: Stacy W. Dwyer, Patricia Ellis - pettise@barnstablecounty.org
Sampled By: Chris Olen, Laura Bouley, Amanda Ray

Format: PDF ☒ EXCEL ☒
Other: SOXHLET
CLP Like Data Pkg Required: ☐
Email To:
Fax To #:

PCB ONLY
NON SOXHLET

PCB ONLY
NON SOXHLET

Client Sample ID / Description
Beginning Date/Time
Ending Date/Time
COMP/GRAB
Matrix Code
Conc Code

Client Sample ID / Description
Beginning Date/Time
Ending Date/Time
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Conc Code

Client Sample ID / Description
Beginning Date/Time
Ending Date/Time
COMP/GRAB
Matrix Code
Conc Code



Contact: https://www.pacelabs.com/contact-us/contact-environmental-sciences/
Barnstable County
3195 Main St. PO Box 427
BFTA
Barnstable, MA
6206
Roger Thibault

Pace Analytical Quote Name/Number
Invoice Recipient: Stacy W. Dwyer, Patricia Ellis - pettise@barnstablecounty.org
Sampled By: Chris Olen, Laura Bouley, Amanda Ray

Client Sample ID / Description
Beginning Date/Time
Ending Date/Time
COMP/GRAB
Matrix Code
Conc Code

Client Sample ID / Description
Beginning Date/Time
Ending Date/Time
COMP/GRAB
Matrix Code
Conc Code

Client Sample ID / Description
Beginning Date/Time
Ending Date/Time
COMP/GRAB
Matrix Code
Conc Code

Relinquished by: (signature) Date/Time: 7-26-23 8:00
Received by: (signature) Date/Time: 7-28-23 13:10
Relinquished by: (signature) Date/Time: 7-28-23 20:30
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:
Lab Comments:

ANALYSIS REQUESTED

NP ☐ PFAS ☐
Preservation Code
Total Number Of:
VIALS _____
GLASS _____
PLASTIC _____
BACTERIA _____
ENCORE _____
Glassware in the fridge? Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N
*Pace Analytical 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)

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

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

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

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

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

ENV-FRM-ELON-0001 V05__Sample Receiving Checklist

Sample	Soils Jars (Circle Amb/Clear)				Ambers				Plastics							VOA Vials						Other / Fill in					
	16oz Amb/Clear	8oz Amb/Clear	4oz Amb/Clear	2oz Amb/Clear	Unpreserved	HCL	Sulfuric	Sulfuric	250mL	100mL	1 Liter	500mL	250mL				Unpreserved	HCl	MeOH	D.I. Water	Bisulfate	Col/Bact					
1																											
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Appendix I - Public Notifications



September 2023

Mark S. Ells, Town Manager
Town of Barnstable
200 Main Street
Hyannis, MA 02601

RE: Notice of Interim Phase II CSA Status Report #2
The Former Barnstable County Fire Training Academy Site
155 South Flint Rock Road
Barnstable, Massachusetts
DEP Release Tracking No. 4-26179
BETA Project File #6206

Dear Mr. Ells,

As required by the Massachusetts Contingency Plan (MCP) 310 CMR 40.1403(3)(e), BETA Group, Inc.(BETA) is notifying you on behalf of our client, Barnstable County, that the Interim Phase II Comprehensive Site Assessment (Phase II CSA) Status Report No. 2 has been submitted to the Massachusetts Department of Environmental Protection - Bureau of Waste Site Cleanup (MassDEP – BWSC). The Interim Phase II CSA Status Report No. 2 has been prepared at the request of MassDEP for the release Site referenced as the former Barnstable County Fire Training Academy (FTA) located at 155 South Flint Rock Road in Barnstable, Massachusetts (the Disposal Site or Site). The release Site and related documentation is being managed under MassDEP Release Tracking Number (RTN) 4-26179.

The release Site is associated with a release of poly- and perfluoroalkyl substances (PFAS) attributable to historic training with aqueous film-forming foams (AFFF). In August 2016, MassDEP Southeast Regional Office issued a Notice of Responsibility (NOR) to Barnstable County, as the owner and operator of the FTA at that time, that the detection of elevated concentrations of PFAS in groundwater at the Site constituted a release under the MCP. MassDEP issued Release Tracking Number (RTN) 4-26179 to this release. As summarized in the NOR, based on the detected PFAS concentrations in soil and groundwater at the FTA and the inferred groundwater flow, MassDEP determined that the releases of PFAS from the use of aqueous film-forming foam (AFFF) at the FTA is a source of PFAS detected in the Mary Dunn public water supply wells.

The Interim Phase II CSA Status Report No. 2 summarizes the on-going Phase II CSA activities completed from December 2022 to July 2023. The Phase II CSA activities are currently being conducted in addition to the on-going Immediate Response Actions at the Site. The primary Phase II CSA activities summarized in this report include:

- soil and groundwater sampling on and around the FTA and surrounding properties;
- groundwater gauging and elevation survey;
- installation of additional monitoring wells at varying distances to the south and east of the FTA;
- Unnamed Pond sediment sampling;
- Mary Dunn Pond bathymetry survey, sediment and surface water sampling.

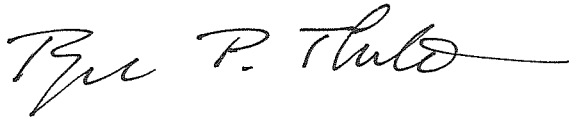
Phase II CSA activities for RTN 4-26179 are on-going and are expected to be completed by Summer 2024.

The Interim Phase II CSA Status Report #2 is available electronically via the searchable sites database of the MassGOV / MassDEP website via the following link:

<https://eeaonline.eea.state.ma.us/portal#!/wastesite/4-0026179>

If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,
BETA Group, Inc.



Roger P. Thibault, P.E., LSP
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