IMMEDIATE RESPONSE ACTION PLAN
Status Report 12

Cape Cod Gateway Airport
Hyannis, Massachusetts

RTN 4-26347

October 2022

Prepared for:
Cape Cod Gateway Airport
480 Barnstable Road Hyannis,
MA 02840

Prepared by:
Horsley Witten Group, Inc.
90 Route 6A
Sandwich, MA 02563

IMMEDIATE RESPONSE ACTION PLAN STATUS REPORT 12
CAPE COD GATEWAY AIRPORT
HYANNIS, MASSACHUSETTS
RTN 4-26347

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

The Horsley Witten Group, Inc. (HW) has been retained by the Cape Cod Gateway Airport (the "Airport"), formerly known as the Barnstable Municipal Airport, to develop this 12th Immediate Response Action (IRA) Status Report for its property at 480 Barnstable Road, Hyannis, Massachusetts (Figure 1). HW has prepared this report in accordance with the Massachusetts Contingency Plan 310 CMR 40.0000 (MCP) on behalf of:

Ms. Katie Servis, Airport Manager
Cape Cod Gateway Airport
Hyannis, Massachusetts 02601
(508) 775-2020

This report describes IRA related activities conducted between April 2022 and October 2022.

2.0 SUMMARY OF IRA PLAN AND IRA MODIFICATION

An IRA was initiated in response to a Notice of Responsibility (NOR) for Release Tracking Number (RTN) 4-26347 dated November 10, 2016, issued to the Airport by the Massachusetts Department of Environmental Protection (MassDEP). The NOR requested that the Airport conduct investigations to evaluate:

- The source(s) of Per- and Poly-Fluoroalkyl Substances (PFAS) including perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) previously detected in groundwater at the Airport and several adjacent properties;
- The source(s) of 1,4-dioxane, previously detected in a monitoring well downgradient of the Airport on the Maher wellfield property; and
- To identify potential impacts to public water supply wells operated by the Hyannis Water District at the Mary Dunn and Maher wellfields.

A proposed IRA plan was submitted for approval in response to the NOR. Subsequently, a meeting was held by MassDEP at the Airport that included other stakeholders including the Barnstable Department of Public Works, the Hyannis Water District, and Barnstable County representatives (representing the Fire Training Academy). At the meeting, IRA plans were coordinated between the Airport and Fire Training Academy including sampling locations, type of analysis, groundwater modeling, goals, and next steps. The IRA plan served as the guide for the soil and groundwater testing conducted since November 2016 to follow up on the results of the previous analyses.

In June 2019, the MassDEP issued a Request for Modified Immediate Response Action Plan/Interim Deadline dated June 18, 2019 (the "Modified IRA Request") to the Airport. The Modified IRA Request asked that the Airport propose response actions to *"reduce infiltration of precipitation through PFAS-impacted soil, such as temporarily capping the source areas; excavating and properly disposing of the PFAS-impacted soil; or some equivalent approach".*

The Airports response is documented in the report titled *Final Immediate Response Action Plan Modification,* prepared by HW and dated December 2019 (the "IRA Modification"). The IRA Modification included details for the installation of a cap in two select areas to reduce precipitation infiltration. The two areas are identified as the Deployment Area and the Airport Rescue and Fire Fighting/Snow Removal Equipment (ARFF/SRE) Building Area. The two capped areas total approximately 94,100-square feet and represent a majority of the known PFAS in soil source areas relating to the historic application of aqueous film forming foam (AFFF) by the Airport. Areas of PFAS in soil remaining above the applicable Method 1 soil standard located outside of the caped area are indicated on Figure 2. Evaluation of these areas will be included in future response actions and/or included as part of a future risk assessment.

2.1 Background

Prior to issuance of the NOR, the Airport had conducted investigations on both 1,4-dioxane and PFAS and provided the results to MassDEP. In July 2015, HW sampled groundwater from seven groundwater monitoring wells for 1,4-dioxane. This contaminant was detected in groundwater monitoring well OW-9DD located in the Maher wellfield at a concentration of 0.926 micrograms per liter (ug/L). This concentration is above the applicable Method 1 standard of 0.30 ug/L. This groundwater monitoring well is screened from 77 to 87 feet below the ground surface.

At that time, it was thought that potential sources of 1,4-dioxane at the Airport could be related to a historic release of 1,1,1-trichloroethane (1,1,1-TCA) from an oil/water separator associated with a floor drain in the former Provincetown Boston Airlines hangar (currently leased to Cape Air) and/or from the application of deicing fluid. Given the screen depth of monitoring well OW-9DD, the 1,4-dioxane may also be from an off-Airport source.

On August 4, 2016, MassDEP issued a Request for Information (RFI) to the Airport requiring investigation of PFAS. On July 1 and 5, 2016, HW collected samples from six groundwater monitoring wells and submitted the samples for laboratory analysis of PFOS and PFOA. These compounds were detected in each of the wells tested. At monitoring wells HW-3 and HW-5, the sum of PFOS and PFOA were 0.0931 and 0.151 ug/L respectively, above the EPA health advisory limit and applicable MassDEP standard. PFOS and PFOA were also detected above the EPA health advisory limit and applicable MassDEP standard in monitoring well HW-1, located at the upgradient, western boundary of the Airport. Additional details about 1,4-dioxane and PFAS are included in the Revised Phase II Comprehensive Site Assessment Report submitted to the MassDEP in January 2022 (the "Revised Phase II Report").

2.2 Actions Under the IRA Plan

A summary of the IRA activities conducted between April 2022 and October 2022 include:

- Groundwater Sampling for PFAS.

As indicated in the Revised Phase II, the Airport is not the source of 1,4-dioxane and as such, additional delineation of the non-airport related source(s) of 1,4-dioxane will not be completed. Refer to Figure 3 for historic 1,4-dioxane testing locations and results.

3.0 APPLICABLE MCP STANDARDS

Pursuant to 310 CMR 40.0900, the characterization of risk of harm to health, safety, public welfare, and the environment must be evaluated at each disposal site. This characterization includes the determination of site-specific soil and groundwater categories based on site location and use, and the comparison of laboratory results to these standards (310 CMR 40.0930).

In accordance with 310 CMR 40.0933, the applicable soil category is selected based upon the frequency, intensity of use, and accessibility of the Airport by adults and children. Based on these criteria, soil at the Airport is category S-1/GW-1 and S-1/GW-3.

Groundwater located within a Current Drinking Water Source Area is considered category GW-1. The Airport is located within several zones of contribution (Zone II) for Barnstable Village, the Hyannis Water District, and the Town of Yarmouth. Zone IIs are considered current drinking water sources as defined in 310 CMR 40.0006; thus, category GW-1 is applicable.

Groundwater located within 30 feet of an occupied building that has an average annual depth of less than 15 feet is categorized as GW-2. This is primarily a concern because of the possibility of vapor impacts to indoor air. The average annual depth to groundwater at the Airport is greater than 15 feet; therefore GW-2 Standards do not apply. Also, all disposal sites shall be considered a potential source of discharge to surface water, and therefore categorized as GW-3. Based on these criteria, categories GW-1 and GW-3 are applicable to the Airport.

The soil and groundwater standards applicable to the Airport for PFAS as described in the document titled Final PFAS – Related Changes to the MCP – 2019-12-13 prepared by the MassDEP and promulgated December 27, 2019 are as follows:

PFAS Standards				
Analyte	Soil Standard (ug/kg)		Groundwater Standard (ug/l)	
	S-1/GW-1	SW-1/GW-3	GW-1	GW-3
Pefluorodecanoic Acid (PFDA)	0.3	300	N/A	40,000
Perfluoroheptanoic Acid (PFHpA)	0.5	300	N/A	40,000
Perfluorohexanesulfonic Acid (PFHxS)	0.3	300	N/A	500
Perfluorononanoic Acid (PFNA)	0.32	300	N/A	40,000
Perfluorooctanesulfonic Acid (PFOS)	2	300	N/A	500
Perfluorooctanoic Acid (PFOA)	0.72	300	N/A	40,000
PFAS Sum of Six*	N/A	N/A	0.02	N/A

* PFAS Sum of Six is the sum of PFDA, PFHpA, PFHxS, PFNA, PFOS, and PFOA

4.0 HISTORIC FIELD INVESTIGATIONS

Historic field investigations conducted at the Airport since the November 2016 NOR and documented in prior IRA status reports are summarized below:

- Three soil samples were collected on December 9, 2016. One sample was taken from each location where it was determined that AFFF had been used at the Airport. The areas included the MCI Drill Area, the Deployment Area, and the 1991 Drill Location.
- The installation of groundwater monitoring wells at six locations in April 2017: in the vicinity of potential sources of PFAS at the ARFF/SRE Area, at the Deployment Area and at upgradient locations outside of the Airport to evaluate potential off-site sources of PFAS and 1,4-dioxane.
- Groundwater from the new wells was initially sampled for PFAS and 1,4-dioxane in April 2017. Additional groundwater samples and one surface water sample were collected for analysis of PFAS on June 20, 2017.
- A second round of soil samples were collected on June 20, 2017 adjacent to the ARFF/SRE Building and within the Deployment Area to begin to determine the extent of PFAS within the surface soils. Based on the results of these analyses, a third round of samples from these two locations were collected on September 26, 2017. The third round of sampling was designed to further delineate the extent of PFAS in soils both horizontally and vertically, with samples taken at the ground surface and at two and four feet below ground surface (BGS).
- One sample of AFFF concentrate was analyzed for PFAS compounds. The analysis was inconclusive (only 225.5 ug/l of total PFAS was detected) and it is assumed that the sample was not homogeneous (i.e., had separated in the foam bucket) and that the addition of water to the concentrated may affect how precursor PFAS analytes transform into various other detectable PFAS compounds.
- Six soil samples were analyzed for PFAS leaching potential using a synthetic precipitation leaching procedure (SPLP) test between September and October 2017. The chosen samples included four samples from the Deployment Area and two samples from runway reconstruction soils stockpiled at the Airport.
- In October 2017, 20 surface samples were collected both on and off Airport property to determine the concentration of PFAS in the area.
- In October 2017, three composite soil samples were taken from piles of soil associated with the redevelopment of Runway 15/33. These piles were located on Airport property at the site of the former Mildred's Restaurant and were analyzed for PFAS compounds to evaluate if soil removed from the Airport as part of this redevelopment contained PFAS.

- On August 14, 2018, 24 PFAS surface soil samples were collected in proximity to the ARFF/SRE Building Area and the Deployment Area. PFAS compounds were previously detected in these areas and additional samples were collected to determine the vertical extent of PFAS impacts in soil and to refine the soil disposal site boundary at the Airport.

- In October 2018, three soil borings (DL11, DL14 and HW-F) were advanced in the Deployment Area. One soil boring (ARFF3) was advanced, and one surface soil sample (HW-3) was collected near the ARFF/SRE Building in order to further delineate the extent of PFAS in soils both horizontally and vertically.

- In October 2018, six monitoring wells were installed at the Airport. A cluster of three wells (HW-G(s), HW-G(m), and HW-G(d)) was installed at an upgradient location to evaluate potential off-site sources of PFAS. Three additional wells (HW-H, HW-I, and HW-J) were installed southeast of the Deployment Area adjacent to the East Ramp.

- In November 2018, six groundwater samples were collected to evaluate PFAS concentrations in the Deployment Area. Four groundwater samples and one surface water sample from Mary Dunn Pond were also collected for analysis of oxygen and hydrogen isotopes to determine the contribution of pond water from Mary Dunn Pond to the four downgradient monitoring wells. The analysis was inconclusive in tracing the contribution of pond water in the downgradient monitoring wells.

- In December 2018, two soil samples were collected from the 1991 Drill Location to determine if PFAS detected in the area are related to background conditions.

- In December 2018, 12 groundwater samples were collected for analysis of PFAS, and 13 groundwater samples were collected for analysis of oxygen and hydrogen isotopes to determine the contribution of pond water from Mary Dunn Pond to the 13 downgradient wells. Groundwater samples were also collected from four monitoring wells in the Maher Wellfield for analysis of 1,4-dioxane.

- In February 2019, three additional surface soil samples were collected to further delineate the soil Disposal Site boundary around the ARFF/SRE building.

- In May and June 2019, HW installed nine groundwater monitoring wells to delineate the vertical and horizontal extent of PFAS and 1,4-dioxane at the Airport and on adjacent hydraulically upgradient properties.

- In June 2019, eight groundwater samples were collected from newly installed groundwater monitoring wells HW-L, HW-K, HW-I (m), HW-I (d), HW-M, HW-D(d), HW-D (dd), and HW-N for PFAS.

- In July 2019, one groundwater sample was collected from the newly installed groundwater monitoring wells HW-O for PFAS. One groundwater sample was collected from HW-L for 1,4-dioxane.

- In July 2019, two surface water samples were collected from Upper Gate and Lewis Ponds for PFAS analysis.

- In August 2019, four groundwater samples were collected from monitoring wells HW-N, HW-A(d), HW-O, and HW-1 to evaluate potential sources of 1,4-dioxane entering the Airport from unknown upgradient sources(s). One groundwater sample was also collected from groundwater monitoring well HW-E for PFAS.

- In August 2019, soil sample DL 11 (0-1) was collected from the Deployment Area.

- In August 2019, six spray water samples were collected from discharge locations on a fire truck at the Airport. The samples were collected to verify that the valve mechanism that controls the mixing of AFFF with water was working appropriately. PFAS should not be detected in the spray water. Although the spray water is not considered drinking water, PFAS was detected in each of the six samples collected above the GW-1 standard.

- On September 27, 2019, HW collected groundwater samples from six monitoring wells located on the Airport for 1,4-dioxane analysis.

- In November 2019, the Airport replaced the valve mechanism in the fire truck to ensure that AFFF was no longer mixing with the water despite the mechanism not being engaged. In December 2019, HW resampled the six discharge locations from the fire truck at the Airport. PFAS was detected at various concentrations at each location, but all were below the GW-1 standard.
- Between May 5th and May 21st, 2020, HW collected 16 groundwater samples PFAS analysis. Refer to Table 2 for groundwater results.
- Between May 5th and May 13th, 2020, HW collected groundwater samples from four monitoring wells for 1,4-dioxane analysis.
- Between September 14th and September 24th, 2020, HW and Desmond Well Drilling installed 13 monitoring wells.
- On September 17, 2020, HW collected groundwater samples from the three Maher Wells (ME-1 through ME-3) for PFAS analysis.
- Between September 14th and September 30th, 2020, HW collected 23 soil samples for PFAS analysis.
- Between October 1 and October 7, 2020, HW collected groundwater samples from 16 monitoring wells for PFAS.
- On October 2 and 7, 2020 HW collected groundwater samples from four monitoring wells for 1,4-dioxane analysis.
- Between November 5 and 6, 2020, HW collected five groundwater samples for PFAS analysis.

- On November 17, 2020, HW collected two roof samples (rubber membrane and asphalt shingle) from the ARFF/SRE building for SPLP PFAS. The testing was completed to determine if roofing materials were a potential source of PFAS in groundwater through stormwater infiltration. PFAS was detected in each of the samples collected. Although the leachate is not considered drinking water, the concentration of the MassDEP Sum of 6 were below the Method 1 GW-1 and GW-3 standards.
- On February 18 and 19th, 2021 HW conducted hydraulic conductivity testing at three monitoring well locations. Refer to the Revised Phase II Report for additional details.
- Between March 17th and March 19, 2021, HW collected 21 groundwater samples for PFAS analysis as part of the first round of post-cap semiannual monitoring.
- Between April 5th and April 7th, 2021, HW and Desmond Well Drilling installed monitoring wells HW-U(s), HW-U(m), HW-W(m), HW-W(d), and HW-W (dd).
- Between April 6th and 19th, 2021, HW collected 17 soil samples for total organic carbon (TOC) analysis. The TOC samples were collected from various depths between the ground surface and 65 feet below grade. The TOC data was used to determine plume migration.
- On April 19, 2021, HW sampled the recently installed monitoring wells HW-U(s), HW-U(m) HW-W(m), HW-W(d), and HW-W (dd) for further analysis of PFAS compounds in groundwater.
- On September 7, 2021, HW and New England Geotech installed monitoring wells HW-X(s) and HW-X(m). The monitoring wells were installed adjacent to the former ARFF/SRE Building.
- On September 7, 2021, HW collected a soil sample from HW-X (m) and submitted it for PFAS analysis. None of the MassDEP six regulated PFAS compounds were detected above the laboratory method detection limit.
- On September 10, 2021, HW collected groundwater samples from HW-X (s) and HW-X(m) and submitted them for PFAS and 1,4-dioxane analysis.
- Between September 1 and September 11, 2021, HW collected 26 groundwater samples as part of the second round of post cap semiannual monitoring.
- On September 10, 2021, HW collected two groundwater samples from monitoring wells HW-E and HW-J located in the Deployment Area for 1,4-dioxane. 1,4-dioxane was not detected above the laboratory reporting limit.
- On March 2nd and 4th, 2022, HW collected six surficial composite soil samples from Runway 6-24 and submitted them to Alpha Analytical for PFAS analysis. Runway 6-24 will be redeveloped in 2022-2023 and the soil testing was conducted to evaluate how soils removed from the areas around the runway would need to be managed if they

were taken off site. None of the MassDEP six regulated PFAS compounds were detected above the applicable Method 1 Standard.

- Between March 15th and March 31st, 2022, HW collected 29 groundwater samples for PFAS analysis.

Soil, surface water and groundwater sampling locations are indicated on Figures 2 through 7. Tabulated analytical data are included on Tables 1 through 10. Laboratory data packages and soil boring logs associated with historic field investigations have previously been submitted to MassDEP and are available in other IRA Status Reports and phased reports (i.e., Phase II).

5.0 FIELD INVESTIGATIONS CONDUCTED DURING THE CURRENT REPORTING PERIOD

Details concerning field investigations conducted between April 2022 and October 2022 are summarized below.

- On May 18, 2022 HW collected three groundwater samples from HW-T(S), HW-T(M) and HW-H.

- On August 3, 2022 HW collected groundwater samples from Maher Wells ME-1, ME-2 and ME-3 and monitoring wells HW-I(s), HW-I(m), HW-I(d) HW-S(s), and HW-S(m) for PFAS analysis.

Analytical results are included on Table 2, and laboratory reports are included in Appendix A. PFAS in groundwater trend graphs for select wells in the vicinity of the caps are included in Appendix B.

HW anticipates collecting samples from the three Maher Wells and HW-I(s), HW-I(m), HW-I(d) HW-S(s), and HW-S(m) quarterly for the next year as part of the ongoing PFAS plume migration monitoring and to document the effectiveness of the caps. HW will also sample select wells in the vicinity of the ARFF/SRE building bi-annually.

6.0 BI-ANNUAL CAP INSPECTION AND CAP PERFORMANCE MONITORING

HW inspected the asphalt cap on September 20, 2022 in the vicinity of the ARFF/SRE Building. The asphalt cap was free of cracks and significant depressions as indicated in the photos below.

HW inspected the geomembrane cap on September 20, 2022, in the vicinity of the Deployment Area. The sand and loam protective layer over the geomembrane cap were intact with no signs of significant erosion as indicated in the photos below.

As indicated above, HW collected groundwater samples as part of the semi-annual cap inspections to determine the effectiveness of the caps. The rounds of post-cap monitoring are promising and show a substantial decrease in Total PFAS concentration in the immediate vicinity of the caps as indicated on the graphs presented in Appendix B.

HW will continue to inspect the two cap areas every six months and collect groundwater samples from select existing monitoring wells to document the effectiveness of the caps.

7.0 GROUNDWATER MODELING AND CONTAMINANT TRANSPORT ANALYSIS

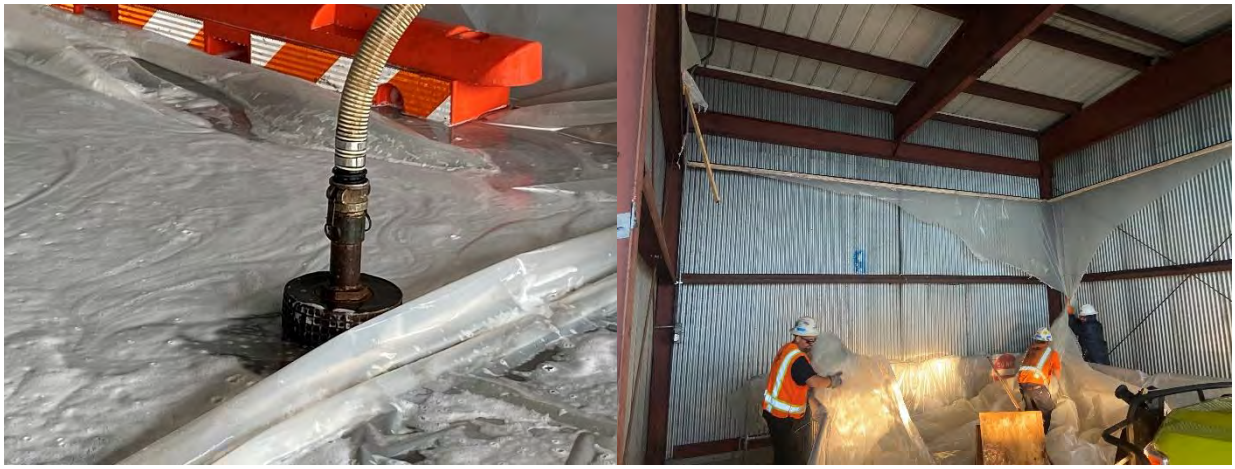
A full evaluation of the groundwater plumes associated with the releases at the Deployment Area and the ARFF/SRE Building Area are included in the Revised Phase II Report submitted to MassDEP in January 2022. Additional groundwater testing and forensic techniques will be utilized to further refine the groundwater contaminant fate and transport characteristics.

8.0 UPGRADES TO AFFF TESTING PROTOCOLS AT THE AIRPORT

The Airport has purchased an Ecologic Foam Test System to allow the Airport to test the AFFF delivery systems on its current fire trucks without having to discharge the foam into the environment. The use of the new system meets the Federal Aviation Administration requirements for the regular testing of AFFF usage. Therefore, it is anticipated that no further foam will be deployed at the Airport except during an emergency situation when its use is required.

The Airport received a new fire fighting vehicle that deploys AFFF to replace an older fire fighting vehicle in the Airport's fleet. The FAA requires that AFFF be discharged from new equipment at the delivery location before the equipment enters service to verify that the vehicle systems operate normally and produce the appropriate AFFF mixture. To complete this test, the airport constructed secondary containment within an aircraft hangar planned for demolition. The Airport placed a berm around the concrete floor and then lined the concrete floors, berm, metals walls and the ceiling with polyethylene sheeting as indicated in the photographs below.

FAA regulation do not mandate the use of a fluorinated foam for the test. As such, the Airport completed the test using Avio Green KHC 3% Fluorine Free Foam Concentrate manufactured by National Foam. During the test, HW verified that the foam stayed within the containment area and Global Remediation provided vacuum truck services to contain the foam material and rinse water. The foam and rinse water were then transferred to 10 approximate 250-gallon polyethylene totes for future off-site disposal. The polyethylene sheeting was containerized for future off site disposal. Select photographs of the event are indicated below.

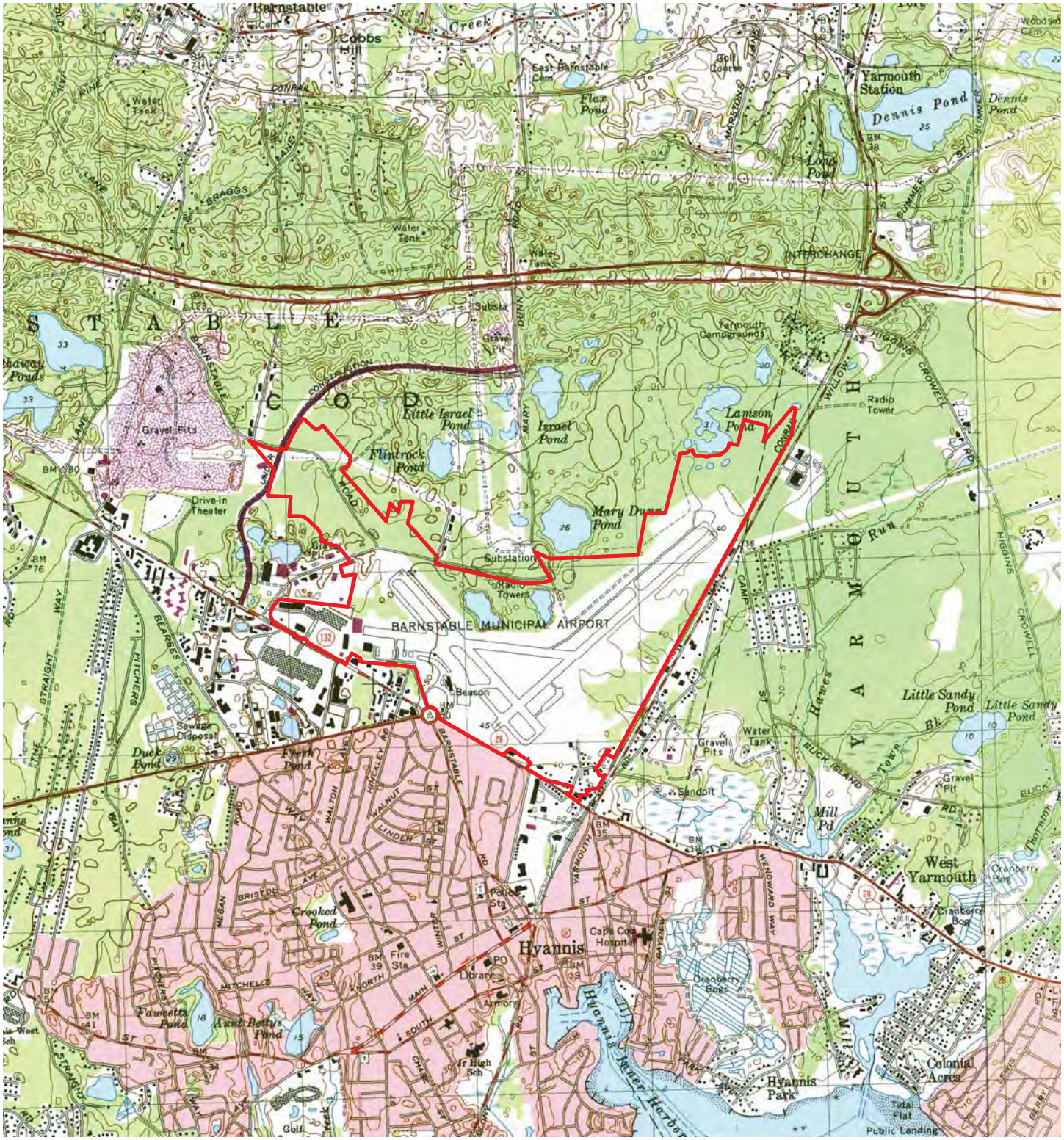


The information from the test was used to calibrate the AFFF consistency for future testing using the Ecologic cart so that future AFFF deployment will not be necessary.

9.0 PLANS FOR NEXT REPORTING PERIOD

HW will continue to conduct inspections of the two cap areas and monitor groundwater. Further testing of soil and/or groundwater is planned to refine the disposal site boundaries in the Deployment Area and ARFF Building Area. Future analytical results and boring logs will be included in future status reports.

FIGURES



Document Path: H:\Projects\HYA\11072 (697 Barnstable Airport)\GIS_Maps\Maps\USGS_Locus_20130815.mxd

Legend

Airport Property Line

*Hyannis Topographic Quadrangle

N

Miles

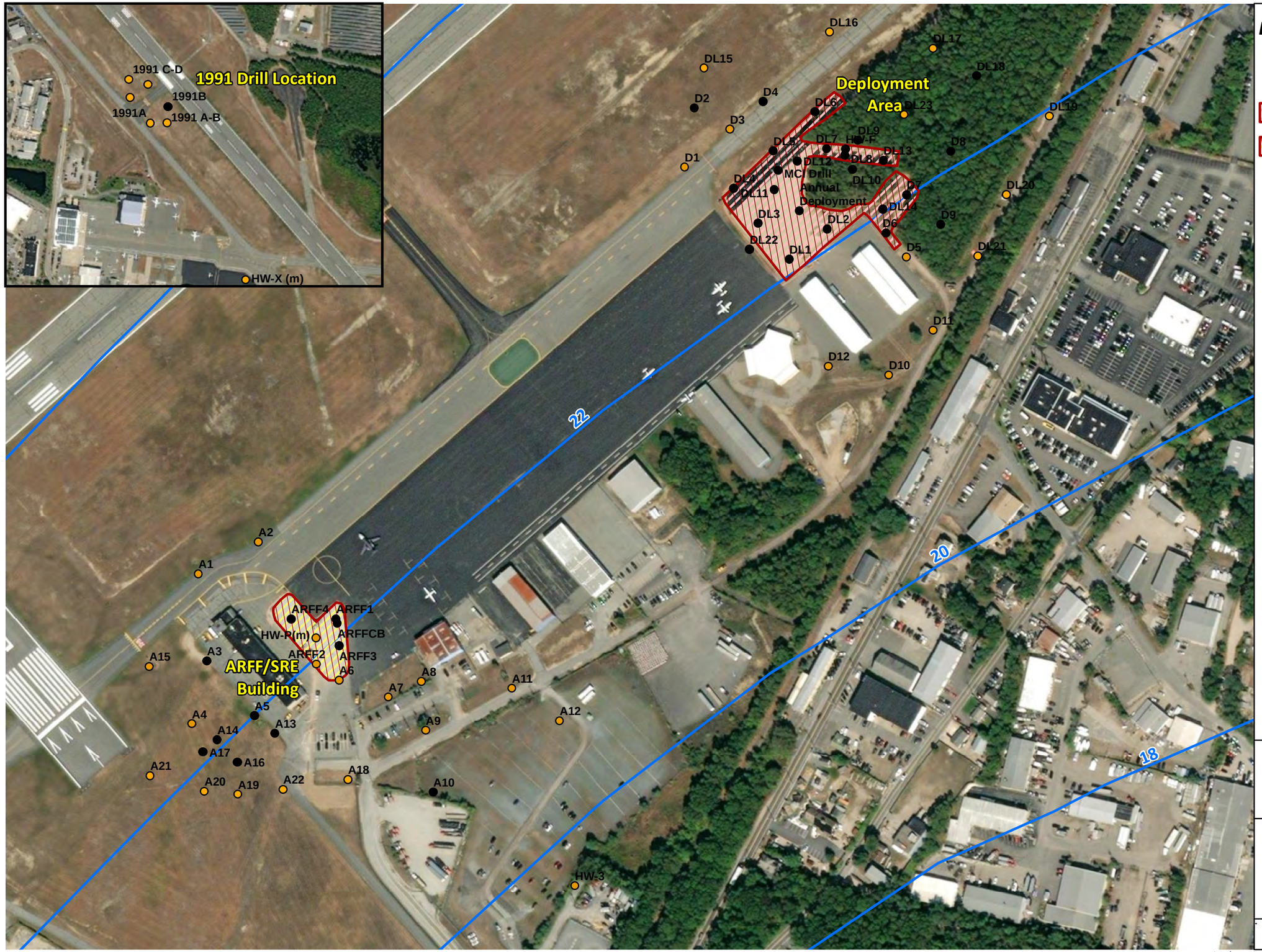
0.5

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Sandwich, MA • 02563
Tel: 508-833-6600 • Fax: 508-833-3150 • www.horsleywitten.com

USGS Locus
Cape Cod Gateway Airport
Hyannis, MA

Date: 4/17/2018

Figure 1



Legend

- Groundwater Contours*
- Deployment Area Liner Cap
- ARFF Asphalt Cap
- Soil Sample Location below Method 1 S-1/GW-1 Standard for all Six PFAS Compounds
- Soil Sample Exceeding Method 1 S-1/GW-1 for at least one of the six regulated PFAS compounds

Method
PFHpA = 0.5 ug/kg
PFHxS = 0.3 ug/kg
PFOA = 0.72 ug/kg
PFNA = 0.32 ug/kg
PFOS = 2 ug/kg
PFDA = 0.3 ug/kg

Soil Sample Location for TOC

N

0 225

1 in = 225 feet

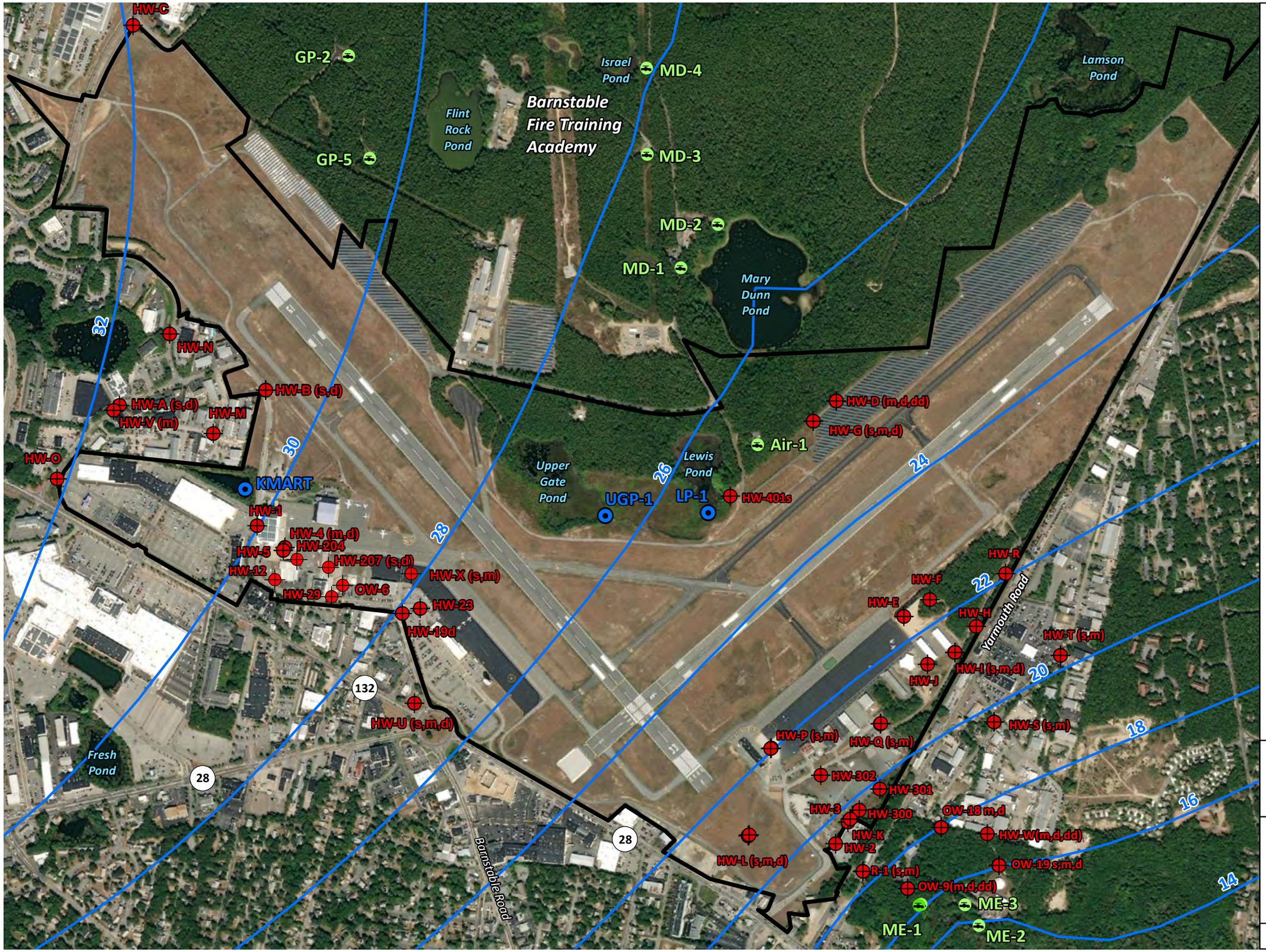
Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Unit 1 • Sandwich, MA 02563
508-833-6600 • horsleywitten.com

Soil Sample Locations
Barnstable Municipal Airport
Hyannis, MA

Date: 10/4/2021 Figure 2

* Cape Cod Commission (CCC) Groundwater Contours

Path: K:\Projects\HYA\17027 BMA PFOS 1-4 IRA\GIS\Maps\Soil Sample Locations.mxd



Legend

- PFAS Monitoring Wells
- Surface Water Samples Completed by Airport
- Drinking Water Wells
- Barnstable Municipal Airport Property Boundary
- Groundwater Contours*

N

0 750

1 inch = 750 feet

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Unit 1 • Sandwich, MA 02563
508-833-6600 • horsleywitten.com

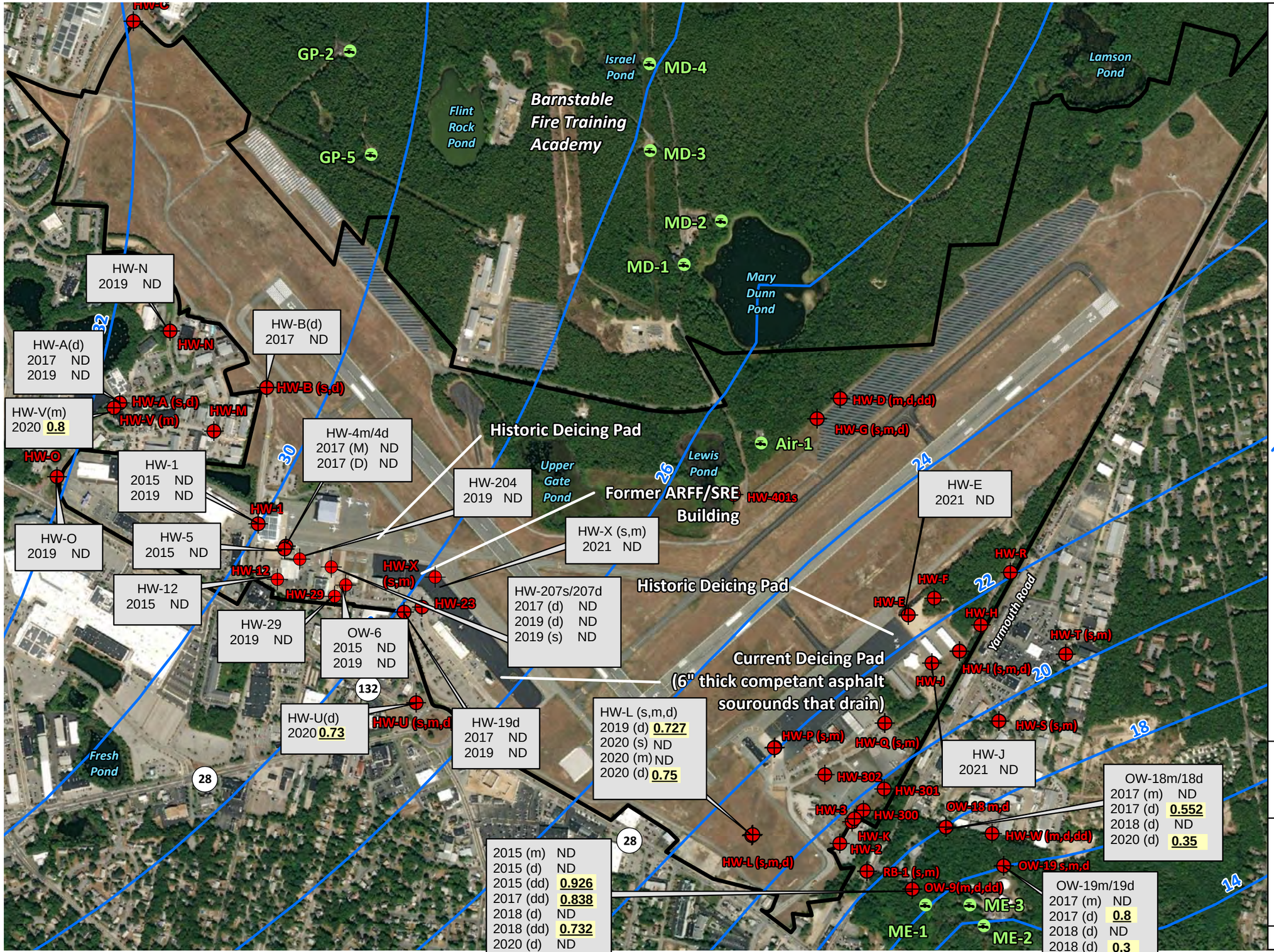
Surface Water and Monitoring Well Locations
Barnstable Municipal Airport
Hyannis, MA

Date: 10/4/2021

Figure 4

* Cape Cod Commission (CCC) Groundwater Contours

Path: K:\Projects\HYA\17027 BMA PFOS 1-4 IRA\GIS\Maps\200408_Well Locations.mxd



Legend

- Monitoring Wells
- ND — Not detected by the laboratory above the reporting limit
- 0.2 — 1,4 Dioxane Below MassDEP Limit (0.3 ug/L)
- **0.8** — 1,4 Dioxane Above Method 1 GW-1 Standard (0.3 ug/L)
- Drinking Water Wells
- Barnstable Municipal Airport Property Boundary
- Groundwater Contours

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Unit 1 • Sandwich, MA 02563
508-833-6600 • horsleywitten.com

1,4 Dioxane Results In Groundwater Cape Cod Gateway Airport Hyannis, MA

Date: 10/1/2021

Figure 4

Path: H:\Projects\HYA\17027 BMA PFOS 1-4 IRA\GIS\Maps\210409_DioxaneMap.mxd

Legend

- Background PFAS sample locations
- Barnstable Municipal Airport Property Boundary

N

0 1,750

Feet

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Unit 1 • Sandwich, MA 02563
508-833-6600 • horsleywitten.com

Background
PFAS Sample Locations
Cape Cod Gateway Airport
Hyannis, MA

Date: 11/25/2020 Figure 5

Path: H:\Projects\HYA\17027 BMA PFOS 1-4 IRA\GIS\Maps\180110_PFOS_BackgroundSampleLocations.mxd

Legend

- Groundwater Contours
- Approximate Location of TOC Sample
- Deployment Area Liner Cap
- ARFF Asphalt Cap

N

0 400

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Unit 1 • Sandwich, MA 02563
508-833-6600 • horsleywitten.com

TOC Sample Locations
Cape Cod Gateway Airport
Hyannis, MA

Date: 8/9/2021 Figure 6

** Cape Cod Commission (CCC) Groundwater Contours*

Path: K:\Projects\HYA\17027 BMA PFOS 1-4 IRA\GIS\Maps\TOC Sample Locations.mxd

Legend

- Soil Sample Location 6-24 A Composite (0-1')
- Soil Sample Location 6-24 A Composite (1-2')
- Soil Sample 6-24 B (0-1') Composite Locations
- Soil Sample 6-24 B (1-2') Composite Locations
- Soil Sample 6-24 C (0-1') Composite Locations
- Soil Sample 6-24 C (1-2') Composite Locations
- Barnstable Municipal Airport Property Boundary

N

0 375

1 inch = 375 feet

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Unit 1 • Sandwich, MA 02563
508-833-6600 • horsleywitten.com

Surficial Soil Sampling
Runway 6/24 Locations
Cape Cod Gateway Airport
Hyannis, MA

Date: 3/17/2022 Figure 7

* Cape Cod Commission (CCC) Groundwater Contours

Path: H:\Projects\HYA\17027 BMA PFOS 1-4 IRA\GIS\Maps\220302_Surficial Soil Sampling.mxd

TABLES

Table 1. Soil Results for PFAS Compounds ug/kg

Sample Location				ARFF Building																																				
Sample ID	Method 1 Standard		UCL	ARFF1 (0-1')	ARFF1 (2')	ARFF1 (4')	ARFF2 (0-1')	ARFF3 (0-1')	ARFF3 (10-12)	ARFF4 (0-1')	ARFFCB (0-1)	A1 (0-1')	A2 (0-1')	A3 (0-1')	A4 (0-1')	A5 (0-1')	A5 (2-4')	A6 (0-1')	A7 (0-1')	A8 (0-1')	A9 (0-1')	A10 (0-1')	A11 (0-1')	A12 (0-1')	A13 (0-1')	A13 (0-1')	A14 (0-1')	A14 (0-1')	A15 (0-1')	A15 (0-1')	A16 (0-1')	A17 (0-1')	A18 (0-1)	A19 (0-1)	A20 (0-1)	A20 (2-4)	A21 (0-1)	A22 (0-1)	HW-P(M) [8-10]	HW-P(M) [18-20]	DL1(0-1')
Sample Date	S-1/GW-1	S-1/GW-3		6/20/2017	9/26/2017	9/26/2017	6/20/2017	9/26/2017	10/9/2018	9/26/2017	9/26/2017	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	9/24/2020	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	2/27/2019	9/29/2020	2/27/2019	5/13/2020	2/27/2019	5/13/2020	9/17/2020	9/17/2020	9/29/2020	9/24/2020	9/24/2020	9/24/2020	9/24/2020	9/29/2020	9/18/2020	9/18/2020	6/20/2017
Perfluoroheptanoic acid (PFHpA)	0.5	300	4,000	**0.82 J**	**1.8**	**0.66 J**	0.17 U	**0.60 J**	0.32 J	**0.75 J**	**0.60 J**	0.19 U	0.19 U	0.38 J	0.19 U	**1.1**	0.089 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	**<2.0**	0.396 J	**<1.9**	**0.51 J**	**<2.0**	0.21 U	0.067 J	**1.07**	0.076 J	0.101 J	0.09 U	0.09 U	0.045 U	0.096 J	0.044 U	0.043 U	0.30 J
Perfluorohexanesulfonic acid (PFHxS)	0.3	300	4,000	0.23 U	0.23 U	0.23 U	0.23 U	**0.64 J**	0.24 U	0.23 U	0.23 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	**<2.0**	0.058 U	**<1.9**	0.24 U	**<2.0**	0.21 U	0.085 J	0.058 U	0.054 U	0.059 U	0.121 U	0.121 U	0.06 U	0.055 U	0.059 U	0.058 U	0.23 U
Perfluorooctanoic acid (PFOA)	0.72	300	4,000	**0.75 J**	**2.6**	**0.75 J**	0.26 U	**0.78 J**	**1.9**	**0.97 J**	**0.90 J**	0.25 U	0.25 U	0.37 J	0.30 J	**1.9**	0.228 J	0.25 U	0.25 U	0.34 J	0.25 U	0.25 U	0.25 U	**<2.0**	0.67 J	**<1.9**	0.68 J	**<2.0**	0.14 U	0.088 J	**0.989**	0.111 J	0.129 J	0.196 J	0.147 J	0.042 U	0.069 J	0.089 J	0.046 J	0.26 U
Perfluorononanoic acid (PFNA)	0.32	300	4,000	**2.5**	**5.7**	**1.4**	0.20 J	**0.91 J**	**3.1**	**2.9**	0.17 U	0.22 U	0.22 U	**0.51 J**	0.22 U	**0.87 J**	0.148 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	**<2.0**	**1.2**	**<1.9**	**0.54 J**	**<2.0**	0.15 U	0.119 J	**0.774 J**	0.281 J	0.246 J	0.15 U	0.15 U	0.075 U	0.11 J	0.073 U	0.072 U	0.17 U
Perfluorooctane sulfonate (PFOS)	2	300	4,000	**4.5**	**2.7**	1.1	0.29 J	**4.4**	1.1	1.0	1.1	0.26 U	0.26 U	0.29 J	0.26 U	0.26 U	0.257 U	0.26 U	0.38 J	0.26 U	0.85 J	0.26 U	0.26 U	0.26 U	<2.0	1.3	<1.9	0.32 J	<2.0	0.29 J	**2.02**	0.573 J	1.15	0.611 J	0.259 U	0.26 U	0.276 J	0.559 J	0.0127 U	0.0124 U	0.40 J
Perfluorodecanoic Acid (PFDA)	0.3	300	4,000	**4.4**	**1.2**	**0.62 J**	0.13 U	**1.6**	0.28 U	**0.85 J**	0.13 U	0.28 U	0.28 U	**0.42 J**	0.28 U	**1.4**	0.133 U	0.28 U	0.28 U	0.28 U	0.28 U	**0.33 J**	0.28 U	**<2.0**	**0.34 J**	**<1.9**	**0.95 J**	**<2.0**	0.15 U	0.074 J	0.147 J	0.146 J	0.066 U	0.134 U	0.134 U	0.067 U	0.119 J	0.065 U	0.064 U	**0.63 J**
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	NA	NA	0.93 J	0.74 J	1	0.23 U	0.61 J	4.2	0.65 J	2.2	0.26 U	0.26 U	0.26 U	0.26 U	18	0.355 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	<2.0	0.173 U	<1.9	0.25 U	<2.0	0.22 U	0.17 U	0.172 U	0.161 U	0.175 U	0.358 U	0.359 U	0.179 U	0.164 U	0.221 J	0.172 U	0.39 J
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																																								
Total PFAS	NA	NA	NA	120.06	41.75	46.85	1.16	23.72	11.03	11.9	95.43	0	0	6.2	1.14	161.07	0.613	1.5	1.35	0.48	1.92	1.1	0.43	0	0.0	5.2	0	13.15	0.0	0.45	3.131	11.267	2.652	1.409	0.316	0.147	0.571	1.412	0.411	0.09	11.14
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	NA	NA	12.97	14	4.53	0.49	8.93	6.42	6.47	2.6	0	0	1.97	0.3	5.27	0.228	0	0.38	0	1.19	0.33	0	0	0	3.916	0	3	0	0.29	2.453	3.553	1.764	1.087	0.196	0.147	0.276	0.953	0.089	0.046	1.33

Sample Location				Deployment Area																																				
Sample ID	Method 1 Standard		UCL	DL2 (0-1')	DL2 2'	DL2 4'	DL3 (0-1')	DL3 2'	DL3 4'	DL4 (0-1')	DL4 2'	DL4 4'	DL5 (0-1')	DL5 2'	DL5 4'	DL6 (0-1')	DL7 (0-1')	DL8 (2')	DL8 (4')	DL9 (0-1')	DL10 (0-1')	DL11 (0-1')	DL11 (4-6')	DL11 (10-12')	DL11 (14-16')	DL12 (0-1')	DL13 (0-1')	DL14 (0-1')	DL14 (4-6')	DL14 (10-12')	DL14 (14-16')	DL15 (0-1)	DL16 (0-1)	DL17 (0-1)	DL18 (0-1)	DL19 (0-1)	DL20 (0-1)	DL21 (0-1)	DL22 (2-4)	DL22 (6-8)
Sample Date	S-1/GW-1	S-1/GW-3		6/20/2017	9/26/2017	9/26/2017	6/20/2017	9/26/2017	9/26/2017	6/20/2017	9/26/2017	9/26/2017	6/20/2017	9/26/2017	9/26/2017	6/20/2017	6/20/2017	6/20/2017	9/26/2017	6/20/2017	6/20/2017	9/26/2017	8/20/2019	10/4/2018	10/4/2018	10/4/2018	9/26/2017	9/26/2017	9/26/2017	10/4/2018	10/4/2018	10/4/2018	9/30/2020	9/30/2020	9/25/2020	9/25/2020	9/25/2020	9/25/2020	9/25/2020	9/25/2020	9/25/2020
Perfluoroheptanoic acid (PFHpA)	0.5	300	4,000	**1.9**	**1.2**	0.48 J	**0.84 J**	0.17 U	0.17 U	0.31 J	0.17 U	0.17 U	**2.5**	0.40 J	0.50 J	**5.0**	**2.5 J**	**2.9 J**	**4.7 J**	**0.66 J**	**1.3**	**2.1**	**1.8**	**1.3**	0.31 J	0.23 J	**1.2**	**1.6**	**4.9**	0.36 J	0.19 U	**1.4**	0.175 U	0.138 J	0.167 U	0.319 J	0.145 U	0.157 U	0.158 U	0.109 J	0.481 J
Perfluorohexanesulfonic acid (PFHxS)	0.3	300	4,000	**1.8**	**1.3**	**0.59 J**	**0.34 J**	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	**0.49 J**	**0.49 J**	0.23 U	0.23 U	**2.3 U**	**2.3 U**	**2.3 U**	**0.35 J**	**0.94 J**	**0.82 J**	**<0.9**	0.24 U	0.24 U	0.24 U	0.23 U	0.23 U	**0.71 J**	0.24 U	0.24 U	**0.74 J**	0.235 U	0.057 U	0.224 U	0.159 J	0.194 U	0.21 U	0.212 U	0.057 U	0.07 J
Perfluorooctanoic acid (PFOA)	0.72	300	4,000	**1.6**	**4.1**	**0.74 J**	**0.80 J**	0.26 U	0.26 U	**0.83 J**	0.26 U	0.26 U	**3.7**	**1.6**	0.26 U	0.26 U	**4.2 J**	**25**	**22**	0.68 J	**1.7**	**4.7**	**5.2**	**2.9**	**1.9**	0.50 J	**4.6**	**2.4**	**23**	0.58 J	0.32 J	**2.9**	0.334 J	0.223 J	0.166 J	**0.979 J**	0.135 U	0.146 U	0.159 J	0.447 J	**1.32**
Perfluorononanoic acid (PFNA)	0.32	300	4,000	**0.81 J**	**2.5**	0.17 U	**0.55 J**	0.17 U	0.17 U	**2.7**	0.17 U	**3.7**	0.19 J	0.17 U	0.17 U	0.19 J	**9.6 J**	**46**	**1.7 U**	0.22 J	0.17 U	**16**	**2.4**	**2.5**	0.22 U	0.22 U	**7.3**	**1.5**	**10**	0.22 U	0.22 U	**10**	0.292 U	0.285 J	0.277 U	0.296 J	0.241 U	0.261 U	0.263 U	**5.46**	**2.66**
Perfluorooctane sulfonate (PFOS)	2	300	4,000	**12**	1.5	0.21 U	0.51 J	0.21 U	0.21 U	2.0	0.21 U	0.50 J	0.21 U	0.21 U	0.21 U	0.21 U	**3.9 J**	**14**	**2.1 U**	0.38 J	0.26 J	**29**	1.5	0.26 U	0.26 U	0.26 U	**23**	0.66 J	**7.4**	**9.6**	0.28 U	0.28 U	0.28 U	0.26 U	0.181 J	0.248 U	0.167 J	0.215 U	0.233 U	0.235 U	**0.834 J**	**0.383 J**
Perfluorodecanoic Acid (PFDA)	0.3	300	4,000	0.13 U	0.13 U	0.13 U	**1.4**	0.13 U	0.13 U	**1.3**	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	**1.3 U**	**1.3 U**	**1.3 U**	0.13 U	0.13 U	**1.8**	**8.7**	0.28 U	0.28 U	0.28 U	**0.66 J**	**7.4**	**9.6**	0.28 U	0.28 U	0.28 U	0.26 U	0.181 J	0.248 U	0.167 J	0.215 U	0.233 U	0.235 U	**0.834 J**	**0.383 J**
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	NA	NA	0.23 U	0.23 U	0.57 J	3.1	1.5	1	0.24 J	0.23 U	1.7	0.23 U	0.23 U	0.23 U	2	290	1600	900	0.23 U	0.23 U	7.8	30	4.1	4.4	6.7	62	320	230	0.67 J	0.30 J	64	0.698 U	0.168 U	0.664 U	0.19 U	0.577 U	0.625 U	0.629 U	7.49	11.7
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																																								
Total PFAS	NA	NA		24.41	12.17	2.38	84.86	9.56	13.81	9.6	0.88	5.9	11.03	2.49	0.5	18.59	404.4	1727.2	949.6	6.38	9.1	85.22	91.5	11.07	6.82	7.63	108.56	521.26	598.24	50.11	21.22	116.64	4.523	2.269	0.628	4.84	0	0	0.68	66.813	41.988
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	NA	NA	18.11	10.6	1.81	4.44	0	0	7.14	0	4.2	6.88	2.49	0.5	5.19	20.2	87.9	26.7	2.29	4.2	54.42	19.6	6.7	2.21	0.73	36.76	13.56	55.81	0.94	0.32	17.34	0.334	1.402	0.166	2.97	0	0	0.159	27.15	13.764

Sample Location				Deployment Area																	
Sample ID	Method 1 Standard		UCL	DL22 (18-20)	DL23 (0-1)	D1 (0-1')	D2 (0-1')	D3 (0-1')	D4 (0-1')	D5 (0-1')	D6 (0-1')	D7 (0-1')	D8 (0-1')	D9 (0-1')	D10 (0-1')	D11 (0-1')	D12 (0-1')	HW-F (10-12')	HW-F (14-16')	HW-3 (0-1')	MCI Drill (0-1)	Annual Deployment (0-1)
Sample Date	S-1/GW-1	S-1/GW-3		9/25/2020	9/29/2020	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	10/4/2018	10/4/2018	10/9/2018	12/9/2016	12/9/2016
Perfluoroheptanoic acid (PFHpA)	0.5	300	4,000	0.073 J	0.24 J	0.19 U	0.21 J	0.19 U	**0.95 J**	0.22 J	0.25 J	**7.8**	**1.0**	**2.7**	0.19 U	0.19 U	0.19 U	0.32 J	**1.3**	0.19 U	**8.4**	**20**
Perfluorohexanesulfonic acid (PFHxS)	0.3	300	4,000	0.059 U	0.134 J	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	**0.31 J**	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	**0.5 J**	**4 U**
Perfluorooctanoic acid (PFOA)	0.72	300	4,000	0.176 J	0.471 J	0.25 U	0.33 J	0.25 U	**1.1**	0.25 U	0.28 J	**14**	**2.2**	**3**	0.25 U	0.25 U	0.25 U	0.25 U	**1.4**	0.25 U	**23**	**100**
Perfluorononanoic acid (PFNA)	0.32	300	4,000	**0.476 J**	0.176 J	0.22 U	**0.67 J**	0.22 U	**0.98 J**	0.22 U	0.22 U	**10**	**0.59 J**	**0.83 J**	0.22 U	0.22 U	0.22 U	0.32 J	0.22 U	0.22 U	**14**	**31**
Perfluorooctane sulfonate (PFOS)	2	300	4,000	1.18	0.725 J	0.26 U	0.66 J	0.38 J	**2.9**	0.26 U	0.26 U	**3.4**	**2.1**	0.67 J	0.54 J	0.91 J	0.44 J	0.26 U	0.26 U	0.26 U	**24**	1.9 J
Perfluorodecanoic Acid (PFDA)	0.3	300	4,000	0.065 U	0.266 J	0.28 U	0.28 U	0.28 U	**0.40 J**	0.28 U	**0.66 J**	**8.6**	**1.3**	**1.6**	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	**20**	**69**
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	NA	NA	2.67	0.181 U	0.26 U	0.26 U	0.26 U	0.26 U	0.78 J	1.2	12	0.26 U	6.6	0.26 U	0.26 U	0.26 U	24	140	0.26 U	270	4300
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																						
Total PFAS	NA	NA	NA	11.352	4.053	0.74	1.87	0.94	11.42	3.01	9.06	151.24	24.61	43.41	0.83	1.62	1.47	25.27	146.5	0	1,524	5,972.9
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	NA	NA	1.905	2.012	0	1.87	0.38	6.33	0.22	1.19	43.8	7.5	8.8	0.54	0.91	0.76	0.32	2.7	0	89.9	221.9

Sample Location				1991 Drill Location						Old ARFF/SRE Building
Sample ID	Method 1 Standard		UCL	1991A (0-1')	1991B (0-1')	1991C (0-1')	1991D (0-1')	1991A-B (3-4')	1991C-D (2-3')	HW-X(m) [7-9]
Sample Date	S-1/GW-1	S-1/GW-3		8/14/2018	8/14/2018	8/14/2018	8/14/2018	12/14/2018	12/14/2018	9/7/2021
Perfluoroheptanoic acid (PFHpA)	0.5	300	4,000	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.043 U
Perfluorohexanesulfonic acid (PFHxS)	0.3	300	4,000	0.24 U	**0.66 J**	0.24 U	0.24 U	0.24 U	0.24 U	0.058 U
Perfluorooctanoic acid (PFOA)	0.72	300	4,000	0.25 U	0.26 J	0.25 U	0.25 U	0.25 U	0.25 U	0.04 U
Perfluorononanoic acid (PFNA)	0.32	300	4,000	0.22 U	0.22 U	0.22 U	0.30 J	0.22 U	0.22 U	0.072 U
Perfluorooctane sulfonate (PFOS)	2	300	4,000	0.49 J	1.1	0.55 J	0.36 J	0.30 J	0.42 J	0.124 U
Perfluorodecanoic Acid (PFDA)	0.3	300	4,000	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.064 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	NA	NA	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.171 U
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six										
Total PFAS	NA	NA	NA	0.49	3.18	0.55	0.66	0.3	0.42	0.139
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	NA	NA	0.49	2.02	0.55	0.66	0.3	0.42	0.124 U

Notes:
< = Not detected by the laboratory above the reporting limit. Reporting limit shown.
J = Estimated concentration between the method detection limit and reporting limit.
Results in ug/kg, micrograms per kilogram.
U= Not detected by the Laboratory above the method detection limit. Method detection limit shown.
Bold results above the Method 1 S-1/GW-1 standard.
Total PFAS is the sum of all laboratory detected PFAS analytes including estimated values and does not include non-detects (U or <).
Sum of six includes estimated values and does not include non-detects (U or <).
UCL = Upper Concentration Limit

Table 2. Groundwater Results for PFAS Compounds ug/L

Sample Location		North Ramp													Lewis Pond Area	Airport Road/Iyannough Road Area											Airport Road/Iyannough Road Area	
Sample ID		HW-1	HW-1	HW-1	HW-4M	HW-4M	HW-5	HW-5	HW-5	HW-5	HW-23	HW-23	HW-19D	HW-19D	HW-X(s)	HW-X(m)	HW-401S	HW-A(S)	HW-B(S)	HW-B(S)	HW-B(D)	HW-C	HW-M	HW-N	HW-O	HW-U(s)	HW-U(s)	HW-U(s)	HW-U(m)
Sample Date	UCL	7/1/2016	6/20/2017	11/1/2018	4/5/2017	3/25/2022	7/1/2016	4/7/2017	11/1/2018	3/25/2022	6/20/2017	11/1/2018	6/20/2017	11/7/2018	9/10/2021	9/10/2021	4/7/2017	4/7/2017	4/7/2017	10/26/2018	10/26/2018	4/7/2017	6/24/2019	6/24/2019	7/2/2019	4/19/2021	9/5/2021	3/15/2022	4/19/2021
TOC Elevation		51.51	51.51	51.51	54.02	54.02	54.98	54.98	54.98	54.98	50.65	50.65	49.10	49.10	NA	NA	41.58	55.34	51.84	51.84	51.95	69.25	53.69	49.49	43.46	NA	NA	NA	NA
Depth to Groundwater		21.63	25.00	21.83	26.20	25.00	24.94	26.75	25.27	25.31	22.70	24.01	21.29	22.19	24.74	25.21	17.95	24.62	22.26	21.59	21.66	38.50	20.32	15.48	3.62	23.59	24.53	22.89	23.50
Groundwater Elevation		29.88	26.51	29.68	27.82	29.02	30.04	28.23	29.71	29.67	27.95	26.64	27.81	26.91	NA	NA	23.63	30.72	29.58	30.25	30.29	30.75	33.37	34.01	39.84	NA	NA	NA	NA
Total Well Depth		30.84	30.84	30.84	32.32	32.32	27.80	27.80	27.80	27.80	28.11	28.11	41.30	41.30	29.24	36.82	23.60	32.00	30.23	30.23	57.20	42.15	26.92	22.33	14.10	28.83	28.83	29.15	38.93
Perfluoroheptanoic acid (PFHpA)	100,000	0.01	0.0042 J	0.013 J	0.007 J	0.003	0.0041	0.0084 J	0.0074 U	0.0048	0.0045J	0.0098 J	0.0052 J	0.0080 J	0.0061	0.0034	0.0043 J	0.0048 J	0.049	0.012 J	0.0074 U	0.0033 U	0.007	0.0034	<0.002	0.002 J	0.004	0.0027	0.0018 J
Perfluorohexanesulfonic acid (PFHxS)	5,000	0.018	0.065	0.018 J	0.02	0.011	0.011	0.018 J	0.0056 U	0.013	0.021	0.023	0.046	0.045	0.047	0.0021	0.011 J	0.0079 J	0.044	0.047	0.0056 U	0.0034 U	0.016	0.033	0.0043	0.01	0.0034	0.0039	0.0043
Perfluorononanoic acid (PFNA)	100,000	<0.002	0.0057 J	0.0087 U	0.0046 U	0.0018 U	<0.002	0.0046 U	0.0088 J	0.0018 U	0.0038 U	0.0087 U	0.0065 J	0.0087 U	0.00049 J	0.002	0.0046 U	0.0046 U	0.0046 U	0.0087 U	0.0087 U	0.0046 U	<0.002	<0.002	<0.002	0.0013 J	0.0017 J	0.0013 J	0.00083 J
Perfluorooctanoic acid (PFOA)	100,000	0.033	0.022	0.031	0.011 J	0.013	0.031	0.020 J	0.011 J	0.023	0.0046 U	0.011 J	0.017 J	0.014 J	0.013	0.0062	0.0046 U	0.0026 U	0.0094 J	0.020 J	0.012 J	0.0026 U	0.027	0.0088	0.0039	0.0075	0.0047	0.0052	0.0055
Perfluorooctane sulfonate (PFOS)	5,000	0.017	0.24	0.028	0.043	0.025	0.12	0.052	0.12	0.048	0.0079 J	0.015 J	0.061	0.069	0.068	0.034	0.012 J	0.0026 U	0.026	0.019 J	0.010 J	0.0026 U	0.0074	0.004	0.017	0.06	0.029	0.012	0.0093
Perfluorodecanoic Acid (PFDA)	100,000	NA	0.0040 U	0.0061 U	0.0040 U	0.0018 U	NA	0.0040 U	0.0061 U	0.0018 U	0.0040 U	0.0061 U	0.0040 U	0.0061 U	0.00050 U	0.0042	0.0040 U	0.0040 U	0.0040 U	0.0061 U	0.0061 U	0.0040 U	<0.002	<0.002	0.0021	0.00064 J	0.0011 J	0.0006 J	0.00038 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	NA	0.0032 U	0.0066 U	0.0038 J	0.0018 U	NA	0.0037 J	0.0066 U	0.0018 U	0.0032 U	0.0066 U	0.0032 U	0.0066 U	0.002 J	0.00035 U	0.004 J	0.0032 U	0.0032 U	0.0066 U	0.0066 U	0.0034 J	<0.002	<0.002	0.002 U	0.0011 U	0.00034 U	0.00032 U	0.0011 U
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																													
Total PFAS	NA	0.078	0.4247	0.15	0.1162	0.0679	0.1661	3.0021	0.1507	0.1045	0.0745	0.0858	0.1758	0.16	0.18221	0.10025	0.0313	0.0779	0.4561	0.186	0.0465	0.0034	0.0927	0.0727	0.0585	0.09704	0.06596	0.04424	0.03622
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	**0.078**	**0.3369**	**0.09**	**0.081**	**0.052**	**0.1661**	**0.0984**	**0.1398**	**0.0888**	**0.0334**	**0.0588**	**0.1357**	**0.136**	**0.13459**	**0.0519**	**0.0273**	0.0127	**0.1284**	**0.098**	**0.022**	<0.0046	**0.0574**	**0.0492**	**0.0273**	**0.08144**	**0.0439**	**0.0257**	**0.02173**

Sample Location		Deployment Area																										
Sample ID		HW-I (s)	HW-I (s)	HW-I (s)	HW-I (s)	HW-I (s)	HW-I (s)	HW-I (m)	HW-I (m)	HW-I (m)	HW-I (m)	HW-I (m)	HW-I (m)	HW-I (d)	HW-I (d)	HW-I (d)	HW-I (d)	HW-I (d)	HW-I (d)	HW-J	HW-J	HW-J	HW-J	HW-E	HW-E	HW-E	HW-E	HW-E[1]	HW-E[1]
Sample Date	UCL	11/7/2018	5/8/2020	3/17/2021	9/8/2021	3/18/2022	8/2/2022	6/24/2019	5/8/2020	3/17/2021	9/8/2021	3/18/2022	8/2/2022	6/24/2019	5/8/2020	3/17/2021	9/11/2021	3/18/2022	8/2/2022	11/7/2018	3/17/2021	9/10/2021	3/16/2022	4/5/2017	11/7/2018	8/19/2019	5/5/2020	3/17/2021	9/8/2021
TOC Elevation		36.08	36.08	36.08	36.08	36.08	36.08	36.27	36.27	36.27	36.27	36.27	36.27	36.02	36.02	36.02	36.02	36.02	36.02	37.10	37.10	37.10	37.10	38.45	38.45	38.45	38.45	42.40	42.40
Depth to Groundwater		18.35	15.39	18.42	19.94	17.72	19.81	16.33	15.61	18.66	20.17	18.07	20.03	16.20	15.49	18.52	20.04	17.95	19.90	19.18	19.34	20.60	18.75	19.05	19.38	17.82	16.16	23.35	25.02
Groundwater Elevation		17.73	20.69	17.66	16.14	18.36	16.27	19.94	20.66	17.61	16.10	18.20	16.24	19.82	20.53	17.50	15.98	18.07	16.12	17.92	17.76	16.50	18.35	19.40	19.07	20.63	22.29	19.05	17.38
Total Well Depth		25.10	25.10	25.10	25.10	25.15	25.18	34.80	34.80	34.80	34.80	34.80	34.80	41.67	41.67	41.67	41.67	41.67	41.70	24.30	24.30	24.30	24.28	26.22	26.22	26.22	26.22	30.26	30.26
Perfluoroheptanoic acid (PFHpA)	100,000	0.2	0.54	0.032	0.097	0.098	0.2	0.0032	0.0012	0.00086 J	0.0014 J	0.0024	0.0017 U	0.0053	0.0046	0.0065	0.0083	0.0079	0.012	0.025	0.044	0.02	0.13	0.15	0.0074 U	0.0053	0.044	0.014	0.0018 J
Perfluorohexanesulfonic acid (PFHxS)	5,000	0.18	0.22	0.021	0.036	0.06	0.11	0.019	0.0091	0.0052	0.0078	0.0052	0.0032	0.057	0.018	0.031	0.05	0.039	0.063	0.0056 U	0.088	0.01	0.15	0.042	0.0056 U	0.0021	0.011	0.0015 J	0.00088 J
Perfluorononanoic acid (PFNA)	100,000	0.16	0.082	0.065	0.033	0.21	0.12	<0.002	0.00078	0.00048 U	0.00046 J	0.00061 J	0.0017 U	<0.002	0.00063 U	0.00075 J	0.00084 J	0.00077 J	0.0018 U	0.028	0.035 J	0.015	0.062	0.0087 J	0.0087 U	<0.002	0.0052	0.00048 U	0.00037 U
Perfluorooctanoic acid (PFOA)	100,000	0.26	0.29	0.05	0.063	0.11	0.17	0.0061	0.0018	0.0014 J	0.0016 J	0.0016 J	0.0017 U	0.0047	0.0028	0.0043	0.0053	0.0074	0.013 U	0.026	0.061	0.0091	0.13	0.053	0.0033 U	0.0047	0.027	0.00095 J	0.00094 J
Perfluorooctane sulfonate (PFOS)	5,000	0.066	0.04	0.028	0.02	0.52	0.43	0.014	0.014	0.013	0.016	0.011	0.005	0.012	0.02	0.038	0.039	0.047	0.083	0.13	0.25	0.08	0.15	0.047	0.0060 U	<0.002	0.0037	0.00082 J	0.00064 U
Perfluorodecanoic Acid (PFDA)	100,000	0.012 U	0.00062 U	0.0038 U	0.00047 U	0.00043 U	0.0018 U	<0.002	0.00062 U	0.00038 U	0.00050 U	0.00043 U	0.0017 U	<0.002	0.00062 U	0.00038 U	0.00048 U	0.00043 U	0.0018 U	0.0061 U	0.0076 U	0.00050 U	0.00044 U	0.0040 U	0.0061 U	<0.002	0.00062 U	0.00038 U	0.00052 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	11	13	1.7	2.1	1.3	4.6	<0.002	0.00039 U	0.0011 U	0.00037 U	0.00032 U	0.0017 U	<0.002	0.0016	0.0011 U	0.00054	0.00086	0.0018 U	0.68	0.44	0.13	1.6	2	0.0066 U	0.069	0.86	0.0035	0.00039 U
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																													
Total PFAS	NA	13.346	15.5383	2.082	2.73304	2.66512	6.1201	0.0718	0.03308	0.02516	0.03254	0.02985	0.0082	0.1367	0.08985	0.15585	0.16687	0.15181	0.23	1.074	1.217	0.511	2.826	3.2257	0.0087 U	0.14	1.04526	0.04812	0.01342
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	**0.866**	**1.172**	**0.196**	**0.249**	**0.998**	**1.03**	**0.0423**	**0.02688**	**0.02046**	**0.02726**	**0.02081**	**0.0082**	**0.079**	**0.0454**	**0.08055**	**0.10344**	**0.10207**	**0.158**	**0.209**	**0.478**	**0.1341**	**0.622**	**0.3007**	0.0087 U	0.0121	**0.0909**	0.01727	0.00362

Sample Location		Yarmouth Road								Solar Field									Steamship Parking Lot									
Sample ID		RB-1 (s)	RB-1 (s)	RB-1 (s)	RB-1 (s)	RB-1 (m)	RB-1 (m)	RB-1 (m)	RB-1 (m)	HW-D (m)	HW-D (m)	HW-D (d)	HW-D (d)	HW-D (dd)	HW-D (dd)	HW-G(S)	HW-G(M)	HW-G(D)	HW-2	HW-2	HW-2	HW-2	HW-3	HW-3	HW-3	HW-3	HW-3	HW-3
Sample Date	UCL	11/5/2020	3/18/2021	9/5/2021	3/31/2022	11/5/2020	3/18/2021	9/5/2021	3/31/2022	4/7/2017	5/13/2020	6/24/2019	5/13/2020	6/24/2019	5/13/2020	12/3/2018	12/3/2018	12/3/2018	7/1/2016	5/5/2020	9/1/2021	3/25/2022	7/1/2016	4/5/2017	10/26/2018	5/5/2020	3/17/2021	9/1/2021	3/25/2022
TOC Elevation		NA	NA	NA	NA	NA	NA	NA	NA	45.20	45.20	45.08	45.08	45.05	45.05	44.99	45.11	44.93	40.41	40.41	40.41	40.41	38.74	38.74	38.74	38.74	38.74	38.74
Depth to Groundwater		17.87	16.91	18.64	16.65	17.79	16.85	18.57	16.59	18.83	18.34	18.99	18.23	20.60	19.97	20.69	20.75	20.71	27.48	25.33	30.20	27.72	25.81	25.70	26.06	23.64	26.19	28.35	26.03
Groundwater Elevation		NA	NA	NA	NA	NA	NA	NA	NA	26.37	26.86	26.09	26.85	24.45	25.08	24.30	24.36	24.22	12.93	15.08	10.21	12.69	12.93	13.04	12.68	15.10	12.55	10.39	12.71
Total Well Depth		27.80	27.80	27.80	27.81	49.85	49.85	48.85	48.82	30.32	30.32	44.94	44.94	65.05	65.05	28.45	38.25	48.28	32.80	32.80	32.80	32.35	33.08	33.08	33.08	33.08	33.12	33.11	33.70
Perfluoroheptanoic acid (PFHpA)	100,000	0.0042	0.0054	0.0077	0.0051	0.011	0.013 J	0.0073	0.0073	0.0033 U	0.00053 U	0.021	0.017	<0.002	0.00053 U	0.0074 U	0.0074 U	0.0074 U	0.0071	0.035	0.046	0.011	0.016	0.1	0.10	0.1	0.084	0.035	0.02
Perfluorohexanesulfonic acid (PFHxS)	5,000	0.0084	0.03	0.0051	0.022	0.01	0.017 J	0.0099	0.016	0.0089 J	0.00077 U	0.062	0.039	0.0092	0.008	0.0056 U	0.012 J	0.0056 U	0.0035	0.0066	0.0056 J	0.009	0.0043	0.020 J	0.012 J	0.0087	0.0064 J	0.0057 J	0.013
Perfluorononanoic acid (PFNA)	100,000	0.0047	0.0025	0.0026	0.0029	0.0068	0.0072 J	0.0044	0.0062	0.0046 U	0.00063 U	0.015	0.019	0.0041	0.0029	0.0087 U	0.011 J	0.0087 U	<0.002	0.016	0.004 J	0.0052	0.0063	0.027	0.023	0.021	0.019 J	0.014 J	0.0039
Perfluorooctanoic acid (PFOA)	100,000	0.007	0.0087	0.0093	0.0092	0.013	0.013 J	0.012	0.01	0.0046 U	0.00071 U	0.0088	0.0076	<0.002	0.00071 U	0.0033 U	0.0033 U	0.0033 U	0.0063	0.039	0.012	0.01	0.0091	0.065	0.057	0.054	0.064	0.016 J	0.0069
Perfluorooctane sulfonate (PFOS)	5,000	0.038	0.04	0.01	0.0045	0.049	0.075	0.055	0.054	0.022	0.0011	0.095	0.12	0.013	0.013	0.0060 U	0.036	0.0060 U	0.012	0.053	0.026	0.024	0.084	0.15	0.053	0.1	0.056	0.044	0.024
Perfluorodecanoic Acid (PFDA)	100,000	0.00062 U	0.00038 U	0.00045 U	0.0019 U	0.00075	0.0038 U	0.0033	0.0028	0.0040 U	0.00062 U	<0.002	0.00062 U	<0.002	0.00062 U	0.0061 U	0.0061 U	0.0061 U	NA	0.00062 U	0.0025 U	0.0018 U	NA	0.0040 U	0.0061 U	0.0014	0.0038 U	0.0052 U	0.0019 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	0.00039 U	0.0011 U	0.00034 U	0.0019 U	0.038	0.055	0.013	0.02	0.0032 U	0.00039 U	0.0022	0.00039 U	0.002 U	0.00039 U	0.0066 U	0.0066 U	0.0066 U	NA	0.15	0.071	0.052	NA	0.47	0.12	0.13	0.47	0.2	0.14
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																													
Total PFAS	NA	0.08008	0.1175	0.06755	0.0713	0.2015	0.2642	0.1561	0.1733	0.0309	0.0011	0.2768	0.24993	0.0263	0.02444	0	0.059	0	0.0289	0.42678	0.4136	0.1563	0.1197	1.603	0.952	0.96981	1.1394	0.6867	0.4359
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	**0.0623**	**0.0866**	**0.0347**	**0.0437**	**0.09055**	**0.1252**	**0.0919**	**0.0963**	**0.0309**	0.0011	**0.2018**	**0.2026**	**0.0263**	**0.0239**	0.0087 U	**0.059**	0.0087 U	**0.0289**	**0.1496**	**0.0936**	**0.0592**	**0.1197**	**0.362**	**0.245**	**0.2851**	**0.2294**	**0.1147**	**0.0678**

Sample Location		Maher Wells																										
Sample ID		OW-9D	OW-9D	OW-9D	OW-9DD	OW-9DD	OW-9DD	ME-1*	ME-1	ME-2**	ME-2**	ME-3***	ME-3	OW-18S	OW-18S	OW-18S	OW-18M	OW-18M	OW-18M	OW-18D	OW-18D Duplicate	OW-18D	OW-18D	OW-18D	OW-19(S)	OW-19(S)	OW-19(S)	OW-19(S)	OW-19(M)
Sample Date	UCL	7/5/2016	12/3/2018	5/5/2020	4/11/2017	12/3/2018	10/2/2020	9/17/2020	8/3/2022	9/17/2020	8/3/2022	9/17/2020	8/3/2022	7/5/2016	12/7/2018	5/8/2020	7/5/2016	12/7/2018	5/8/2020	7/5/2016	7/5/2016	4/11/2017	12/7/2018	5/13/2020	11/6/2020	3/18/2021	9/2/2021	3/16/2022	11/6/2020
TOC Elevation		23.22	23.22	23.22	23.81	23.81	23.81	NA	NA	NA	NA	NA	NA	39.03	39.03	39.03	39.30	39.30	39.30	38.84	38.84	38.84	38.84	38.84	NA	NA	NA	NA	NA
Depth to Groundwater		12.48	10.82	10.15	12.10	11.30	13.04	3.60	NA	6.50	NA	6.00	NA	24.40	24.29	23.45	25.82	24.72	23.93	25.95	25.95	25.55	24.28	23.47	27.38	26.27	28.47	27.42	27.57
Groundwater Elevation		10.74	12.40	13.07	11.71	12.51	10.77	NA	NA	NA	NA	NA	NA	14.63	14.74	15.58	13.48	14.58	15.37	12.89	12.89	13.29	14.56	15.37	NA	NA	NA	NA	NA
Total Well Depth		68.63	68.63	68.63	86.75	86.75	86.75	81.20	NA	54.20	NA	50.30	NA	31.23	31.23	31.23	74.44	74.44	74.44	123.36	123.36	123.36	123.36	123.36	34.56	34.65	34.67	35.20	76.28
Perfluoroheptanoic acid (PFHpA)	100,000	0.0028	0.033	0.044	0.034	0.015 J	0.0085	0.011	0.025	0.0055	0.016	0.0036	0.0065	0.0071	0.0074 U	0.0039	0.0029	0.0074 U	0.0074	0.0071	0.0063	0.015J	0.014 J	0.012	0.0042	0.0044	0.0056	0.0062	0.03
Perfluorohexanesulfonic acid (PFHxS)	5,000	0.012	0.12	0.18	0.12	0.042	0.019	0.03	0.058	0.04	0.035	0.018	0.029	0.0068	0.0056 U	0.0085	0.016	0.073	0.07	0.01	0.011	0.13	0.13	0.03	0.0031	0.0064	0.0027	0.0044	0.027
Perfluorononanoic acid (PFNA)	100,000	0.0036	0.1	0.15	0.059	0.038	0.018	0.017	0.021	0.003	0.0089	0.004	0.0054	<0.002	0.0087 U	0.0032	0.0076	0.0087 U	0.0027	0.0065	0.0058	0.0046 U	0.0087 U	0.0028	0.0024	0.0012 J	0.0025	0.0012 J	0.002
Perfluorooctanoic acid (PFOA)	100,000	0.0052	0.057	0.088	0.055	0.020 J	0.01	0.016	0.029	0.0077	0.017	0.012	0.012	0.018	0.012 J	0.01	0.0058	0.0060 J	0.0096	0.0059	0.0059	0.025	0.019 J	0.0095	0.011	0.007	0.0066	0.0085	0.011
Perfluorooctane sulfonate (PFOS)	5,000	0.041	0.52	0.72	0.5	0.14	0.049	0.11	0.12	0.095	0.051	0.072	0.07	0.0083	0.028	0.016	0.044	0.24	0.18	0.018	0.019	0.22	0.32	0.041	0.025	0.015	0.031	0.0071	0.047
Perfluorodecanoic Acid (PFDA)	100,000	NA	0.0061 U	0.00062 U	0.0040 U	0.0061 U	0.00062 U	0.00062 U	0.0017 U	0.00062 U	0.0017 U	0.00062 U	0.0017 U	NA	0.0061 U	0.00062 U	NA	0.0061 U	0.00062 U	NA	NA	0.0040 U	0.0061 U	0.00062 U	0.0027	0.001 J	0.00048 U	0.00046 U	0.00062 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	NA	0.19	0.23	0.13	0.062	0.02	0.034	0.046	0.00039 U	0.043	0.0071	0.0054	NA	0.0066 U	0.00039 U	NA	0.0066 U	0.00039 U	NA	NA	0.0032 U	0.0066 U	0.00039 U	0.00039 U	0.0011 U	0.00036 U	0.00034 U	0.00095
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																													
Total PFAS	NA	0.0646	1.217	1.5845	1.02	0.39	0.169	0.2873	0.4769	0.2009	0.2702	0.14005	0.1796	0.0402	0.0573	0.05953	0.0763	0.3891	0.4357	0.0475	NA	0.506	0.5504	0.1832	0.0707	0.0634	0.07307	0.05705	0.37335
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	**0.0646**	**0.83**	**1.182**	**0.768**	**0.255**	**0.1045**	**0.184**	**0.299**	**0.1512**	**0.1709**	**0.1096**	**0.1283**	**0.0402**	**0.04**	**0.0416**	**0.0763**	**0.319**	**0.2697**	**0.0475**	**0.048**	**0.39**	**0.483**	**0.0953**	**0.0484**	**0.035**	**0.0484**	**0.0274**	**0.117**

Notes:

UCL = Upper Concentration Limit
< = Not detected by the laboratory above the reporting limit. Reporting limit shown.
J = Estimated concentration between the method detection limit and reporting limit.
Results in ug/L, micrograms per liter.
U= Not detected by the Laboratory above the method detection limit. Method detection limit shown.
Bold results above Method 1 GW-1 standard (0.02 ug/L).
Sum of six includes estimated values and does not include non-detects (U or <).
Total PFAS is the sum of all laboratory detected PFAS analytes including estimated values and does not include non-detects (U or <).
NA = Not Applicable.
* = ME-1 is screened from 37 to 47 and 70 to 80 feet below grade.
** = ME-2 is screened from 44 to 54 feet below grade.
*** = ME-3 is screened from 40 to 50 feet below grade.
The Method 1 GW-3 Standard for the individual analytes in the Sum of Six ranges from 500 to 40,000 ug/l.
1. Well elevation increased due to soil cap.

Table 2. Groundwater Results for PFAS Compounds ug/L

Sample Location		Airport Road/Iyannough Road Area					ARFF Building Area															
Sample ID	UCL	HW-U(m)	HW-U(m)	HW-U(d)	HW-U(d)	HW-U(d)	HW-V(m)	HW-L (s)	HW-L (m)	HW-L (d)	HW-L (d)	HW-P (s)	HW-P (s)	HW-P (s)	HW-P (s)	HW-P (m)	HW-P (m)	HW-P (m)	HW-P (m)	HW-Q (s)	HW-Q (s)	HW-Q (m)
Sample Date		9/5/2021	3/15/2022	10/2/2020	9/5/2021	3/15/2022	10/2/2020	10/7/2020	10/7/2020	6/19/2019	10/7/2020	10/1/2020	3/18/2021	9/8/2021	3/18/2022	10/1/2020	3/18/2021	9/8/2021	3/18/2022	10/1/2020	11/6/2020	10/1/2020
TOC Elevation		NA	NA	48.80	48.80	48.80	53.83	39.07	38.98	39.15	39.15	40.51	40.51	40.51	40.51	40.64	40.64	40.64	40.64	37.89	37.89	37.90
Depth to Groundwater		24.49	22.80	24.66	25.24	23.52	22.90	21.96	21.88	19.40	22.22	22.69	22.09	23.54	21.61	22.80	22.20	23.67	21.73	21.45	22.04	21.41
Groundwater Elevation		NA	NA	24.14	23.56	25.28	30.93	17.11	17.10	19.75	16.93	17.82	18.42	16.97	18.90	17.84	18.44	16.97	18.91	16.44	15.85	16.49
Total Well Depth		38.93	39.65	62.30	62.30	63.65	36.15	27.33	37.33	70.55	70.55	27.60	27.60	27.60	27.61	38.30	38.30	38.30	38.28	26.60	26.60	36.79
Perfluoroheptanoic acid (PFHpA)	100,000	0.0049	0.004	0.01	0.01	0.01	0.0033	0.00053 U	0.0064	0.0078	0.0065	0.026	0.0067	0.004	0.01	0.003	0.017	0.016	0.009	0.0018 J	0.0021	0.00053 U
Perfluorohexanesulfonic acid (PFHxS)	5,000	0.011	0.0098	0.018	0.022	0.017	0.0032	0.0013	0.023	0.033	0.015	0.0018	0.00074 J	0.00056 J	0.0012 J	0.00085	0.0015 J	0.0013 J	0.002	0.013	0.0087	0.0019
Perfluorononanoic acid (PFNA)	100,000	0.0011 J	0.0021	0.0016	0.005	0.0025	0.0017	0.00063 U	0.0025	0.0033	0.0022	0.0061	0.002	0.0013 J	0.0039	0.0011	0.006	0.0099	0.009	0.00063 U	0.00063 U	0.00075
Perfluorooctanoic acid (PFOA)	100,000	0.0094	0.018	0.01	0.013	0.013	0.0063	0.00071 U	0.01	0.025	0.018	0.0084	0.0042	0.0017 J	0.012	0.0018	0.0096	0.01	0.0081	0.0049	0.0062	0.00095
Perfluorooctane sulfonate (PFOS)	5,000	0.027	0.029	0.023	0.051	0.043	0.0059	0.0014	0.07	0.049	0.039	0.00097	0.00049 J	0.00054 U	0.00098 J	0.0011	0.0035	0.003	0.0026	0.0041	0.0075	0.0049
Perfluorodecanoic Acid (PFDA)	100,000	0.001 U	0.00055 J	0.00062 U	0.0025 U	0.00047 J	0.00062 U	0.00062 U	0.00062 U	<0.002	0.0019	0.00085	0.0004 J	0.00048 U	0.00043 U	0.00062 U	0.00038 U	0.00048 U	0.00043 U	0.00062 U	0.00062 U	0.00062 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	0.00075	0.00033 U	0.0012	0.04	0.00032 U	0.00039 U	0.00039 U	0.022	0.0021	0.00078	0.011	0.0034	0.0014	0.0083	0.00092	0.0011 U	0.00036 U	0.00039 U	0.00039 U	0.00039 U	0.00039 U
		Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																				
Total PFAS	NA	0.0839	0.10395	0.0889	0.1775	0.12378	0.0543	0.0027	0.18375	0.1823	0.12348	0.2478	0.06294	0.05055	0.08508	0.02967	0.17311	0.15362	0.08697	0.0307	0.0346	0.00944
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	**0.0534**	**0.06345**	**0.0588**	**0.0987**	**0.08167**	**0.0204**	0.0027	**0.1119**	**0.1181**	**0.0826**	**0.04412**	0.01453	0.00756	**0.02808**	0.00785	**0.0376**	**0.0402**	**0.0307**	**0.0238**	**0.0245**	0.0085

Sample Location		Deployment Area	Yarmouth Road																									
Sample ID	UCL	HW-E[1]	HW-F	HW-F	HW-F	HW-F	HW-F	HW-F	HW-H	HW-H	HW-H	HW-R(s)	HW-R(s)	HW-R(s)	HW-R(s)	HW-S (s)	HW-S (s)	HW-S (s)	HW-S (s)	HW-S(s)	HW-S (m)	HW-S (m)	HW-S (m)	HW-S (m)	HW-S(m)	HW-T (s)	HW-T (s)	HW-T (m)	HW-T (m)
Sample Date		3/16/2022	4/5/2017	11/7/2018	5/5/2020	3/17/2021	9/8/2021	3/16/2022	11/7/2018	5/8/2020	5/18/2022	10/1/2020	3/17/2021	9/8/2021	3/16/2022	10/1/2020	3/18/2021	9/3/2021	3/31/2022	8/8/2022	10/1/2020	3/18/2021	9/3/2021	3/25/2022	8/8/2022	10/1/2020	5/18/2022	10/1/2020	5/18/2022
TOC Elevation		42.40	36.32	36.32	36.32	36.32	36.32	36.32	38.47	38.47	38.47	35.72	35.72	35.72	35.72	31.60	31.60	31.60	31.60	31.60	31.59	31.59	31.59	31.59	28.97	28.97	29.11	29.11
Depth to Groundwater		22.67	19.60	20.08	16.82	20.01	21.72	19.34	20.39	17.37	20.07	18.33	17.37	19.00	16.69	16.88	16.29	17.30	15.70	16.43	17.01	16.35	17.37	15.48	17.94	13.41	12.07	13.58	12.24
Groundwater Elevation		19.73	16.72	16.24	19.50	16.31	14.60	16.98	18.08	21.10	18.40	17.39	18.35	16.72	19.03	14.72	15.31	14.30	15.90	15.17	14.58	15.24	14.22	16.11	13.65	15.56	16.90	15.53	16.87
Total Well Depth		30.26	26.89	26.89	26.89	26.89	26.89	26.83	27.09	27.09	27.07	23.56	23.67	23.67	23.66	22.10	22.10	22.10	22.20	22.15	32.04	32.04	32.04	32.05	32.11	18.54	18.60	28.96	28.96
Perfluoroheptanoic acid (PFHpA)	100,000	0.023	0.34	0.0074 U	0.23	0.39	0.0051	0.36	0.077	0.28	0.015	0.021	0.005	0.021	0.03	0.11	0.14	0.11	0.061	0.16	0.00096	0.0011 J	0.0012 J	0.0018 U	0.0065	0.0039	0.0073	0.022	0.02
Perfluorohexanesulfonic acid (PFHxS)	5,000	0.0028	0.019J	0.0056 U	0.005	0.012 U	0.00037 U	0.0097	0.0056 U	0.0031	0.0021	0.02	0.01	0.0046	0.0019	0.055	0.083	0.064	0.041	0.12	0.0064	0.0073	0.0053	0.0026	0.0074	0.17	0.029	0.019	0.046
Perfluorononanoic acid (PFNA)	100,000	0.0023	0.0046 U	0.0087 U	0.00081	0.0097 U	0.00037 U	0.0025	0.0087 U	0.00063 U	0.0003 U	0.0031	0.001 J	0.00034 U	0.00031 U	0.1	0.024	0.1	0.043	0.16	0.00063 U	0.00057 J	0.00055 J	0.0018 U	0	0.00074	0.0013	0.0032	0.00031 U
Perfluorooctanoic acid (PFOA)	100,000	0.029 J	0.075	0.0033 U	0.02	0.052	0.00074 U	0.052	0.0050 J	0.002	0.0006 U	0.014	0.004	0.004	0.0014 J	0.062	0.078	0.13	0.05	0.23	0.0013	0.0018 J	0.0014 J	0.0019	0.0049	0.0067	0.01	0.011	0.0035
Perfluorooctane sulfonate (PFOS)	5,000	0.0013 J	0.0026 U	0.0060 U	0.00086	0.0076 U	0.00065 U	0.0037	0.0060 U	0.00068 U	0.00053 U	0.016	0.0023	0.0053	0.001 J	0.1	0.03	0.048	0.048	0.16	0.0058	0.006	0.0094	0.0052	0.0096	0.21	0.035	0.025	0.0059
Perfluorodecanoic Acid (PFDA)	100,000	0.00043 U	0.0040 U	0.0061 U	0.00062 U	0.0076 U	0.00053 U	0.00043 U	0.0061 U	0.00062 U	0.00043 U	0.00062 U	0.00038 U	0.00049 U	0.00044 U	0.00062 U	0.0038 U	0.012 U	0.0019 U	0.0017 U	0.00062 U	0.00038 U	0.00047 U	0.0018 U	0.0017 U	0.00062 U	0.00047	0.0014	0.00054
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	0.83	5.7	0.0066 U	1.5	4.8	0.0049	8.2	1.5	0.13	0.00032 U	0.037	0.0048	0.003	0.0053	3.7	3.1	5.2	0	0	0.0065	0.0067	0.0036	0.023	0	0.00039 U	0.00032 U	0.00039 U	0.00033 U
		Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																											
Total PFAS	NA	0.9169	12.96	0.084	2.65637	8.422	0.159	12.18373	4.452	1.26666	0.165	0.2171	0.04878	0.2549	0.30126	4.8958	4.3105	6.1418	0.5956	1.5581	0.02471	0.03263	0.02873	0.043	0.0564	0.44114	0.1295	0.3254	0.33614
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	0.0584	**0.434**	0.0087 U	0.25667	**0.442**	0.0051	0.4279	**0.082**	**0.2851**	0.0171	**0.0741**	**0.0751**	**0.0213**	**0.0343**	**0.427**	**0.427**	**0.452**	**0.243**	**0.83**	0.01446	0.01677	0.01785	0.0097	**0.0284**	**0.39134**	**0.08307**	**0.0816**	**0.07594**

Sample Location		Steamship Parking Lot						Maher Wells											
Sample ID	UCL	HW-300	HW-300	HW-300	HW-300	HW-301	HW-302	HW-302	HW-302	HW-302	HW-302	HW-K	HW-K	HW-K	HW-K	HW-K	OW-9S	OW-9S	OW-9S	OW-9M	OW-9M
Sample Date		7/1/2016	3/17/2021	9/2/2021	3/31/2022	7/1/2016	7/1/2016	12/3/2018	3/17/2021	9/1/2021	3/25/2022	6/19/2019	5/21/2020	3/18/2021	9/2/2021	3/25/2022	7/5/2016	12/3/2018	5/8/2020	12/3/2018	5/8/2020
TOC Elevation		36.09	36.09	36.09	36.09	39.46	41.17	41.17	41.17	41.17	41.17	37.70	37.70	37.70	37.70	37.70	23.25	23.25	23.25	23.53	23.53
Depth to Groundwater		22.52	22.86	23.02	22.53	25.05	23.52	22.65	24.04	26.15	23.70	20.88	20.56	22.87	24.24	22.93	12.23	10.80	10.14	11.11	10.45
Groundwater Elevation		13.57	13.23	13.07	13.56	14.41	17.65	18.52	17.13	15.02	17.47	16.82	17.14	14.83	13.46	14.77	11.02	12.45	13.11	12.42	13.08
Total Well Depth		30.33	30.30	30.34	30.40	30.42	30.45	30.45	30.44	30.40	30.42	44.18	44.18	44.17	44.18	44.17	21.35	21.35	21.35	56.20	56.20
Perfluoroheptanoic acid (PFHpA)	100,000	0.0096	0.0028	0.0029	0.0019 U	0.002	0.019	0.015 J	0.0066	0.0062	0.0092	0.0051	0.0028	0.0044	0.0086	0.017	0.014	0.048	0.0064	0.11	0.0061
Perfluorohexanesulfonic acid (PFHxS)	5,000	0.012	0.0099	0.00066 J	0.006	0.038	0.0063	0.016 J	0.0022	0.004	0.013	<0.002	0.001	0.00066 J	0.0015 J	0.0019	<0.003	0.023	0.011	0.0056 U	0.0033
Perfluorononanoic acid (PFNA)	100,000	<0.002	0.00099 J	0.0028	0.0019 U	<0.002	0.054	0.0097 J	0.0066	0.005	0.02	<0.002	0.0012	0.0037	0.003	0.0087	0.0077	0.0087 U	0.0033	0.044	0.0037
Perfluorooctanoic acid (PFOA)	100,000	0.0052	0.0044	0.0044	0.0033	0.0037	0.033	0.03	0.005	0.0065	0.017	0.0041	0.0019	0.0036	0.0038	0.012	0.007	0.032	0.0043	0.052	0.0035
Perfluorooctane sulfonate (PFOS)	5,000	0.017	0.015	0.017	0.012	0.011	0.014	0.031	0.0041	0.015	0.0095	<0.002	0.0016	0.0015 J	0.0019	0.0037	0.0074	0.024	0.0058	0.0081 J	0.01
Perfluorodecanoic Acid (PFDA)	100,000	NA	0.00038 U	0.0006 J	0.0019 U	NA	NA	0.0061 U	0.00086 J	0.001 J	0.0019 U	<0.002	0.00062 U	0.00038 U	0.00046 U	0.0019 U	NA	0.0061 U	0.00062 U	0.0061 U	0.00062 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	NA	0.0011 U	0.0034 U	0.00034 U	NA	NA	0.13	0.012	0.0062	0.072	0.002 U	0.00039 U	0.0011 U	0.00034 U	0.0019 U	NA	0.0066 U	0.00039 U	0.64	0.0049
		Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																			
Total PFAS	NA	0.0438	0.05509	0.03812	0.0369	0.0547	0.1263	0.3427	0.08304	0.09793	0.2149	0.0348	0.0275	0.04486	0.09217	0.1864	0.0361	0.618	0.06678	1.7141	0.0816
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	**0.0438**	**0.03309**	**0.02832**	**0.0213**	**0.0547**	**0.1263**	**0.1017**	**0.02536**	**0.0377**	**0.0687**	0.0092	0.0085	0.01386	0.0188	0.0414	**0.0361**	**0.127**	**0.0308**	**0.2141**	**0.0266**

Sample Location		Maher Wells															
Sample ID	UCL	OW-19(M)	OW-19(M)	OW-19(M)	OW-19D	OW-19D	OW-19D	OW-19D	OW-19D	HW-W(m)	HW-W(m)	HW-W(m)	HW-W(d)	HW-W(d)	HW-W(d)	HW-W(dd)	HW-W(dd)	HW-W(dd)
Sample Date		3/19/2021	9/3/2021	3/18/2022	4/11/2017	5/13/2020	3/19/2021	9/11/2021	3/18/2022	4/19/2021	9/5/2021	3/16/2022	4/19/2021	9/5/2021	3/16/2022	4/19/2021	9/5/2021	3/16/2022
TOC Elevation		NA	NA	NA	39.06	39.06	39.06	39.06	39.06	NA	NA	NA	NA	NA	NA	NA	NA	NA
Depth to Groundwater		27.15	28.65	27.59	26.73	25.64	27.52	28.90	27.95	28.96	30.17	29.12	28.73	29.93	28.92	28.67	29.89	28.85
Groundwater Elevation		NA	NA	NA	12.33	13.42	11.54	10.16	11.11	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Well Depth		76.24	76.25	78.05	110.42	110.42	110.33	110.34	112.70	52.04	58.02	53.10	61.78	61.78	63.02	72.10	72.09	73.61
Perfluoroheptanoic acid (PFHpA)	100,000	0.044	0.014	0.0038	0.0051 J	0.011	0.018	0.022	0.018	0.01	0.0034	0.0041	0.0021	0.01	0.01	0.0091	0.0073	0.0077
Perfluorohexanesulfonic acid (PFHxS)	5,000	0.014 J	0.015	0.013	0.029	0.12	0.026	0.028	0.029	0.012	0.015	0.014	0.0088	0.0064	0.022	0.0086	0.0048	0.02
Perfluorononanoic acid (PFNA)	100,000	0.0048 U	0.0021	0.0022	0.006 J	0.0017	0.0029	0.00088 J	0.00042 J	0.00077 J	0.001 J	0.00055 J	0.0013 J	0.0025	0.0023	0.0014 J	0.002	0.0015 J
Perfluorooctanoic acid (PFOA)	100,000	0.0094 J	0.0037	0.0045	0.0046 U	0.023	0.0097	0.007	0.0078	0.0041	0.0024	0.0032	0.0029	0.0094	0.0097	0.0046	0.0069	0.0059
Perfluorooctane sulfonate (PFOS)	5,000	0.027	0.029	0.012	0.029	0.31	0.047	0.053	0.041	0.075	0.042	0.068	0.012	0.017	0.034	0.015	0.0081	0.035
Perfluorodecanoic Acid (PFDA)	100,000	0.0038 U	0.00046 U	0.00043 U	0.0040 U	0.00062 U	0.00038 U	0.00048 U	0.00046 U	0.00038 U	0.00046 U	0.00044 U	0.00038 U	0.00046 U	0.00043 U	0.00038 U	0.00049 U	0.00045 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	0.011 U	0.00035 U	0.00032 U	0.0032 U	0.00039 U	0.0011 U	0.00036 U	0.00034 U	0.0011 U	0.0029	0.0034	0.0011 U	0.00042	0.00059	0.0011 U	0.00036 U	0.0033 U
		Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																
Total PFAS	NA	0.3974	0.16133	0.0571	0.0936	0.5463	0.3127	0.31489	0.28111	0.17849	0.17264	0.20725	0.04339	0.08666	0.13162	0.10469	0.0563	0.11378
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	**0.0944**	**0.0638**	**0.0355**	**0.0691**	**0.4657**	**0.1036**	**0.11088**	**0.09622**	**0.09707**	**0.06380**	**0.08985**	**0.0271**	**0.0453**	**0.078**	**0.0387**	**0.0291**	**0.0701**

Notes:

UCL = Upper Concentration Limit
< = Not detected by the laboratory above the reporting limit. Reporting limit shown.
J = Estimated concentration between the method detection limit and reporting limit.
Results in ug/L, micrograms per liter.
U= Not detected by the Laboratory above the method detection limit. Method detection limit shown.
Bold results above Method 1 GW-1 standard (0.02 ug/L).
Sum of six includes estimated values and does not include non-detects (U or <).
Total PFAS is the sum of all laboratory detected PFAS analytes including estimated values and does not include non-detects (U or <).
NA = Not Applicable.
* = ME-1 is screened from 37 to 47 and 70 to 80 feet below grade.
** = ME-2 is screened from 44 to 54 feet below grade.
*** = ME-3 is screened from 40 to 50 feet below grade.
The Method 1 GW-3 Standard for the individual analytes in the Sum of Six ranges from 500 to 40,000 ug/l.
1. Well elevation increased due to soil cap.

Table 3 - 1,4 Dioxane Groundwater Results ug/L

Sample Location	North Ramp																	Airport Road/Iyannough Road Area							ARFF Building			
Sample ID	HW-1	HW-1	HW-5	HW-12	OW-6	OW-6	HW-4M	HW-4D	HW-204	HW-29	HW-207S	HW-207D	HW-207D	HW-19D	HW-19D	HW-X(s)	HW-X(m)	HW-A(D)	HW-A(D)	HW-B(D)	HW-N	HW-O	HW-U(d)	HW-V(m)	HW-L(s)	HW-L(m)	HW-L(d)	HW-L(d)
Sample Date	5/7/2015	8/5/2019	5/7/2015	5/7/2015	5/7/2015	9/27/2019	4/5/2017	4/5/2017	9/27/2019	9/27/2019	9/27/2019	4/5/2017	9/27/2019	4/5/2017	9/27/2019	9/10/2021	9/10/2021	4/5/2017	8/5/2019	4/5/2017	8/5/2019	8/5/2019	10/2/2020	10/2/2020	10/7/2020	10/7/2020	7/2/2019	5/13/2020
1,4-Dioxane	<0.152	<0.25	<0.150	<0.150	<0.150	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.19	<0.22	<0.25	<0.25	<0.25	<0.25	<0.25	**0.73**	**0.8**	<0.2	<0.2	**0.727**	**0.75**

Sample Location	Maher Well Field															Deployment Area	
Sample ID	OW-9M	OW-9D	OW-9D	OW-9D	OW-9DD	OW-9DD	OW-9DD	OW-18M	OW-18D	OW-18D	OW-18D	OW-19M	OW-19D	OW-19D	OW-19D	HW-E	HW-J
Sample Date	5/28/2015	5/28/2015	12/3/2018	5/5/2020	5/28/2015	4/11/2017	12/3/2018	4/11/2017	4/11/2017	12/7/2018	5/13/2020	4/11/2017	4/11/2017	12/7/2018	5/13/2020	9/10/2021	9/10/2021
1,4-Dioxane	<0.141	<0.141	<0.25	<0.19	**0.926**	**0.838**	**0.732**	<0.25	**0.552**	<0.25	**0.35**	<0.25	**0.800**	<0.25	**0.3**	<0.20	<0.20

Notes:
Results in ug/L, micrograms per liter.
< = Not detected by the laboratory above the reporting limit. Reporting limit shown.
Bold results above Method 1 GW-1 standard (0.3 ug/L).
The Method 1 GW-2 standard for 1,4-dioxane is 6,000 ug/l.
The Method 1 GW-3 standard for 1,4-dioxane is 50,000 ug/l.

Table 4. ARFF Concentrate Analytical Results ug/L

Sample ID	Foam Mix
Sample Date	12/9/2016
Perfluoroheptanoic acid (PFHpA)	3.4 J
Perfluorohexanesulfonic acid (PFHxS)	2.1 J
Perfluorononanoic acid (PFNA)	93
Perfluorooctanoic acid (PFOA)	19
Perfluorooctane sulfonate (PFOS)	5 U
Perfluorodecanoic Acid (PFDA)	2.8 J
6:2 FTS	33
Total PFAS	222.5
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	120.3

Notes:

1. U = Not detected by the laboratory above the Method Detection Limit. Method Detection Limit shown.
2. Results in ug/L, micrograms per liter.
3. Total PFAS is the sum of all laboratory detected PFAS analytes including estimated values and does not include non-detects (U).
4. Sample is AFFF concentrate.
5. J = Estimated concentration between the Method Detection Limit and the Laboratory Reporting Limit.

Table 5. SPLP Results ug/L

Sample ID	DL4 4'	DL5 2'	DL8 (4')	DL14(0-1')	Stockpile West	Stockpile East	ARFF Rubber Roof	ARFF Asphalt Roof
Sample Date	9/26/2017	9/26/2017	9/26/2017	9/26/2017	10/10/2017	10/10/2017	11/17/2020	11/17/2020
Perfluoroheptanoic acid (PFHpA)	0.011 U	0.011 U	0.065 J	0.17	0.011 U	0.011 U	0.00279	0.0002 U
Perfluorohexanesulfonic acid (PFHxS)	0.0072 U	0.0072 U	0.036 U	0.01 J	0.0072 U	0.0072 U	0.00034 U	0.00036 U
Perfluorononanoic acid (PFNA)	0.16	0.0032 U	0.052 J	0.37	0.0032 U	0.0032 U	0.00068 J	0.00028 U
Perfluorooctanoic acid (PFOA)	0.012 J	0.042	0.6	0.87	0.0037 U	0.0037 U	0.0073	0.00021 U
Perfluorooctane sulfonate (PFOS)	0.013 J	0.0072 U	0.036 U	0.19	0.0072 U	0.0072 U	0.00045 U	0.00202
Perfluorodecanoic Acid (PFDA)	0.0052 U	0.0052 U	0.026 U	0.34	0.0052 U	0.0052 U	0.000364 J	0.000271 U
6:2 FTS	0.067	0.0072 U	25	7.13	0.034 J	0.024 J	0.0154 J	0.0017 J
Total PFAS	0.195	0.042	26.25	20.195	0.034	0.024	0.072723	0.07957
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	0.185	0.042	0.717	1.95	0.011 U	0.011 U	0.011133	0.00202

Notes:

1. U = Not detected by the laboratory above the Method Detection Limit. Method Detection Limit shown.
2. Results in ug/L, micrograms per liter.
3. Total PFAS is the sum of all laboratory detected PFAS analytes including estimated values and does not include non-detects (U).

Table 6: Background PFAS Levels in Soil and Soil Stock Pile Samples

Background Sample Locations																									
Sample ID	Method 1 Standard		Stockpile West	Stockpile East	Loam Pile	BG-1 0-1'	BG-2 0-1'	BG-3 0-1'	BG-4 0-1'	BG-5 0-1'	BG-6 0-1'	BG-7 0-1'	BG-8 0-1'	BG-9 0-1'	BG-10 0-1'	BG-11 0-1'	BG-12 0-1'	BG-13 0-1'	BG-14 0-1'	BG-15 0-1'	BG-16 0-1'	BG-17 0-1'	BG-18 0-1'	BG-19 0-1'	BG-20 0-1'
Sample Date	S-1/GW-1	S-1/GW-3	10/10/2017	10/10/2017	10/10/2017	10/26/2017	10/26/2017	10/26/2017	10/26/2017	10/26/2017	10/26/2017	10/26/2017	10/26/2017	10/26/2017	10/26/2017	12/14/2017	12/14/2017	12/14/2017	12/14/2017	12/14/2017	12/14/2017	12/14/2017	12/14/2017	12/14/2017	12/14/2017
Sample Location			On-Airport	On-Airport	On-Airport	Off-Airport	On-Airport	On-Airport	On-Airport	On-Airport	On-Airport	On-Airport	On-Airport	Off-Airport	Off-Airport	Off-Airport	Off-Airport	Off-Airport	Off-Airport	Off-Airport	Off-Airport	Off-Airport	Off-Airport	Off-Airport	Off-Airport
Perfluoroheptanoic acid (PFHpA)	0.5	300	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.18 J	0.17 U	0.18 J	0.17 U	0.17 U	0.23 J	0.17 U	0.17 U	0.19 U	0.19 U	0.19 U	0.19 U	0.44 J	0.19 U	0.19 U	0.35 J	0.19 U	0.46 J
Perfluorohexanesulfonic acid (PFHxS)	0.3	300	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.24 U	**0.39 J**	0.24 U	0.24 U	**0.57 J**	**0.47 J**	0.24 U	**0.49 J**	0.24 U	0.24 U
Perfluorooctanoic acid (PFOA)	0.72	300	0.26 U	0.26 U	0.26 U	0.58 J	0.26 U	0.26 U	0.16 U	0.47 J	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	**0.75 J**	0.67 J	0.33 J	0.25 U	0.46 J	0.37 J	0.36 J	0.5 J	0.25 U	**0.86 J**
Perfluorononanoic acid (PFNA)	0.32	300	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.22 U	0.29 J	0.22 U	0.22 U	**0.53 J**	0.22	**0.67 J**	**0.41 J**	0.22 U	0.22 U
Perfluorooctane sulfonate (PFOS)	2	300	0.38 J	0.39 J	0.81 J	0.21 U	0.7 J	0.38 J	**2.3**	0.41 J	0.32 J	0.33 J	0.31 J	1.3	0.62 J	0.41 J	0.76 J	0.99	0.26 U	**3.1**	2	0.36 J	**2.3**	0.41 J	0.44 J
Perfluorodecanoic Acid (PFDA)	0.3	300	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.28 U	0.28 U	**0.36 J**	0.28 U	**0.31 J**	**0.41 J**	0.28 U	**0.41 J**	0.28 U	0.28 U
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six																									
Total PFAS	NA	NA	1.78	0.91	0.81	1.47	0.7	0.56	3.21	1.31	0.32	0.3	0.84	1.3	0.62	1.16	2.73	1.68	0	6.79	3.77	5.09	5.45	0.41	2.43
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	NA	0.38	0.39	0.81	0.58	0.7	0.56	2.3	1.06	0.32	0.33	0.54	1.3	0.62	1.16	2.11	1.68	0	5.41	3.47	1.39	4.46	0.41	1.76

Notes:
J = Estimated concentration between the method detection limit and reporting limit.
Results in ug/kg, micrograms per kilogram.
U= Not detected by the Laboratory above the method detection limit. Method detection limit shown.
Bold results above the proposed Method 1 S-1/GW-1 standard.
Total PFAS is the sum of all laboratory detected PFAS analytes including estimated values and does not include non-detects (U or <).
Sum of six includes estimated values and does not include non-detects (U or <).

Table 7. Surface Water Results for PFAS ug/L

	Surface Water		
Sample ID	Kmart	LP-1	UGP-1
Sample Date	6/20/2017	7/11/19	7/11/19
Perfluoroheptanoic acid (PFHpA)	0.0033 U	<0.01	<0.02
Perfluorohexanesulfonic acid (PFHxS)	0.0034 U	<0.01	<0.02
Perfluorononanoic acid (PFNA)	0.0043 J	<0.01	<0.02
Perfluorooctanoic acid (PFOA)	0.0026 U	<0.01	<0.02
Perfluorooctane sulfonate (PFOS)	0.0046 U	<0.01	<0.02
Perfluorodecanoic Acid (PFDA)	0.0040 U	<0.01	<0.02
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six			
Total PFAS	0.0174	0.018	0.047
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	0.0043	<0.01	<0.02

Notes:

< = Not detected by the laboratory above the reporting limit. Reporting limit shown.

J = Estimated concentration between the method detection limit and reporting limit.

Results in ug/L, micrograms per liter.

U= Not detected by the laboratory above the method detection limit. Method detection limit shown.

Sum of six includes estimated values and does not include non-detects (U or <).

Total PFAS is the sum of all laboratory detected PFAS analytes including estimated values and does not include non-detects (U or <).

Currently MassDEP has not issued a surface water standard for PFAS.

The Method 1 GW-1 Standard for the Sum of Six is 0.02 ug/l.

The Method 1 GW-3 Standard for the individual analytes in the Sum of Six range from 500 to 40,000 ug/l.

Table 8: Ratio of Stable Isotopes Oxygen-18 and Hydrogen-2 Laboratory Results

Sample Date	Lab Sample ID	HW Sample ID	Stable Isotope Oxygen-18			Stable Isotope Hydrogen-2		
			δ18O (V-SMOW)	Atm %	Expected Values	δ18O (V-SMOW)	Atm %	Expected Values
11/7/2018	1811299-2	HW-I	-6.92	0.20	-	-40.41	0.01494	-
			-6.77	0.20	-	-40.17	0.01495	-
	1811299-4	HW-E	-6.79	0.20	-	-38.56	0.01497	-
			-6.85	0.20	-	-38.87	0.01497	-
	1811299-5	HW-F	-6.9	0.20	-	-38.28	0.01498	-
			-6.88	0.20	-	-38.15	0.01498	-
	1811299-7	SW-2	-2.67	0.20	-	-18.65	0.01528	-
			-2.61	0.20	-	-20.42	0.01526	-
						-23.04	0.01521	-
12/3/2018	1812198-1	HW-G(S)	-6.74	0.20	-	-38.19	0.01498	-
			-6.93	0.20	-	-37.87	0.01498	-
	1812198-2	HW-G(M)	-7.53	0.20	-	-44.34	0.01498	-
			-7.57	0.20	-	-44.39	0.01498	-
	1812198-3	HW-G(D)	-7.18	0.20	-	-44.15	0.01489	-
			-7.45	0.20	-	-44.56	0.01488	-
	1812198-4	OW-9S	-7.29	0.20	-	-41.86	0.01492	-
			-7.41	0.20	-	-42.94	0.0149	-
	1812198-5	OW-9D	-7.76	0.20	-	-47.91	0.01483	-
			-7.71	0.20	-	-46.82	0.01484	-
					-	-47.20	0.01484	-
	1812198-6	OW-9DD	-7.52	0.20	-	-45.58	0.01486	-
			-7.57	0.20	-	-45.48	0.01487	-
	1812198-7	OW-9M	-7.13	0.20	-	-41.44	0.01493	-
			-7.24	0.20	-	-43.40	0.0149	-
12/7/2018	1812232-1	OW-18S	-7.58	0.20	-	-49.29	0.01481	-
			-7.54	0.20	-	-49.66	0.0148	-
	1812232-2	OW-18M	-6.95	0.20	-	-42.64	0.01491	-
			-6.89	0.20	-	-42.57	0.01491	-
	1812232-3	OW-18D	-7.28	0.20	-	-44.76	0.01488	*
			-7.36	0.20	-	-41.61	0.01493	*
QA/QC	IAEA OH-14	-	-5.64	0.20	-5.6	-37.45	0.01499	-37.70
	IAEA OH-15	-	-9.59	0.20	-9.41	-77.89	0.01436	-78
	IAEA OH-16	-	-15.72	0.20	-15.41	-	-	-113.8
	Antarc IC	-	-29.83	0.19	-30	-	-	-239.69

Table 9. Fire Truck Spray Water PFAS Results ug/L

	Fire Truck Spray Water Spray											
Sample ID	Hose		Roof		Bumper		Officer Side Handline		Driver side-Rear		Officer side-Rear	
Sample Date	8/22/2019	11/12/2019	8/22/2019	11/12/2019	8/22/2019	11/12/2019	8/22/2019	11/12/2019	8/22/2019	11/12/2019	8/22/2019	11/12/2019
Perfluoroheptanoic acid (PFHpA)	0.073	<0.002	0.0045	<0.002	0.0039	<0.002	0.027	<0.002	0.0055	<0.002	0.081	0.0021
Perfluorohexanesulfonic acid (PFHxS)	0.0059	<0.002	0.0033	<0.002	0.0039	<0.002	0.004	<0.002	0.0048	<0.002	0.0043	<0.002
Perfluorononanoic acid (PFNA)	0.011	<0.002	0.0026	<0.002	0.0031	<0.002	0.013	<0.002	0.003	<0.002	0.016	<0.002
Perfluorooctanoic acid (PFOA)	0.088	0.0062	0.0087	<0.002	0.01	<0.002	0.039	<0.002	0.011	<0.002	0.076	0.0041
Perfluorooctane sulfonate (PFOS)	0.009	0.0021	0.0068	<0.002	0.006	<0.002	0.0087	<0.002	0.0093	<0.002	0.0086	<0.002
Perfluorodecanoic Acid (PFDA)	0.014	<0.002	0.004	<0.002	0.0045	<0.002	0.032	<0.002	0.0049	<0.002	0.032	<0.002
Total PFAS	5.7017	0.3391	0.9195	0.0205	0.7817	0.0167	4.1098	0.0481	0.8302	0.0087	5.4701	0.086
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	**0.2009**	0.0083	**0.0299**	<0.002	**0.0314**	<0.002	**0.1237**	<0.002	**0.0385**	<0.002	**0.2179**	0.0041

Notes:

< = Not detected by the laboratory above the reporting limit. Reporting limit shown.

Results in ug/L, micrograms per liter.

Bold results above proposed MassDEP GW-1 standard (0.02 ug/L)

Total PFAS is the sum of all laboratory detected PFAS analytes including estimated values and does not include non-detects (U or <).

Table 10: Total Organic Carbon Levels (mg/kg)

Total Organic Carbon Concentration																	
Sample ID	HW-W dd 3-5 ft	HW-W dd 8-10 ft	HW-W dd 18-20 ft	HW-W dd 23-25 ft	HW-W dd 28-30 ft	HW-W dd 33-35 ft	HW-W dd 38-40 ft	HW-W dd 43-45 ft	HW-W dd 48-50 ft	HW-W dd 58-60 ft	HW-W dd 63-65 ft	S1 0-2ft	S1 2-4ft	S1 4-6ft	S2 0-2ft	S2 2-4ft	S2 4-6ft
Sample Date	04/06/2021	04/06/2021	04/06/2021	04/06/2021	04/06/2021	04/06/2021	04/06/2021	04/06/2021	04/06/2021	04/06/2021	04/06/2021	4/19/2021	4/19/2021	4/19/2021	4/19/2021	4/19/2021	4/19/2021
Sample Depth (ft below grade)	3-5	8-10	18-20	23-25	28-30	33-35	38-40	43-45	48-50	58-60	63-65	0-2	2-4	4-6	0-2	2-4	4-6
Sample Location	Water Department Property	Water Department Property	Water Department Property	Water Department Property	Water Department Property	Water Department Property	Water Department Property	Water Department Property	Water Department Property	Water Department Property	Water Department Property	Deployment Area	Deployment Area	Deployment Area	Deployment Area	Deployment Area	Deployment Area
Total Organic Carbon	94.8 U	94.3 U	96.5 U	93.9 U	95.7 U	93.5 U	96.9 U	95.7 U	95.7 U	95.7 U	95.7 U	28,900	1,150	180	1,550	95.1 U	3,500

Notes:
Results in mg/kg, milligrams per kilogram.
U= Not detected by the Laboratory above the method detection limit. Method detection limit shown.

Table 11.Runway 6/24 Surface Soil Results ug/kg

Sample Location	Surface Soils								
Sample ID	Method 1 Standard		UCL	6-24 A (0-1)	6-24 A (1-2)	6-24 B (0-1)	6-24 B (1-2)	6-24 C (0-1)	6-24 C (1-2)
Sample Date	S-1/GW-1	S-1/GW-3		3/2/2022	3/2/2022	3/2/2022	3/2/2022	3/4/2022	3/4/2022
Perfluoroheptanoic acid (PFHpA)	0.5	300	4,000	<0.051	<0.046	0.068 J	<0.049	<0.055	0.079 J
Perfluorohexanesulfonic acid (PFHxS)	0.3	300	4,000	<0.068	<0.062	<0.064	<0.066	<0.074	<0.069
Perfluorooctanoic acid (PFOA)	0.72	300	4,000	<0.047	0.115 J	0.136 J	0.106 J	0.058 J	0.156 J
Perfluorononanoic acid (PFNA)	0.32	300	4,000	<0.085	<0.077	0.115 J	<0.082	<0.091	<0.085
Perfluorooctane sulfonate (PFOS)	2	300	4,000	0.318	0.361	0.471	0.196 J	0.654	0.297
Perfluorodecanoic Acid (PFDA)	0.3	300	4,000	<0.076	<0.069	<0.071	<0.073	<0.082	<0.076
6:2 Fluorotelomer sulfonate (6:2 FTS)	NA	NA	NA	<0.203	<0.184	<0.19	<0.197	<0.219	<0.203
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six									
Total PFAS	NA	NA	NA	0.457	0.731	1.312	0.55	1.123	0.85
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	NA	NA	NA	0.318	0.476	0.79	0.302	0.712	0.532

Notes:
< = Not detected by the laboratory above the reporting limit. Reporting limit shown.
J = Estimated concentration between the method detection limit and reporting limit.
Results in ug/kg, micrograms per kilogram.
U= Not detected by the Laboratory above the method detection limit. Method detection limit shown.
Bold results above the Method 1 S-1/GW-1 standard.
Total PFAS is the sum of all laboratory detected PFAS analytes including estimated values and does not include non-detects (U or <).
Sum of six includes estimated values and does not include non-detects (U or <).
UCL = Upper Concentration Limit
Sample depth in feet below grade in parenthesis

Table 12. Select Pre and Post Cap Groundwater Results for PFAS Compounds (ug/L)

Sample Location	**ARFFF/SRE Area**			**Deployment Area Area**					
Sample ID	HW-P (s)			HW-I (s)			HW-E		
Sample Type	Pre-Cap	Post-Cap	Post-Cap	Pre-Cap	Post-Cap	Post-Cap	Pre-Cap	Post-Cap	Post-Cap
Sample Date	10/1/2020	3/18/2021	9/8/2021	5/8/2020	3/17/2021	9/8/2021	5/5/2020	3/17/2021	9/8/2021
Perfluoroheptanoic acid (PFHpA)	0.026	0.0067	0.004	0.54	0.032	0.097	0.044	0.014	0.0018 J
Perfluorohexanesulfonic acid (PFHxS)	0.0018 J	0.00074 J	0.00056 J	0.22	0.021	0.036	0.011	0.0015 J	0.00088 J
Perfluorononanoic acid (PFNA)	0.0061	0.002	0.0013 J	0.082	0.065	0.033	0.0052	0.00048 U	0.00037 U
Perfluorooctanoic acid (PFOA)	0.0084	0.0042	0.0017 J	0.29	0.05	0.063	0.027	0.00095 J	0.00094 J
Perfluorooctane sulfonate (PFOS)	0.00097	0.00049 J	0.00054 U	0.04	0.028	0.02	0.0037	0.00082 J	0.00064 U
Perfluorodecanoic Acid (PFDA)	0.00085	0.0004 J	0.00048 U	<0.002	0.0038 U	0.00047 U	<0.002	0.00038 U	0.00052 U
6:2 Fluorotelomer sulfonate (6:2 FTS)	0.011	0.0034	0.0014 J	13	1.7	2.1	0.86	0.0035	0.00039 U
Sum of Laboratory Reported PFAS (Total PFAS) and Sum of Six									
Total PFAS	0.2478	0.06294	0.05055	15.5383	2.082	2.73304	1.04526	0.04812	0.01342
Sum of Six (PFHpA,PFHxS,PFOA, PFOS, PFNA, and PFDA)	**0.04412**	0.01453	0.00756	**1.172**	**0.196**	**0.249**	**0.0909**	0.01727	0.00362
Statistics									
Percent Total PFAS Decrease	-79.60%			-82.41%			-98.72%		
Percent Sum of 6 Decrease	-82.86%			-78.75%			-96.02%		

Results in ug/L, micrograms per liter.

U= Not detected by the Laboratory above the method detection limit. Method detection limit shown.

Bold results above Method 1 GW-1 standard (0.02 ug/L).

Sum of six includes estimated values and does not include non-detects (U or <).

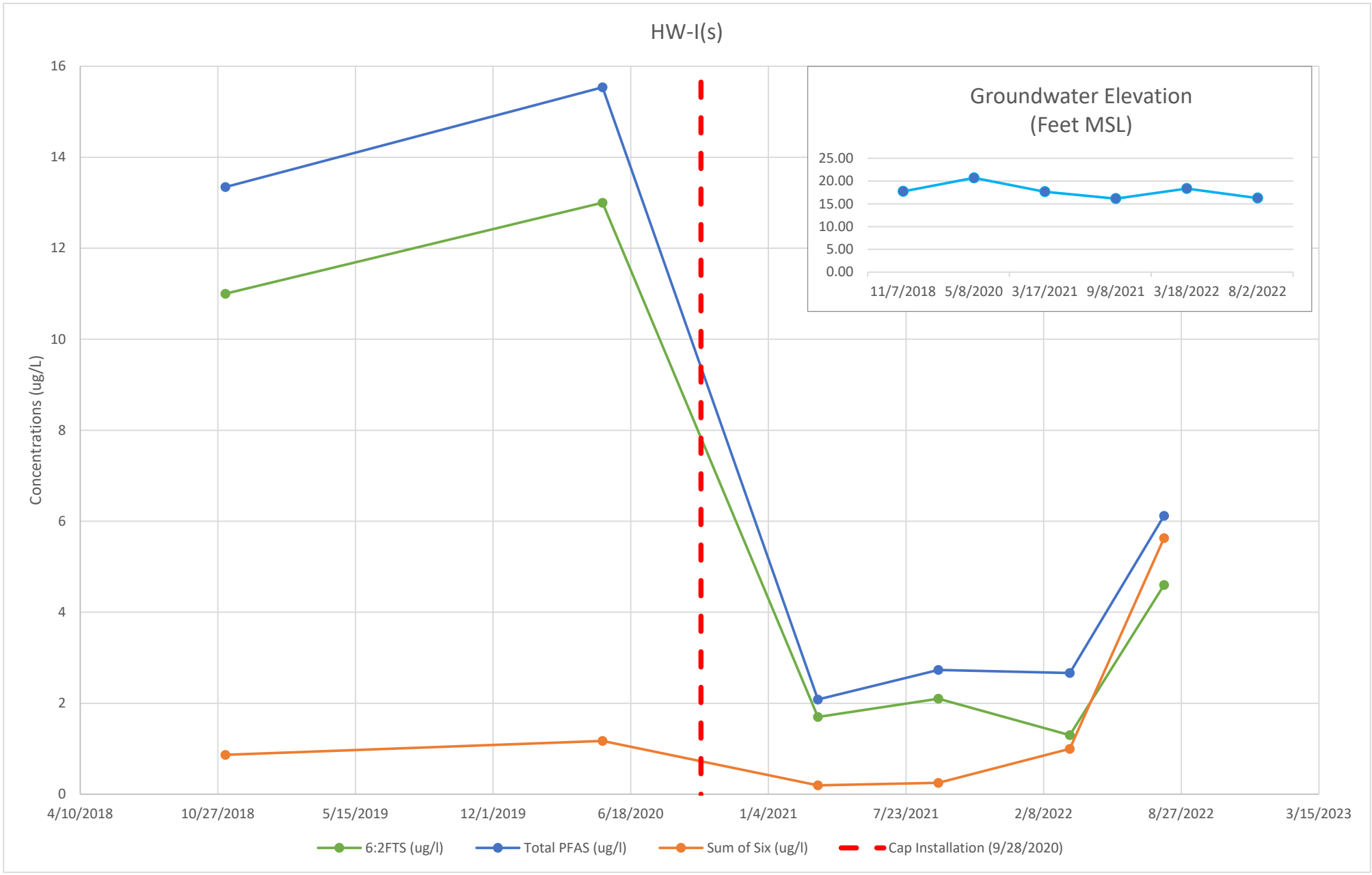
Total PFAS is the sum of all laboratory detected PFAS analytes including estimated values and does not include non-detects (U or <).

The Method 1 GW-3 Standard for the individual analytes in the Sum of Six ranges from 500 to 40,000 ug/l.

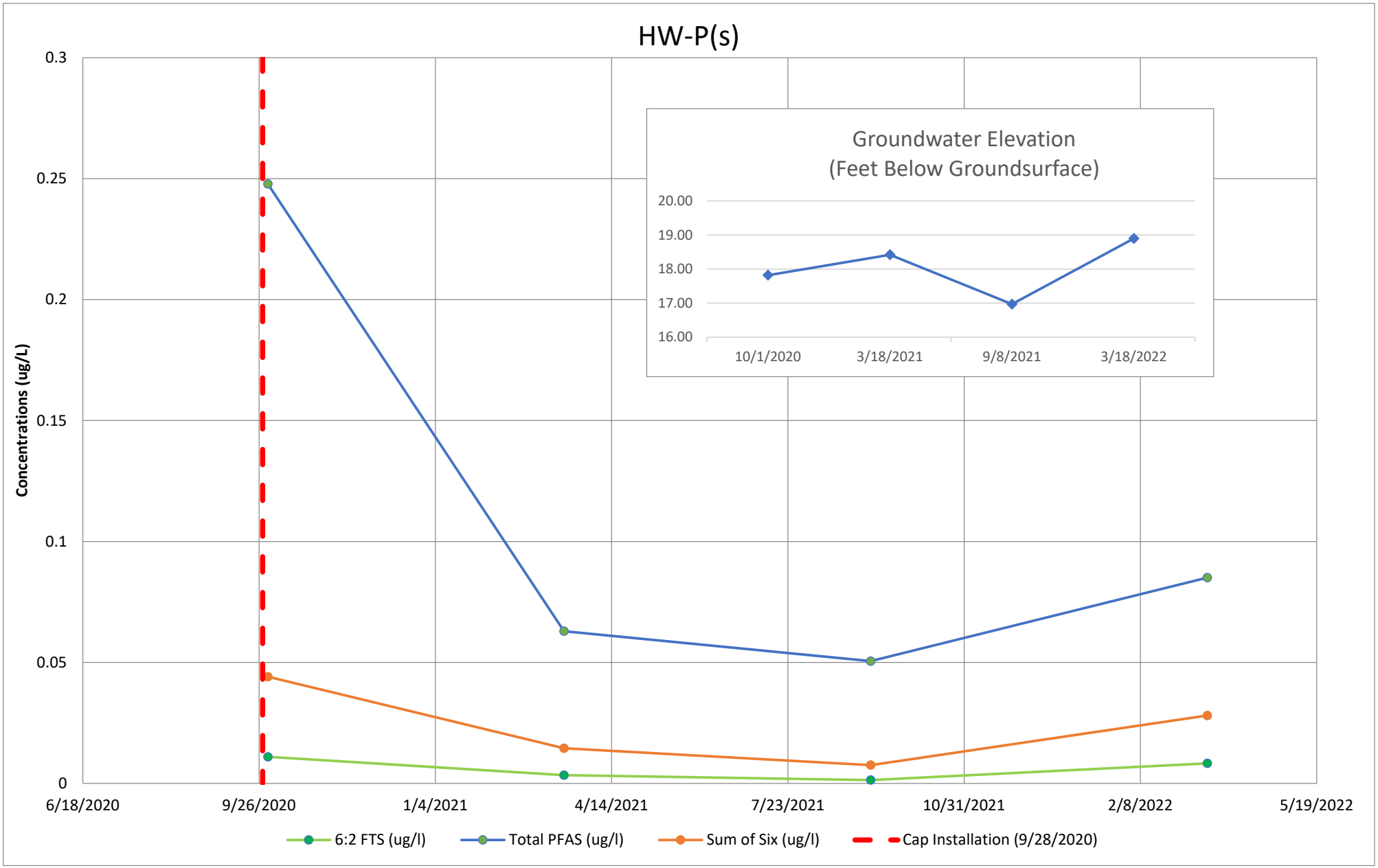
Percent increase or decrease is calculated as follows: [(Post Cap– Pre Cap)/(Pre Cap)]*100

APPENDIX A

PFAS in Groundwater Trend Graphs


HW-I(s)
Concentrations (ug/L)
16
14
12
10
8
6
4
2
0
4/10/2018
10/27/2018
5/15/2019
12/1/2019
6/18/2020
1/4/2021
7/23/2021
2/8/2022
8/27/2022
3/15/2023
Groundwater Elevation
(Feet MSL)
25.00
20.00
15.00
10.00
5.00
0.00
11/7/2018
5/8/2020
3/17/2021
9/8/2021
3/18/2022
8/2/2022
6:2FTS (ug/l)
Total PFAS (ug/l)
Sum of Six (ug/l)
Cap Installation (9/28/2020)


HW-S(s)
Concentrations (ug/L)
7
6
5
4
3
2
1
0
6/18/2020
9/26/2020
1/4/2021
4/14/2021
7/23/2021
10/31/2021
2/8/2022
5/19/2022
8/27/2022
12/5/2022
Groundwater Elevation
(Feet MSL)
17.00
16.00
15.00
14.00
13.00
10/1/2020
3/18/2021
9/3/2021
3/31/2022
8/8/2022
6:2 FTS (ug/l)
Total PFAS (ug/l)
Sum of Six (ug/l)
Cap Installation (9/28/2020)


HW-P(s)
Concentrations (ug/L)
0.3
0.25
0.2
0.15
0.1
0.05
0
6/18/2020
9/26/2020
1/4/2021
4/14/2021
7/23/2021
10/31/2021
2/8/2022
5/19/2022
Groundwater Elevation
(Feet Below Groundsurface)
20.00
19.00
18.00
17.00
16.00
10/1/2020
3/18/2021
9/8/2021
3/18/2022
6:2 FTS (ug/l)
Total PFAS (ug/l)
Sum of Six (ug/l)
Cap Installation (9/28/2020)

APPENDIX B

Laboratory Analysis Report

con-test®
A Pace Analytical® Laboratory

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

May 11, 2022

Bryan Massa
Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563

Project Location: Hyannis, MA
Client Job Number:
Project Number: 21084
Laboratory Work Order Number: 22C1360

Enclosed are results of analyses for samples as received by the laboratory on March 21, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew J Beaupre
Project Manager

Table of Contents

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

Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563
ATTN: Bryan Massa

REPORT DATE: 5/11/2022

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 21084

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22C1360

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

PROJECT LOCATION: Hyannis, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
HW-U(s)	22C1360-01	Ground Water		-	
				SOP-454 PFAS	
HW-U(m)	22C1360-02	Ground Water		SOP-454 PFAS	
HW-U(d)	22C1360-03	Ground Water		SOP-454 PFAS	
HW-R (s)	22C1360-04	Ground Water		SOP-454 PFAS	
HW-J	22C1360-05	Ground Water		SOP-454 PFAS	
HW-F	22C1360-06	Ground Water		SOP-454 PFAS	
HW-E	22C1360-07	Ground Water		SOP-454 PFAS	
HW-I (m)	22C1360-08	Ground Water		SOP-454 PFAS	
HW-I (d)	22C1360-09	Ground 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.

REVISED REPORT - 5/11/2022 - 22C1360-01 through -03 ID revised per clients request.

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

Qualifications:

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:

Perfluorobutanoic acid (PFBA)
22C1360-01RE1[HW-U(s)], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)], B306172-BS1

Perfluorodecanoic acid (PFDA)
22C1360-01RE1[HW-U(s)], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)], B306172-BS1

Perfluorododecanoic acid (PFDoA)
22C1360-01RE1[HW-U(s)], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)], B306172-BS1

Perfluorononanesulfonic acid (PFN
22C1360-01RE1[HW-U(s)], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)], B306172-BS1

Perfluoropentanoic acid (PFPeA)
22C1360-01RE1[HW-U(s)], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)], B306172-BS1

L-04

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

Analyte & Samples(s) Qualified:

Perfluorobutanesulfonic acid (PFB
22C1360-01RE1[HW-U(s)], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)], B306172-BS1, B306172-BSD1

Perfluoroheptanesulfonic acid (PFl
22C1360-01RE1[HW-U(s)], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)], B306172-BS1, B306172-BSD1

Perfluoroheptanoic acid (PFHpA)
22C1360-01RE1[HW-U(s)], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)], B306172-BS1, B306172-BSD1

Perfluorohexanoic acid (PFHxA)
22C1360-01RE1[HW-U(s)], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)], B306172-BS1, B306172-BSD1

Perfluoropetanesulfonic acid (PFP
22C1360-01RE1[HW-U(s)], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)], B306172-BS1, B306172-BSD1

PF-20

Sample extracted at a dilution. Elevated reporting limits due to adjusted sample volume during preparation.

Analyte & Samples(s) Qualified:

22C1360-05RE1[HW-J], 22C1360-06RE1[HW-F], 22C1360-07RE1[HW-E]

PF-21

Extracted Internal Standard was outside of control limits in original analysis. Re-extraction/re-analysis outside of holding time resulted in conforming data. Both results reported.

Analyte & Samples(s) Qualified:

22C1360-01RE1[HW-U(s)], 22C1360-05RE1[HW-J], 22C1360-06RE1[HW-F], 22C1360-07RE1[HW-E], 22C1360-08RE1[HW-I (m)], 22C1360-09RE1[HW-I (d)]

M2-4:2FTS
22C1360-01[HW-U(s)], 22C1360-05[HW-J], 22C1360-06[HW-F], 22C1360-07[HW-E], 22C1360-08[HW-I (m)], 22C1360-09[HW-I (d)]

M2-6:2FTS
22C1360-05[HW-J], 22C1360-06[HW-F], 22C1360-08[HW-I (m)]

M2-8:2FTS
22C1360-05[HW-J], 22C1360-08[HW-I (m)]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

M2-4:2FTS
S070533-CCV2

M2-6:2FTS
S070533-CCV2, S070533-CCV3

M2-8:2FTS
B306172-BSD1, S070533-CCV2

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

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:

Perfluorononanesulfonic acid (PFN
S070533-CCV1

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
Project Management Supervisor

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-U(s) | Sampled: 3/15/2022 12:35

Sample ID: 22C1360-01

Sample Matrix: Ground Water

Sample Flags: PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	2.5	1.8	0.66	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorobutanoic acid (PFBA)	2.7	1.8	0.66	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorobutanesulfonic acid (PFBS)	4.7	1.8	0.25	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorobutanesulfonic acid (PFBS)	5.5	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluoropentanoic acid (PFPeA)	3.5	1.8	0.35	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluoropentanoic acid (PFPeA)	4.2	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorohexanoic acid (PFHxA)	3.8	1.8	0.34	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorohexanoic acid (PFHxA)	4.6	1.8	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.54	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.54	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.44	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorodecanoic acid (PFDA)	0.60	1.8	0.43	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.20	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.83	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.83	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-U(s) | Sampled: 3/15/2022 12:35

Sample ID: 22C1360-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.28	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.27	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluoro-1-butanesulfonamide (FBSA)	0.66	1.8	0.17	ng/L	1	J	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluoro-1-butanesulfonamide (FBSA)	0.69	1.8	0.17	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorohexanesulfonic acid (PFHxS)	3.5	1.8	0.30	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorohexanesulfonic acid (PFHxS)	3.9	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.32	1.8	0.23	ng/L	1	L-04, J	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.40	1.8	0.23	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluoroundecanoic acid (PFUnA)	0.39	1.8	0.33	ng/L	1	J	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluoroundecanoic acid (PFUnA)	0.45	1.8	0.33	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluoroheptanoic acid (PFHpA)	2.3	1.8	0.31	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluoroheptanoic acid (PFHpA)	2.7	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorooctanoic acid (PFOA)	4.8	1.8	0.60	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorooctanoic acid (PFOA)	5.2	1.8	0.60	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorooctanesulfonic acid (PFOS)	11	1.8	0.53	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorooctanesulfonic acid (PFOS)	12	1.8	0.53	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH
Perfluorononanoic acid (PFNA)	1.3	1.8	0.31	ng/L	1	J	SOP-454 PFAS	4/21/22	4/23/22 1:22	BLH
Perfluorononanoic acid (PFNA)	1.3	1.8	0.31	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:22	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-U(m) | Sampled: 3/15/2022 15:00

Sample ID: 22C1360-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	4.0	1.8	0.67	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorobutanesulfonic acid (PFBS)	13	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluoropentanoic acid (PFPeA)	8.5	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorohexanoic acid (PFHxA)	6.9	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.54	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorodecanoic acid (PFDA)	0.55	1.8	0.44	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.40	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluoroheptanesulfonic acid (PFHpS)	1.4	1.8	0.84	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
N-MeFOSAA	ND	1.8	0.68	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.38	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.28	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluoro-1-butanesulfonamide (FBSA)	5.4	1.8	0.17	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorohexanesulfonic acid (PFHxS)	9.8	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluoropetanesulfonic acid (PFPeS)	1.3	1.8	0.23	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluoroheptanoic acid (PFHpA)	4.0	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorooctanoic acid (PFOA)	18	1.8	0.61	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorooctanesulfonic acid (PFOS)	29	1.8	0.54	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH
Perfluorononanoic acid (PFNA)	2.1	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:29	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-U(d) | Sampled: 3/15/2022 13:00

Sample ID: 22C1360-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	4.6	1.8	0.66	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorobutanesulfonic acid (PFBS)	9.7	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluoropentanoic acid (PFPeA)	12	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorohexanoic acid (PFHxA)	9.6	1.8	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.54	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorodecanoic acid (PFDA)	0.47	1.8	0.43	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.20	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluoroheptanesulfonic acid (PFHpS)	1.1	1.8	0.83	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorooctanesulfonamide (FOSA)	0.89	1.8	0.37	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	0.32	1.8	0.27	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluoro-1-butanesulfonamide (FBSA)	2.2	1.8	0.17	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorohexanesulfonic acid (PFHxS)	17	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluoropetanesulfonic acid (PFPeS)	1.7	1.8	0.23	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluoroheptanoic acid (PFHpA)	5.7	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorooctanoic acid (PFOA)	13	1.8	0.60	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorooctanesulfonic acid (PFOS)	43	1.8	0.53	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH
Perfluorononanoic acid (PFNA)	2.5	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:37	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-R (s) | Sampled: 3/16/2022 10:50

Sample ID: 22C1360-04

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	37	1.8	0.67	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorobutanesulfonic acid (PFBS)	0.66	1.8	0.25	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluoropentanoic acid (PFPeA)	130	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorohexanoic acid (PFHxA)	94	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.58	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.55	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.44	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.40	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.84	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
N-EtFOSAA	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
N-MeFOSAA	ND	1.8	0.68	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.38	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.28	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.17	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorohexanesulfonic acid (PFHxS)	1.9	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	5.3	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	0.23	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluoroheptanoic acid (PFHpA)	30	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorooctanoic acid (PFOA)	1.4	1.8	0.61	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorooctanesulfonic acid (PFOS)	1.0	1.8	0.54	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH
Perfluorononanoic acid (PFNA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:44	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-J | Sampled: 3/16/2022 12:15

Sample ID: 22C1360-05

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	110	1.8	0.67	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorobutanoic acid (PFBA)	83	40	15	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorobutanesulfonic acid (PFBS)	3.2	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	40	5.6	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluoropentanoic acid (PFPeA)	270	40	7.9	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorohexanoic acid (PFHxA)	170	40	7.7	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
11Cl-PF3OUdS (F53B Minor)	ND	40	13	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.58	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
9Cl-PF3ONS (F53B Major)	ND	40	7.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	40	7.0	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.22	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	40	4.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	19	1.8	0.55	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	40	12	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.44	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorodecanoic acid (PFDA)	ND	40	9.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.40	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorododecanoic acid (PFDoA)	ND	40	8.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	40	4.6	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluoroheptanesulfonic acid (PFHpS)	8.1	1.8	0.85	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	40	19	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
N-EtFOSAA	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
N-EtFOSAA	ND	40	13	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
N-MeFOSAA	ND	1.8	0.69	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
N-MeFOSAA	ND	40	15	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorotetradecanoic acid (PFTA)	ND	40	7.3	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	40	5.5	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	40	5.6	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	40	6.5	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.38	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorooctanesulfonamide (FOSA)	ND	40	8.4	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorononanesulfonic acid (PFNS)	ND	40	3.4	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	11	1.8	0.28	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-J | Sampled: 3/16/2022 12:15

Sample ID: 22C1360-05

Sample Matrix: Ground Water

Sample Flags: PF-20, PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-1-hexanesulfonamide (FHxSA)	6.9	40	6.2	ng/L	1	J	SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluoro-1-butanesulfonamide (FBSA)	2.8	1.8	0.17	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	40	3.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorohexanesulfonic acid (PFHxS)	100	40	6.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorohexanesulfonic acid (PFHxS)	150	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.38	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	40	8.3	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	40	6.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1600	40	7.3	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluoropetanesulfonic acid (PFPeS)	10	1.8	0.23	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluoropetanesulfonic acid (PFPeS)	5.3	40	5.2	ng/L	1	J	SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluoroundecanoic acid (PFUnA)	ND	40	7.4	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	40	5.5	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluoroheptanoic acid (PFHpA)	130	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluoroheptanoic acid (PFHpA)	97	40	6.9	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorooctanoic acid (PFOA)	130	1.8	0.62	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorooctanoic acid (PFOA)	100	40	14	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorooctanesulfonic acid (PFOS)	150	40	12	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH
Perfluorononanoic acid (PFNA)	62	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:51	BLH
Perfluorononanoic acid (PFNA)	40	40	6.9	ng/L	1	J	SOP-454 PFAS	4/14/22	4/20/22 5:17	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-F | Sampled: 3/16/2022 14:20

Sample ID: 22C1360-06

Sample Matrix: Ground Water

Sample Flags: PF-20, PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	590	100	37	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorobutanesulfonic acid (PFBS)	0.66	1.8	0.25	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	100	14	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluoropentanoic acid (PFPeA)	2100	100	20	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorohexanoic acid (PFHxA)	860	100	19	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
11Cl-PF3OUdS (F53B Minor)	ND	100	32	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
9Cl-PF3ONS (F53B Major)	ND	100	20	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	100	17	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	100	12	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	3.8	1.8	0.54	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	100	30	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.43	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorodecanoic acid (PFDA)	ND	100	25	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorododecanoic acid (PFDoA)	ND	100	22	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	100	12	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.83	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	100	47	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
N-EtFOSAA	ND	100	32	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
N-MeFOSAA	ND	100	38	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorotetradecanoic acid (PFTA)	ND	100	18	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	100	14	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	0.60	1.8	0.25	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	100	14	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	100	16	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorooctanesulfonamide (FOSA)	ND	100	21	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorononanesulfonic acid (PFNS)	ND	100	8.4	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.28	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	100	16	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-F | Sampled: 3/16/2022 14:20

Sample ID: 22C1360-06

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.17	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	100	9.6	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorohexanesulfonic acid (PFHxS)	9.7	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	100	17	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	100	21	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	100	17	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8200	100	18	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.77	1.8	0.23	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	100	13	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluoroundecanoic acid (PFUnA)	ND	100	18	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	100	14	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluoroheptanoic acid (PFHpA)	360	100	17	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorooctanoic acid (PFOA)	52	1.8	0.60	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorooctanoic acid (PFOA)	39	100	34	ng/L	1	J	SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorooctanesulfonic acid (PFOS)	3.7	1.8	0.53	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	100	30	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH
Perfluorononanoic acid (PFNA)	2.5	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 21:58	BLH
Perfluorononanoic acid (PFNA)	ND	100	17	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:24	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-E | Sampled: 3/16/2022 16:00

Sample ID: 22C1360-07

Sample Matrix: Ground Water

Sample Flags: PF-20, PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	40	15	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorobutanoic acid (PFBA)	4.5	1.7	0.65	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	40	5.6	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluoropentanoic acid (PFPeA)	12	40	7.9	ng/L	1	J	SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoropentanoic acid (PFPeA)	12	1.7	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorohexanoic acid (PFHxA)	12	1.7	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorohexanoic acid (PFHxA)	12	40	7.7	ng/L	1	J	SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
11Cl-PF3OUdS (F53B Minor)	ND	40	13	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.7	0.56	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
9Cl-PF3ONS (F53B Major)	ND	40	7.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
9Cl-PF3ONS (F53B Major)	ND	1.7	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	40	7.0	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	40	4.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	40	12	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	0.53	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorodecanoic acid (PFDA)	ND	40	9.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorodecanoic acid (PFDA)	ND	1.7	0.43	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorododecanoic acid (PFDoA)	ND	40	8.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.7	0.39	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	40	4.6	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	0.20	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	40	19	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.82	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
N-EtFOSAA	ND	40	13	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
N-EtFOSAA	ND	1.7	0.55	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
N-MeFOSAA	ND	40	15	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
N-MeFOSAA	ND	1.7	0.66	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorotetradecanoic acid (PFTA)	ND	40	7.3	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	40	5.5	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	40	5.6	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	40	6.5	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	0.28	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorooctanesulfonamide (FOSA)	ND	40	8.4	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.7	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorononanesulfonic acid (PFNS)	ND	40	3.4	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH

con-test® A Pace Analytical® Laboratory
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-E | Sampled: 3/16/2022 16:00

Sample ID: 22C1360-07

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	40	6.2	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	0.27	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	40	3.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	0.17	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	40	6.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorohexanesulfonic acid (PFHxS)	2.8	1.7	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	40	8.3	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	0.36	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	40	6.8	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	830	40	7.3	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	40	5.2	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.7	0.23	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluoroundecanoic acid (PFUnA)	ND	40	7.4	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	40	5.5	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluoroheptanoic acid (PFHpA)	26	40	6.9	ng/L	1	J	SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluoroheptanoic acid (PFHpA)	23	1.7	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorooctanoic acid (PFOA)	29	40	14	ng/L	1	J	SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorooctanoic acid (PFOA)	29	1.7	0.60	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	40	12	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorooctanesulfonic acid (PFOS)	1.3	1.7	0.53	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH
Perfluorononanoic acid (PFNA)	ND	40	6.9	ng/L	1		SOP-454 PFAS	4/14/22	4/20/22 5:31	BLH
Perfluorononanoic acid (PFNA)	2.3	1.7	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:05	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-I (m) | Sampled: 3/18/2022 12:15

Sample ID: 22C1360-08

Sample Matrix: Ground Water

Sample Flags: PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	1.6	1.7	0.65	ng/L	1	L-03, J	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorobutanoic acid (PFBA)	1.7	1.7	0.65	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.25	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorobutanesulfonic acid (PFBS)	0.29	1.7	0.25	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluoropentanoic acid (PFPeA)	3.0	1.7	0.34	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluoropentanoic acid (PFPeA)	3.6	1.7	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorohexanoic acid (PFHxA)	2.5	1.7	0.34	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorohexanoic acid (PFHxA)	3.2	1.7	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.7	0.56	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.7	0.56	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
9Cl-PF3ONS (F53B Major)	ND	1.7	0.34	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
9Cl-PF3ONS (F53B Major)	ND	1.7	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	0.21	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	0.53	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	0.53	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorodecanoic acid (PFDA)	ND	1.7	0.43	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorodecanoic acid (PFDA)	ND	1.7	0.43	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.7	0.39	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.7	0.38	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	0.20	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	0.20	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.82	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.82	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
N-EtFOSAA	ND	1.7	0.55	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
N-EtFOSAA	ND	1.7	0.55	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
N-MeFOSAA	ND	1.7	0.66	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
N-MeFOSAA	ND	1.7	0.66	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	0.25	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	0.28	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	0.28	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.7	0.37	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.7	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.15	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-I (m) | Sampled: 3/18/2022 12:15

Sample ID: 22C1360-08

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	0.27	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	0.27	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	0.17	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	0.17	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorohexanesulfonic acid (PFHxS)	5.2	1.7	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorohexanesulfonic acid (PFHxS)	4.0	1.7	0.30	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	0.36	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	0.36	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.7	0.23	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.25	1.7	0.22	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluoroheptanoic acid (PFHpA)	2.0	1.7	0.30	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluoroheptanoic acid (PFHpA)	2.4	1.7	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorooctanoic acid (PFOA)	1.4	1.7	0.60	ng/L	1	J	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorooctanoic acid (PFOA)	1.6	1.7	0.59	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorooctanesulfonic acid (PFOS)	11	1.7	0.53	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorooctanesulfonic acid (PFOS)	11	1.7	0.52	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH
Perfluorononanoic acid (PFNA)	0.55	1.7	0.30	ng/L	1	J	SOP-454 PFAS	4/21/22	4/23/22 1:29	BLH
Perfluorononanoic acid (PFNA)	0.61	1.7	0.30	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:13	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-I (d) | Sampled: 3/18/2022 11:20

Sample ID: 22C1360-09

Sample Matrix: Ground Water

Sample Flags: PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	7.0	1.8	0.66	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorobutanoic acid (PFBA)	6.7	1.8	0.66	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorobutanesulfonic acid (PFBS)	1.2	1.8	0.25	ng/L	1	L-04, J	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorobutanesulfonic acid (PFBS)	1.4	1.8	0.25	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluoropentanoic acid (PFPeA)	19	1.8	0.35	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluoropentanoic acid (PFPeA)	20	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorohexanoic acid (PFHxA)	15	1.8	0.34	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorohexanoic acid (PFHxA)	17	1.8	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.54	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.54	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.43	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.43	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.20	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluoroheptanesulfonic acid (PFHpS)	1.8	1.8	0.83	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluoroheptanesulfonic acid (PFHpS)	1.5	1.8	0.83	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1	L-03	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1360

Date Received: 3/21/2022

Field Sample #: HW-I (d) | Sampled: 3/18/2022 11:20

Sample ID: 22C1360-09

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.27	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.28	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.17	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluoro-1-butanesulfonamide (FBSA)	0.18	1.8	0.17	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorohexanesulfonic acid (PFHxS)	37	1.8	0.30	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorohexanesulfonic acid (PFHxS)	39	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	0.93	1.8	0.32	ng/L	1	J	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	0.86	1.8	0.32	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluoropetanesulfonic acid (PFPeS)	1.6	1.8	0.23	ng/L	1	L-04, J	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluoropetanesulfonic acid (PFPeS)	2.1	1.8	0.23	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluoroheptanoic acid (PFHpA)	7.7	1.8	0.30	ng/L	1	L-04	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluoroheptanoic acid (PFHpA)	7.9	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorooctanoic acid (PFOA)	6.7	1.8	0.60	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorooctanoic acid (PFOA)	7.4	1.8	0.60	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorooctanesulfonic acid (PFOS)	47	1.8	0.53	ng/L	1		SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorooctanesulfonic acid (PFOS)	47	1.8	0.53	ng/L	1		SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH
Perfluorononanoic acid (PFNA)	0.87	1.8	0.30	ng/L	1	J	SOP-454 PFAS	4/21/22	4/23/22 1:37	BLH
Perfluorononanoic acid (PFNA)	0.77	1.8	0.31	ng/L	1	J	SOP-454 PFAS	4/4/22	4/14/22 22:41	BLH

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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22C1360-01 [HW-U(s)]	B304652	283	1.00	04/04/22
22C1360-02 [HW-U(m)]	B304652	280	1.00	04/04/22
22C1360-03 [HW-U(d)]	B304652	284	1.00	04/04/22
22C1360-04 [HW-R (s)]	B304652	279	1.00	04/04/22
22C1360-05 [HW-J]	B304652	277	1.00	04/04/22
22C1360-06 [HW-F]	B304652	283	1.00	04/04/22
22C1360-07 [HW-E]	B304652	287	1.00	04/04/22
22C1360-08 [HW-I (m)]	B304652	287	1.00	04/04/22
22C1360-09 [HW-I (d)]	B304652	282	1.00	04/04/22

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22C1360-05RE1 [HW-J]	B305683	12.5	1.00	04/14/22
22C1360-06RE1 [HW-F]	B305683	5.00	1.00	04/14/22
22C1360-07RE1 [HW-E]	B305683	12.5	1.00	04/14/22

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22C1360-01RE1 [HW-U(s)]	B306172	282	1.00	04/21/22
22C1360-08RE1 [HW-I (m)]	B306172	286	1.00	04/21/22
22C1360-09RE1 [HW-I (d)]	B306172	284	1.00	04/21/22

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B304652 - SOP 454-PFAAS										
Blank (B304652-BLK1)				Prepared: 04/04/22 Analyzed: 04/13/22						
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 Minor)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Major)	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	ND	1.8	ng/L							
N-MeFOSAA	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							
Perfluoropetanesulfonic 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 (B304652-BS1)				Prepared: 04/04/22 Analyzed: 04/13/22						
Perfluorobutanoic acid (PFBA)	8.93	1.9	ng/L	9.29		96.2	73-129			
Perfluorobutanesulfonic acid (PFBS)	7.98	1.9	ng/L	8.22		97.2	72-130			
Perfluoropentanoic acid (PFPeA)	8.79	1.9	ng/L	9.29		94.7	72-129			
Perfluorohexanoic acid (PFHxA)	8.85	1.9	ng/L	9.29		95.3	72-129			
11Cl-PF3OUdS (F53B Minor)	9.16	1.9	ng/L	8.75		105	50-150			
9Cl-PF3ONS (F53B Major)	10.1	1.9	ng/L	8.65		117	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	7.72	1.9	ng/L	8.75		88.3	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.76	1.9	ng/L	9.29		105	50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.41	1.9	ng/L	8.91		106	67-138			
Perfluorodecanoic acid (PFDA)	8.68	1.9	ng/L	9.29		93.5	71-129			
Perfluorododecanoic acid (PFDoA)	8.05	1.9	ng/L	9.29		86.7	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.56	1.9	ng/L	8.26		104	50-150			

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B304652 - SOP 454-PFAAS										
LCS (B304652-BS1)				Prepared: 04/04/22 Analyzed: 04/13/22						
Perfluoroheptanesulfonic acid (PFHpS)	7.55	1.9	ng/L	8.87		85.1	69-134			
N-EtFOSAA	10.2	1.9	ng/L	9.29		110	61-135			
N-MeFOSAA	10.1	1.9	ng/L	9.29		109	65-136			
Perfluorotetradecanoic acid (PFTA)	8.50	1.9	ng/L	9.29		91.6	71-132			
Perfluorotridecanoic acid (PFTrDA)	8.53	1.9	ng/L	9.29		91.9	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.29	1.9	ng/L	8.68		107	63-143			
Perfluorodecanesulfonic acid (PFDS)	7.54	1.9	ng/L	8.96		84.2	53-142			
Perfluorooctanesulfonamide (FOSA)	8.64	1.9	ng/L	9.29		93.0	67-137			
Perfluorononanesulfonic acid (PFNS)	8.26	1.9	ng/L	8.91		92.7	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	10.2	1.9	ng/L	9.29		110	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	8.80	1.9	ng/L	9.29		94.8	50-150			
Perfluorohexanesulfonic acid (PFHxS)	8.64	1.9	ng/L	8.50		102	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	9.36	1.9	ng/L	9.29		101	50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.55	1.9	ng/L	9.29		103	50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.78	1.9	ng/L	8.82		99.6	64-140			
Perfluoropetanesulfonic acid (PFPeS)	9.29	1.9	ng/L	8.73		106	71-127			
Perfluoroundecanoic acid (PFUnA)	8.09	1.9	ng/L	9.29		87.1	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.63	1.9	ng/L	9.29		104	50-150			
Perfluoroheptanoic acid (PFHpA)	9.05	1.9	ng/L	9.29		97.4	72-130			
Perfluorooctanoic acid (PFOA)	9.32	1.9	ng/L	9.29		100	71-133			
Perfluorooctanesulfonic acid (PFOS)	7.04	1.9	ng/L	8.59		82.0	65-140			
Perfluorononanoic acid (PFNA)	8.21	1.9	ng/L	9.29		88.4	69-130			
Batch B305683 - SOP 454-PFAAS										
Blank (B305683-BLK1)				Prepared: 04/14/22 Analyzed: 04/20/22						
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 Minor)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Major)	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	ND	1.8	ng/L							
N-MeFOSAA	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							

con-test®
A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B305683 - SOP 454-PFAAS										
Blank (B305683-BLK1)				Prepared: 04/14/22 Analyzed: 04/20/22						
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							
Perfluoropetanesulfonic 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 (B305683-BS1)				Prepared: 04/14/22 Analyzed: 04/20/22						
Perfluorobutanoic acid (PFBA)	6.73	1.8	ng/L	9.04		74.5	73-129			
Perfluorobutanesulfonic acid (PFBS)	6.07	1.8	ng/L	8.00		75.9	72-130			
Perfluoropentanoic acid (PFPeA)	6.73	1.8	ng/L	9.04		74.4	72-129			
Perfluorohexanoic acid (PFHxA)	6.56	1.8	ng/L	9.04		72.6	72-129			
11Cl-PF3OUdS (F53B Minor)	5.77	1.8	ng/L	8.51		67.8	50-150			
9Cl-PF3ONS (F53B Major)	6.57	1.8	ng/L	8.42		78.0	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	5.23	1.8	ng/L	8.51		61.4	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.88	1.8	ng/L	9.04		87.2	50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	6.96	1.8	ng/L	8.68		80.2	67-138			
Perfluorodecanoic acid (PFDA)	8.20	1.8	ng/L	9.04		90.7	71-129			
Perfluorododecanoic acid (PFDoA)	7.29	1.8	ng/L	9.04		80.7	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	5.69	1.8	ng/L	8.04		70.8	50-150			
Perfluoroheptanesulfonic acid (PFHpS)	6.99	1.8	ng/L	8.63		81.0	69-134			
N-EtFOSAA	7.21	1.8	ng/L	9.04		79.8	61-135			
N-MeFOSAA	8.33	1.8	ng/L	9.04		92.1	65-136			
Perfluorotetradecanoic acid (PFTA)	6.50	1.8	ng/L	9.04		71.9	71-132			
Perfluorotridecanoic acid (PFTrDA)	5.99	1.8	ng/L	9.04		66.2	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	6.40	1.8	ng/L	8.45		75.7	63-143			
Perfluorodecanesulfonic acid (PFDS)	6.04	1.8	ng/L	8.72		69.3	53-142			
Perfluorooctanesulfonamide (FOSA)	7.33	1.8	ng/L	9.04		81.1	67-137			
Perfluorononanesulfonic acid (PFNS)	7.28	1.8	ng/L	8.68		83.9	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	6.58	1.8	ng/L	9.04		72.8	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	5.84	1.8	ng/L	9.04		64.7	50-150			
Perfluorohexanesulfonic acid (PFHxS)	5.82	1.8	ng/L	8.27		70.4	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	5.96	1.8	ng/L	9.04		66.0	50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	6.37	1.8	ng/L	9.04		70.5	50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6.38	1.8	ng/L	8.59		74.3	64-140			
Perfluoropetanesulfonic acid (PFPeS)	6.30	1.8	ng/L	8.50		74.2	71-127			
Perfluoroundecanoic acid (PFUnA)	6.35	1.8	ng/L	9.04		70.2	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.21	1.8	ng/L	9.04		68.7	50-150			
Perfluoroheptanoic acid (PFHpA)	6.71	1.8	ng/L	9.04		74.2	72-130			
Perfluorooctanoic acid (PFOA)	7.05	1.8	ng/L	9.04		78.0	71-133			
Perfluorooctanesulfonic acid (PFOS)	6.91	1.8	ng/L	8.36		82.7	65-140			
Perfluorononanoic acid (PFNA)	6.50	1.8	ng/L	9.04		71.9	69-130			

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B306172 - SOP 454-PFAAS											
Blank (B306172-BLK1)				Prepared: 04/21/22 Analyzed: 04/23/22							
Perfluorobutanoic acid (PFBA)	ND	1.7	ng/L								
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	ng/L								
Perfluoropentanoic acid (PFPeA)	ND	1.7	ng/L								
Perfluorohexanoic acid (PFHxA)	ND	1.7	ng/L								
11Cl-PF3OUdS (F53B Minor)	ND	1.7	ng/L								
9Cl-PF3ONS (F53B Major)	ND	1.7	ng/L								
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	ng/L								
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	ng/L								
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	ng/L								
Perfluorodecanoic acid (PFDA)	ND	1.7	ng/L								
Perfluorododecanoic acid (PFDoA)	ND	1.7	ng/L								
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	ng/L								
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	ng/L								
N-EtFOSAA	ND	1.7	ng/L								
N-MeFOSAA	ND	1.7	ng/L								
Perfluorotetradecanoic acid (PFTA)	ND	1.7	ng/L								
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	ng/L								
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	ng/L								
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	ng/L								
Perfluorooctanesulfonamide (FOSA)	ND	1.7	ng/L								
Perfluorononanesulfonic acid (PFNS)	ND	1.7	ng/L								
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	ng/L								
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	ng/L								
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	ng/L								
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	ng/L								
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	ng/L								
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.7	ng/L								
Perfluoropetanesulfonic acid (PFPeS)	ND	1.7	ng/L								
Perfluoroundecanoic acid (PFUnA)	ND	1.7	ng/L								
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	ng/L								
Perfluoroheptanoic acid (PFHpA)	ND	1.7	ng/L								
Perfluorooctanoic acid (PFOA)	ND	1.7	ng/L								
Perfluorooctanesulfonic acid (PFOS)	ND	1.7	ng/L								
Perfluorononanoic acid (PFNA)	ND	1.7	ng/L								
LCS (B306172-BS1)				Prepared: 04/21/22 Analyzed: 04/23/22							
Perfluorobutanoic acid (PFBA)	6.48	1.8	ng/L	9.15		**70.9**	*	73-129			L-03
Perfluorobutanesulfonic acid (PFBS)	5.45	1.8	ng/L	8.09		**67.3**	*	72-130			L-04
Perfluoropentanoic acid (PFPeA)	6.34	1.8	ng/L	9.15		**69.3**	*	72-129			L-03
Perfluorohexanoic acid (PFHxA)	6.26	1.8	ng/L	9.15		**68.4**	*	72-129			L-04
11Cl-PF3OUdS (F53B Minor)	5.74	1.8	ng/L	8.62		66.6		50-150			
9Cl-PF3ONS (F53B Major)	6.04	1.8	ng/L	8.52		70.9		50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	6.16	1.8	ng/L	8.62		71.5		50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.18	1.8	ng/L	9.15		78.5		50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	6.30	1.8	ng/L	8.78		71.8		67-138			
Perfluorodecanoic acid (PFDA)	6.31	1.8	ng/L	9.15		**69.0**	*	71-129			L-03
Perfluorododecanoic acid (PFDoA)	6.41	1.8	ng/L	9.15		**70.1**	*	72-134			L-03
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	6.02	1.8	ng/L	8.14		74.0		50-150			

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B306172 - SOP 454-PFAAS											
LCS (B306172-BS1)				Prepared: 04/21/22 Analyzed: 04/23/22							
Perfluoroheptanesulfonic acid (PFHpS)	5.71	1.8	ng/L	8.73		**65.4**	*	69-134			L-04
N-EtFOSAA	6.62	1.8	ng/L	9.15		72.4		61-135			
N-MeFOSAA	6.92	1.8	ng/L	9.15		75.7		65-136			
Perfluorotetradecanoic acid (PFTA)	6.63	1.8	ng/L	9.15		72.5		71-132			
Perfluorotridecanoic acid (PFTrDA)	6.67	1.8	ng/L	9.15		72.9		65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	6.23	1.8	ng/L	8.55		72.8		63-143			
Perfluorodecanesulfonic acid (PFDS)	5.88	1.8	ng/L	8.83		66.6		53-142			
Perfluorooctanesulfonamide (FOSA)	6.20	1.8	ng/L	9.15		67.7		67-137			
Perfluorononanesulfonic acid (PFNS)	5.23	1.8	ng/L	8.78		**59.6**	*	69-127			L-03
Perfluoro-1-hexanesulfonamide (FHxSA)	7.19	1.8	ng/L	9.15		78.6		50-150			
Perfluoro-1-butanesulfonamide (FBSA)	6.73	1.8	ng/L	9.15		73.6		50-150			
Perfluorohexanesulfonic acid (PFHxS)	5.76	1.8	ng/L	8.37		68.8		68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	6.55	1.8	ng/L	9.15		71.6		50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	7.00	1.8	ng/L	9.15		76.6		50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	7.28	1.8	ng/L	8.69		83.8		64-140			
Perfluoropetanesulfonic acid (PFPeS)	5.74	1.8	ng/L	8.60		**66.8**	*	71-127			L-04
Perfluoroundecanoic acid (PFUnA)	6.62	1.8	ng/L	9.15		72.4		69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.69	1.8	ng/L	9.15		73.2		50-150			
Perfluoroheptanoic acid (PFHpA)	6.34	1.8	ng/L	9.15		**69.4**	*	72-130			L-04
Perfluorooctanoic acid (PFOA)	6.69	1.8	ng/L	9.15		73.2		71-133			
Perfluorooctanesulfonic acid (PFOS)	5.79	1.8	ng/L	8.46		68.4		65-140			
Perfluorononanoic acid (PFNA)	6.58	1.8	ng/L	9.15		72.0		69-130			
LCS Dup (B306172-BSD1)				Prepared: 04/21/22 Analyzed: 04/23/22							
Perfluorobutanoic acid (PFBA)	6.60	1.7	ng/L	8.64		76.3		73-129	1.79	30	
Perfluorobutanesulfonic acid (PFBS)	5.46	1.7	ng/L	7.65		**71.4**	*	72-130	0.229	30	L-04
Perfluoropentanoic acid (PFPeA)	6.23	1.7	ng/L	8.64		72.1		72-129	1.66	30	
Perfluorohexanoic acid (PFHxA)	6.11	1.7	ng/L	8.64		**70.7**	*	72-129	2.37	30	L-04
11Cl-PF3OUdS (F53B Minor)	5.35	1.7	ng/L	8.14		65.7		50-150	7.02	30	
9Cl-PF3ONS (F53B Major)	6.26	1.7	ng/L	8.06		77.7		50-150	3.51	30	
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	6.05	1.7	ng/L	8.14		74.2		50-150	1.91	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.74	1.7	ng/L	8.64		78.0		50-150	6.34	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	6.33	1.7	ng/L	8.30		76.3		67-138	0.518	30	
Perfluorodecanoic acid (PFDA)	6.22	1.7	ng/L	8.64		72.0		71-129	1.46	30	
Perfluorododecanoic acid (PFDoA)	6.86	1.7	ng/L	8.64		79.4		72-134	6.72	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	5.91	1.7	ng/L	7.69		76.9		50-150	1.79	30	
Perfluoroheptanesulfonic acid (PFHpS)	5.55	1.7	ng/L	8.26		**67.2**	*	69-134	2.87	30	L-04
N-EtFOSAA	6.95	1.7	ng/L	8.64		80.4		61-135	4.83	30	
N-MeFOSAA	6.92	1.7	ng/L	8.64		80.1		65-136	0.0433	30	
Perfluorotetradecanoic acid (PFTA)	6.60	1.7	ng/L	8.64		76.4		71-132	0.462	30	
Perfluorotridecanoic acid (PFTrDA)	6.47	1.7	ng/L	8.64		74.9		65-144	3.04	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	6.23	1.7	ng/L	8.08		77.0		63-143	0.0292	30	
Perfluorodecanesulfonic acid (PFDS)	5.97	1.7	ng/L	8.34		71.5		53-142	1.51	30	
Perfluorooctanesulfonamide (FOSA)	6.04	1.7	ng/L	8.64		69.9		67-137	2.51	30	
Perfluorononanesulfonic acid (PFNS)	5.95	1.7	ng/L	8.30		71.7		69-127	12.8	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	7.61	1.7	ng/L	8.64		88.0		50-150	5.62	30	
Perfluoro-1-butanesulfonamide (FBSA)	6.63	1.7	ng/L	8.64		76.6		50-150	1.60	30	
Perfluorohexanesulfonic acid (PFHxS)	5.65	1.7	ng/L	7.91		71.5		68-131	1.87	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	6.46	1.7	ng/L	8.64		74.7		50-150	1.42	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	6.90	1.7	ng/L	8.64		79.8		50-150	1.46	30	

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 B306172 - SOP 454-PFAAS											
LCS Dup (B306172-BSD1)				Prepared: 04/21/22 Analyzed: 04/23/22							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	7.14	1.7	ng/L	8.21		86.9		64-140	1.99	30	
Perfluoropetanesulfonic acid (PFPeS)	5.67	1.7	ng/L	8.13		**69.8**	*	71-127	1.21	30	L-04
Perfluoroundecanoic acid (PFUnA)	6.64	1.7	ng/L	8.64		76.8		69-133	0.324	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.78	1.7	ng/L	8.64		78.4		50-150	1.32	30	
Perfluoroheptanoic acid (PFHpA)	6.16	1.7	ng/L	8.64		**71.2**	*	72-130	2.98	30	L-04
Perfluorooctanoic acid (PFOA)	6.97	1.7	ng/L	8.64		80.6		71-133	4.06	30	
Perfluorooctanesulfonic acid (PFOS)	5.80	1.7	ng/L	8.00		72.6		65-140	0.330	30	
Perfluorononanoic acid (PFNA)	6.35	1.7	ng/L	8.64		73.5		69-130	3.62	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.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
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.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
PF-20	Sample extracted at a dilution. Elevated reporting limits due to adjusted sample volume during preparation.
PF-21	Extracted Internal Standard was outside of control limits in original analysis. Re-extraction/re-analysis outside of holding time resulted in conforming data. Both results reported.
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.

con-test®
A Pace Analytical® Laboratory

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
HW-U(s) (22C1360-01)			Lab File ID: 22C1360-01.d			Analyzed: 04/14/22 21:22			
M8FOSA	184652.7	4.044517	268,147.00	4.044517	69	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	38972.3	2.6118	86,178.00	2.628217	45	50 - 150	-0.0164	+/-0.50	*
M2PFTA	693452.1	4.362167	850,063.00	4.370283	82	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	54317.78	3.842967	78,483.00	3.850917	69	50 - 150	-0.0080	+/-0.50	
MPFBA	500658.7	1.116633	526,018.00	1.12495	95	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	196065.2	2.929717	184,514.00	2.937833	106	50 - 150	-0.0081	+/-0.50	
M6PFDA	432344.6	3.84345	508,640.00	3.851417	85	50 - 150	-0.0080	+/-0.50	
M3PFBS	101251.2	1.9945	113,294.00	2.011067	89	50 - 150	-0.0166	+/-0.50	
M7PFUnA	524145.4	3.986	647,332.00	3.993983	81	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	29515.26	3.493333	52,187.00	3.501317	57	50 - 150	-0.0080	+/-0.50	
M5PFPeA	429301.9	1.80795	462,050.00	1.824517	93	50 - 150	-0.0166	+/-0.50	
M5PFHxA	532677.6	2.696967	634,911.00	2.7145	84	50 - 150	-0.0175	+/-0.50	
M3PFHxS	62138.83	3.276217	77,679.00	3.28425	80	50 - 150	-0.0080	+/-0.50	
M4PFHpA	510468.6	3.243783	598,102.00	3.251867	85	50 - 150	-0.0081	+/-0.50	
M8PFOA	424550.1	3.51015	517,972.00	3.51015	82	50 - 150	0.0000	+/-0.50	
M8PFOS	78807.81	3.692083	88,643.00	3.700067	89	50 - 150	-0.0080	+/-0.50	
M9PFNA	380582.1	3.693117	509,245.00	3.7011	75	50 - 150	-0.0080	+/-0.50	
MPFDoA	520173.1	4.120767	647,636.00	4.128783	80	50 - 150	-0.0080	+/-0.50	
d5-NEtFOSAA	120350.4	3.993467	168,108.00	4.00145	72	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	135749.3	3.921883	200,513.00	3.929883	68	50 - 150	-0.0080	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-U(s) (22C1360-01RE1)			Lab File ID: 22C1360-01RE1.d			Analyzed: 04/23/22 01:22			
M8FOSA	405320	4.028533	392,182.00	4.028533	103	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	97331.86	2.57895	150,390.00	2.57895	65	50 - 150	0.0000	+/-0.50	
M2PFTA	1264716	4.362167	1,223,176.00	4.362167	103	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	156781.9	3.82705	162,910.00	3.835017	96	50 - 150	-0.0080	+/-0.50	
MPFBA	834989.3	1.108317	730,051.00	1.108317	114	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	258879.3	2.904767	198,207.00	2.904767	131	50 - 150	0.0000	+/-0.50	
M6PFDA	902316.2	3.8355	808,634.00	3.843467	112	50 - 150	-0.0080	+/-0.50	
M3PFBS	202561.5	1.969733	176,349.00	1.969733	115	50 - 150	0.0000	+/-0.50	
M7PFUnA	1138007	3.986	1,050,382.00	3.986	108	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	78502.08	3.493333	83,000.00	3.493333	95	50 - 150	0.0000	+/-0.50	
M5PFPeA	706455.8	1.7826	617,572.00	1.7826	114	50 - 150	0.0000	+/-0.50	
M5PFHxA	1052106	2.655	918,177.00	2.663233	115	50 - 150	-0.0082	+/-0.50	
M3PFHxS	157239.4	3.266833	138,530.00	3.266833	114	50 - 150	0.0000	+/-0.50	
M4PFHpA	1044746	3.227617	907,922.00	3.2357	115	50 - 150	-0.0081	+/-0.50	
M8PFOA	999941.3	3.493867	889,155.00	3.50185	112	50 - 150	-0.0080	+/-0.50	
M8PFOS	152461.8	3.6841	131,846.00	3.684083	116	50 - 150	0.0000	+/-0.50	
M9PFNA	779657.6	3.685133	700,400.00	3.693117	111	50 - 150	-0.0080	+/-0.50	
MPFDoA	1085082	4.120767	1,109,375.00	4.120767	98	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	208921.8	3.985467	214,041.00	3.993467	98	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	255110	3.913883	263,317.00	3.913883	97	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-U(m) (22C1360-02)			Lab File ID: 22C1360-02.d			Analyzed: 04/14/22 21:29			
M8FOSA	168434.2	4.044517	268,147.00	4.044517	63	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	50009.88	2.6118	86,178.00	2.628217	58	50 - 150	-0.0164	+/-0.50	
M2PFTA	771266.8	4.362167	850,063.00	4.370283	91	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	54234.64	3.842967	78,483.00	3.850917	69	50 - 150	-0.0080	+/-0.50	
MPFBA	464922	1.116633	526,018.00	1.12495	88	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	196963.3	2.929717	184,514.00	2.937833	107	50 - 150	-0.0081	+/-0.50	
M6PFDA	433176.1	3.84345	508,640.00	3.851417	85	50 - 150	-0.0080	+/-0.50	
M3PFBS	107208.3	1.9945	113,294.00	2.011067	95	50 - 150	-0.0166	+/-0.50	
M7PFUnA	544933.5	3.986	647,332.00	3.993983	84	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	38056.85	3.493333	52,187.00	3.501317	73	50 - 150	-0.0080	+/-0.50	
M5PFPeA	435214.8	1.80795	462,050.00	1.824517	94	50 - 150	-0.0166	+/-0.50	
M5PFHxA	560084.4	2.696967	634,911.00	2.7145	88	50 - 150	-0.0175	+/-0.50	
M3PFHxS	66078.55	3.276217	77,679.00	3.28425	85	50 - 150	-0.0080	+/-0.50	
M4PFHpA	520637.4	3.243783	598,102.00	3.251867	87	50 - 150	-0.0081	+/-0.50	
M8PFOA	466038.2	3.51015	517,972.00	3.51015	90	50 - 150	0.0000	+/-0.50	
M8PFOS	82133.19	3.692083	88,643.00	3.700067	93	50 - 150	-0.0080	+/-0.50	
M9PFNA	391358.8	3.693117	509,245.00	3.7011	77	50 - 150	-0.0080	+/-0.50	
MPFDoA	552781.4	4.120767	647,636.00	4.128783	85	50 - 150	-0.0080	+/-0.50	
d5-NEtFOSAA	113788	3.993467	168,108.00	4.00145	68	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	130159.6	3.921883	200,513.00	3.929883	65	50 - 150	-0.0080	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-U(d) (22C1360-03)			Lab File ID: 22C1360-03.d			Analyzed: 04/14/22 21:37			
M8FOSA	169954.3	4.044517	268,147.00	4.044517	63	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	54603.95	2.6118	86,178.00	2.628217	63	50 - 150	-0.0164	+/-0.50	
M2PFTA	464577.1	4.362167	850,063.00	4.370283	55	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	63885.14	3.842967	78,483.00	3.850917	81	50 - 150	-0.0080	+/-0.50	
MPFBA	463134.1	1.116633	526,018.00	1.12495	88	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	168565.2	2.929717	184,514.00	2.937833	91	50 - 150	-0.0081	+/-0.50	
M6PFDA	433356.2	3.84345	508,640.00	3.851417	85	50 - 150	-0.0080	+/-0.50	
M3PFBS	105506.8	1.9945	113,294.00	2.011067	93	50 - 150	-0.0166	+/-0.50	
M7PFUnA	522702.9	3.986	647,332.00	3.993983	81	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	34849.54	3.493333	52,187.00	3.501317	67	50 - 150	-0.0080	+/-0.50	
M5PFPeA	434673.5	1.80795	462,050.00	1.824517	94	50 - 150	-0.0166	+/-0.50	
M5PFHxA	554980.9	2.696967	634,911.00	2.7145	87	50 - 150	-0.0175	+/-0.50	
M3PFHxS	66044.84	3.276217	77,679.00	3.28425	85	50 - 150	-0.0080	+/-0.50	
M4PFHpA	500886	3.243783	598,102.00	3.251867	84	50 - 150	-0.0081	+/-0.50	
M8PFOA	468859.4	3.51015	517,972.00	3.51015	91	50 - 150	0.0000	+/-0.50	
M8PFOS	82010.92	3.692083	88,643.00	3.700067	93	50 - 150	-0.0080	+/-0.50	
M9PFNA	391385.7	3.693117	509,245.00	3.7011	77	50 - 150	-0.0080	+/-0.50	
MPFDoA	510907.1	4.128783	647,636.00	4.128783	79	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	124362.5	3.993467	168,108.00	4.00145	74	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	142952.8	3.921883	200,513.00	3.929883	71	50 - 150	-0.0080	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-R (s) (22C1360-04)			Lab File ID: 22C1360-04.d			Analyzed: 04/14/22 21:44			
M8FOSA	177728.6	4.044517	268,147.00	4.044517	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	60014.65	2.603583	86,178.00	2.628217	70	50 - 150	-0.0246	+/-0.50	
M2PFTA	667041.9	4.362167	850,063.00	4.370283	78	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	50064.14	3.842967	78,483.00	3.850917	64	50 - 150	-0.0080	+/-0.50	
MPFBA	402903.8	1.116633	526,018.00	1.12495	77	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	150033.3	2.921133	184,514.00	2.937833	81	50 - 150	-0.0167	+/-0.50	
M6PFDA	418075.3	3.84345	508,640.00	3.851417	82	50 - 150	-0.0080	+/-0.50	
M3PFBS	103257.9	1.9945	113,294.00	2.011067	91	50 - 150	-0.0166	+/-0.50	
M7PFUnA	539033.9	3.986	647,332.00	3.993983	83	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	35505.16	3.493333	52,187.00	3.501317	68	50 - 150	-0.0080	+/-0.50	
M5PFPeA	410702.3	1.79965	462,050.00	1.824517	89	50 - 150	-0.0249	+/-0.50	
M5PFHxA	552188.9	2.696967	634,911.00	2.7145	87	50 - 150	-0.0175	+/-0.50	
M3PFHxS	66041.93	3.276217	77,679.00	3.28425	85	50 - 150	-0.0080	+/-0.50	
M4PFHpA	525185	3.243783	598,102.00	3.251867	88	50 - 150	-0.0081	+/-0.50	
M8PFOA	456353.3	3.51015	517,972.00	3.51015	88	50 - 150	0.0000	+/-0.50	
M8PFOS	78459.83	3.692083	88,643.00	3.700067	89	50 - 150	-0.0080	+/-0.50	
M9PFNA	388540.2	3.693117	509,245.00	3.7011	76	50 - 150	-0.0080	+/-0.50	
MPFDoA	499269.8	4.120767	647,636.00	4.128783	77	50 - 150	-0.0080	+/-0.50	
d5-NEtFOSAA	119802.1	3.993467	168,108.00	4.00145	71	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	140419.5	3.921883	200,513.00	3.929883	70	50 - 150	-0.0080	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-J (22C1360-05)			Lab File ID: 22C1360-05.d			Analyzed: 04/14/22 21:51			
M8FOSA	149049.2	4.044517	268,147.00	4.044517	56	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	25082.4	2.6118	86,178.00	2.628217	29	50 - 150	-0.0164	+/-0.50	*
M2PFTA	465715.3	4.362167	850,063.00	4.370283	55	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	34602.14	3.842967	78,483.00	3.850917	44	50 - 150	-0.0080	+/-0.50	*
MPFBA	472394.5	1.116633	526,018.00	1.12495	90	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	161029.7	2.929717	184,514.00	2.937833	87	50 - 150	-0.0081	+/-0.50	
M6PFDA	349767.1	3.84345	508,640.00	3.851417	69	50 - 150	-0.0080	+/-0.50	
M3PFBS	90281.99	1.9945	113,294.00	2.011067	80	50 - 150	-0.0166	+/-0.50	
M7PFUnA	423628	3.986	647,332.00	3.993983	65	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	102268.9	3.493333	52,187.00	3.501317	196	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	367164.3	1.80795	462,050.00	1.824517	79	50 - 150	-0.0166	+/-0.50	
M5PFHxA	451694.6	2.696967	634,911.00	2.7145	71	50 - 150	-0.0175	+/-0.50	
M3PFHxS	43475.27	3.276217	77,679.00	3.28425	56	50 - 150	-0.0080	+/-0.50	
M4PFHpA	371758.5	3.243783	598,102.00	3.251867	62	50 - 150	-0.0081	+/-0.50	
M8PFOA	266476.5	3.51015	517,972.00	3.51015	51	50 - 150	0.0000	+/-0.50	
M8PFOS	59120.35	3.692083	88,643.00	3.700067	67	50 - 150	-0.0080	+/-0.50	
M9PFNA	266482	3.693117	509,245.00	3.7011	52	50 - 150	-0.0080	+/-0.50	
MPFDoA	409175.9	4.128783	647,636.00	4.128783	63	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	88387.84	3.993467	168,108.00	4.00145	53	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	109037.8	3.921883	200,513.00	3.929883	54	50 - 150	-0.0080	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-J (22C1360-05RE1)			Lab File ID: 22C1360-05RE1.d			Analyzed: 04/20/22 05:17			
M8FOSA	515870.1	4.044517	442,453.00	4.044517	117	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	151061.5	2.6118	176,622.00	2.6118	86	50 - 150	0.0000	+/-0.50	
M2PFTA	1649686	4.370283	1,350,839.00	4.370283	122	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	205480.2	3.850917	221,049.00	3.850917	93	50 - 150	0.0000	+/-0.50	
MPFBA	985949.3	1.12495	716,710.00	1.12495	138	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	306762.1	2.929717	236,189.00	2.929717	130	50 - 150	0.0000	+/-0.50	
M6PFDA	1096251	3.851417	889,530.00	3.851417	123	50 - 150	0.0000	+/-0.50	
M3PFBS	245096.1	1.9945	187,326.00	1.9945	131	50 - 150	0.0000	+/-0.50	
M7PFUnA	1371534	4.001983	1,017,722.00	4.001983	135	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	115660.8	3.501317	95,971.00	3.501317	121	50 - 150	0.0000	+/-0.50	
M5PFPeA	807398.6	1.80795	611,813.00	1.80795	132	50 - 150	0.0000	+/-0.50	
M5PFHxA	1232697	2.696967	942,448.00	2.69695	131	50 - 150	0.0000	+/-0.50	
M3PFHxS	192453.1	3.28425	146,100.00	3.2762	132	50 - 150	0.0081	+/-0.50	
M4PFHpA	1255359	3.25185	945,463.00	3.243767	133	50 - 150	0.0081	+/-0.50	
M8PFOA	1149967	3.51815	912,572.00	3.51015	126	50 - 150	0.0080	+/-0.50	
M8PFOS	202462.2	3.70005	160,000.00	3.70005	127	50 - 150	0.0000	+/-0.50	
M9PFNA	957353.4	3.7011	757,803.00	3.7011	126	50 - 150	0.0000	+/-0.50	
MPFDoA	1379355	4.136817	1,176,922.00	4.136817	117	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	298772.9	4.00945	249,102.00	4.00945	120	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	361722.4	3.929867	264,561.00	3.929867	137	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-F (22C1360-06)			Lab File ID: 22C1360-06.d			Analyzed: 04/14/22 21:58			
M8FOSA	164247.5	4.044517	268,147.00	4.044517	61	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	34406.29	2.6118	86,178.00	2.628217	40	50 - 150	-0.0164	+/-0.50	*
M2PFTA	548511.9	4.362167	850,063.00	4.370283	65	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	39950	3.842967	78,483.00	3.850917	51	50 - 150	-0.0080	+/-0.50	
MPFBA	356956.7	1.116633	526,018.00	1.12495	68	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	159684.3	2.929717	184,514.00	2.937833	87	50 - 150	-0.0081	+/-0.50	
M6PFDA	357891.9	3.84345	508,640.00	3.851417	70	50 - 150	-0.0080	+/-0.50	
M3PFBS	90758.09	1.9945	113,294.00	2.011067	80	50 - 150	-0.0166	+/-0.50	
M7PFUnA	458935.3	3.986	647,332.00	3.993983	71	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	227760.7	3.493333	52,187.00	3.501317	436	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	236383.5	1.80795	462,050.00	1.824517	51	50 - 150	-0.0166	+/-0.50	
M5PFHxA	389580.8	2.696967	634,911.00	2.7145	61	50 - 150	-0.0175	+/-0.50	
M3PFHxS	48711.43	3.276217	77,679.00	3.28425	63	50 - 150	-0.0080	+/-0.50	
M4PFHpA	339134.4	3.243783	598,102.00	3.251867	57	50 - 150	-0.0081	+/-0.50	
M8PFOA	270052.5	3.51015	517,972.00	3.51015	52	50 - 150	0.0000	+/-0.50	
M8PFOS	64883.86	3.692083	88,643.00	3.700067	73	50 - 150	-0.0080	+/-0.50	
M9PFNA	327534.3	3.693117	509,245.00	3.7011	64	50 - 150	-0.0080	+/-0.50	
MPFDoA	442317.3	4.120767	647,636.00	4.128783	68	50 - 150	-0.0080	+/-0.50	
d5-NEtFOSAA	104366.7	3.993467	168,108.00	4.00145	62	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	117226.6	3.921883	200,513.00	3.929883	58	50 - 150	-0.0080	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-F (22C1360-06RE1)			Lab File ID: 22C1360-06RE1.d			Analyzed: 04/20/22 05:24			
M8FOSA	426535.2	4.044517	442,453.00	4.044517	96	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	144690.8	2.6118	176,622.00	2.6118	82	50 - 150	0.0000	+/-0.50	
M2PFTA	1318558	4.370283	1,350,839.00	4.370283	98	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	201814.4	3.858883	221,049.00	3.850917	91	50 - 150	0.0080	+/-0.50	
MPFBA	815578.3	1.12495	716,710.00	1.12495	114	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	301756	2.929717	236,189.00	2.929717	128	50 - 150	0.0000	+/-0.50	
M6PFDA	883398.8	3.851417	889,530.00	3.851417	99	50 - 150	0.0000	+/-0.50	
M3PFBS	202005.1	1.9945	187,326.00	1.9945	108	50 - 150	0.0000	+/-0.50	
M7PFUnA	1226102	4.001983	1,017,722.00	4.001983	120	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	95545.87	3.501317	95,971.00	3.501317	100	50 - 150	0.0000	+/-0.50	
M5PFPeA	664020.5	1.80795	611,813.00	1.80795	109	50 - 150	0.0000	+/-0.50	
M5PFHxA	1017066	2.69695	942,448.00	2.69695	108	50 - 150	0.0000	+/-0.50	
M3PFHxS	166672.9	3.2762	146,100.00	3.2762	114	50 - 150	0.0000	+/-0.50	
M4PFHpA	1038292	3.243767	945,463.00	3.243767	110	50 - 150	0.0000	+/-0.50	
M8PFOA	976442.1	3.518133	912,572.00	3.51015	107	50 - 150	0.0080	+/-0.50	
M8PFOS	162115.4	3.70005	160,000.00	3.70005	101	50 - 150	0.0000	+/-0.50	
M9PFNA	786126.4	3.7011	757,803.00	3.7011	104	50 - 150	0.0000	+/-0.50	
MPFDoA	1108650	4.136817	1,176,922.00	4.136817	94	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	226206.4	4.00945	249,102.00	4.00945	91	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	286747.2	3.929867	264,561.00	3.929867	108	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-E (22C1360-07)			Lab File ID: 22C1360-07.d			Analyzed: 04/14/22 22:05			
M8FOSA	168566.5	4.044517	268,147.00	4.044517	63	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	33959.26	2.6118	86,178.00	2.628217	39	50 - 150	-0.0164	+/-0.50	*
M2PFTA	592757.9	4.362167	850,063.00	4.370283	70	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	43283.73	3.842967	78,483.00	3.850917	55	50 - 150	-0.0080	+/-0.50	
MPFBA	529845.8	1.116633	526,018.00	1.12495	101	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	188508.5	2.929717	184,514.00	2.937833	102	50 - 150	-0.0081	+/-0.50	
M6PFDA	429079.5	3.84345	508,640.00	3.851417	84	50 - 150	-0.0080	+/-0.50	
M3PFBS	102104.7	1.9945	113,294.00	2.011067	90	50 - 150	-0.0166	+/-0.50	
M7PFUnA	521293.5	3.986	647,332.00	3.993983	81	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	58143.65	3.493333	52,187.00	3.501317	111	50 - 150	-0.0080	+/-0.50	
M5PFPeA	453935.7	1.80795	462,050.00	1.824517	98	50 - 150	-0.0166	+/-0.50	
M5PFHxA	540780.1	2.696967	634,911.00	2.7145	85	50 - 150	-0.0175	+/-0.50	
M3PFHxS	54784.3	3.276217	77,679.00	3.28425	71	50 - 150	-0.0080	+/-0.50	
M4PFHpA	473890.7	3.243783	598,102.00	3.251867	79	50 - 150	-0.0081	+/-0.50	
M8PFOA	389508.7	3.51015	517,972.00	3.51015	75	50 - 150	0.0000	+/-0.50	
M8PFOS	75396.86	3.692083	88,643.00	3.700067	85	50 - 150	-0.0080	+/-0.50	
M9PFNA	366373.8	3.693117	509,245.00	3.7011	72	50 - 150	-0.0080	+/-0.50	
MPFDoA	503019.8	4.120767	647,636.00	4.128783	78	50 - 150	-0.0080	+/-0.50	
d5-NEtFOSAA	118152.5	3.993467	168,108.00	4.00145	70	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	139038.3	3.921883	200,513.00	3.929883	69	50 - 150	-0.0080	+/-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
HW-E (22C1360-07RE1)			Lab File ID: 22C1360-07RE1.d			Analyzed: 04/20/22 05:31			
M8FOSA	441741.1	4.044517	442,453.00	4.044517	100	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	145641	2.6118	176,622.00	2.6118	82	50 - 150	0.0000	+/-0.50	
M2PFTA	1323408	4.370283	1,350,839.00	4.370283	98	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	196045	3.858883	221,049.00	3.850917	89	50 - 150	0.0080	+/-0.50	
MPFBA	837045.3	1.12495	716,710.00	1.12495	117	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	276582.7	2.929717	236,189.00	2.929717	117	50 - 150	0.0000	+/-0.50	
M6PFDA	979197	3.851417	889,530.00	3.851417	110	50 - 150	0.0000	+/-0.50	
M3PFBS	207984.4	1.9945	187,326.00	1.9945	111	50 - 150	0.0000	+/-0.50	
M7PFUnA	1151881	4.001983	1,017,722.00	4.001983	113	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	81090.23	3.501317	95,971.00	3.501317	84	50 - 150	0.0000	+/-0.50	
M5PFPeA	691256.8	1.816233	611,813.00	1.80795	113	50 - 150	0.0083	+/-0.50	
M5PFHxA	1057935	2.69695	942,448.00	2.69695	112	50 - 150	0.0000	+/-0.50	
M3PFHxS	164743.3	3.28425	146,100.00	3.2762	113	50 - 150	0.0081	+/-0.50	
M4PFHpA	1051561	3.25185	945,463.00	3.243767	111	50 - 150	0.0081	+/-0.50	
M8PFOA	1011085	3.518133	912,572.00	3.51015	111	50 - 150	0.0080	+/-0.50	
M8PFOS	168847.7	3.70005	160,000.00	3.70005	106	50 - 150	0.0000	+/-0.50	
M9PFNA	814543.8	3.7011	757,803.00	3.7011	107	50 - 150	0.0000	+/-0.50	
MPFDoA	1098671	4.136817	1,176,922.00	4.136817	93	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	241551.7	4.00945	249,102.00	4.00945	97	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	296407.2	3.929867	264,561.00	3.929867	112	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-I (m) (22C1360-08)			Lab File ID: 22C1360-08.d			Analyzed: 04/14/22 22:13			
M8FOSA	159849	4.044517	268,147.00	4.044517	60	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	28826.98	2.6118	86,178.00	2.628217	33	50 - 150	-0.0164	+/-0.50	*
M2PFTA	487354.3	4.362167	850,063.00	4.370283	57	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	36403.8	3.842967	78,483.00	3.850917	46	50 - 150	-0.0080	+/-0.50	*
MPFBA	462991.4	1.116633	526,018.00	1.12495	88	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	168600	2.929717	184,514.00	2.937833	91	50 - 150	-0.0081	+/-0.50	
M6PFDA	335139.2	3.84345	508,640.00	3.851417	66	50 - 150	-0.0080	+/-0.50	
M3PFBS	87094.48	1.9945	113,294.00	2.011067	77	50 - 150	-0.0166	+/-0.50	
M7PFUnA	460387	3.986	647,332.00	3.993983	71	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	18426.35	3.493333	52,187.00	3.501317	35	50 - 150	-0.0080	+/-0.50	*
M5PFPeA	406383.4	1.80795	462,050.00	1.824517	88	50 - 150	-0.0166	+/-0.50	
M5PFHxA	472029.8	2.696967	634,911.00	2.7145	74	50 - 150	-0.0175	+/-0.50	
M3PFHxS	44735.97	3.276217	77,679.00	3.28425	58	50 - 150	-0.0080	+/-0.50	
M4PFHpA	402480.8	3.243783	598,102.00	3.251867	67	50 - 150	-0.0081	+/-0.50	
M8PFOA	344516.5	3.51015	517,972.00	3.51015	67	50 - 150	0.0000	+/-0.50	
M8PFOS	67368.68	3.692083	88,643.00	3.700067	76	50 - 150	-0.0080	+/-0.50	
M9PFNA	307356.4	3.693117	509,245.00	3.7011	60	50 - 150	-0.0080	+/-0.50	
MPFDoA	454340.2	4.120767	647,636.00	4.128783	70	50 - 150	-0.0080	+/-0.50	
d5-NEtFOSAA	103384.2	3.993467	168,108.00	4.00145	61	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	119561.3	3.921883	200,513.00	3.929883	60	50 - 150	-0.0080	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-I (m) (22C1360-08RE1)			Lab File ID: 22C1360-08RE1.d			Analyzed: 04/23/22 01:29			
M8FOSA	413655.3	4.028533	392,182.00	4.028533	105	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	101876.4	2.570733	150,390.00	2.57895	68	50 - 150	-0.0082	+/-0.50	
M2PFTA	1331543	4.354033	1,223,176.00	4.362167	109	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	160971.1	3.82705	162,910.00	3.835017	99	50 - 150	-0.0080	+/-0.50	
MPFBA	873249.6	1.108317	730,051.00	1.108317	120	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	286194.2	2.904767	198,207.00	2.904767	144	50 - 150	0.0000	+/-0.50	
M6PFDA	939648.1	3.84345	808,634.00	3.843467	116	50 - 150	0.0000	+/-0.50	
M3PFBS	209565.9	1.96145	176,349.00	1.969733	119	50 - 150	-0.0083	+/-0.50	
M7PFUnA	1218675	3.986	1,050,382.00	3.986	116	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	80583.46	3.493333	83,000.00	3.493333	97	50 - 150	0.0000	+/-0.50	
M5PFPeA	748455	1.7826	617,572.00	1.7826	121	50 - 150	0.0000	+/-0.50	
M5PFHxA	1131421	2.655	918,177.00	2.663233	123	50 - 150	-0.0082	+/-0.50	
M3PFHxS	166104.1	3.266833	138,530.00	3.266833	120	50 - 150	0.0000	+/-0.50	
M4PFHpA	1132474	3.227617	907,922.00	3.2357	125	50 - 150	-0.0081	+/-0.50	
M8PFOA	1076781	3.493867	889,155.00	3.50185	121	50 - 150	-0.0080	+/-0.50	
M8PFOS	165863.5	3.684083	131,846.00	3.684083	126	50 - 150	0.0000	+/-0.50	
M9PFNA	837244.6	3.685133	700,400.00	3.693117	120	50 - 150	-0.0080	+/-0.50	
MPFDoA	1152415	4.120767	1,109,375.00	4.120767	104	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	224696	3.985467	214,041.00	3.993467	105	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	276495.6	3.921883	263,317.00	3.913883	105	50 - 150	0.0080	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-I (d) (22C1360-09)			Lab File ID: 22C1360-09.d			Analyzed: 04/14/22 22:41			
M8FOSA	179208.6	4.044517	268,147.00	4.044517	67	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	40994.38	2.6118	86,178.00	2.6118	48	50 - 150	0.0000	+/-0.50	*
M2PFTA	568105.1	4.362167	850,063.00	4.362167	67	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	50495.86	3.842967	78,483.00	3.842967	64	50 - 150	0.0000	+/-0.50	
MPFBA	494949	1.116633	526,018.00	1.116633	94	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	190742.8	2.929717	184,514.00	2.929717	103	50 - 150	0.0000	+/-0.50	
M6PFDA	398617.4	3.84345	508,640.00	3.84345	78	50 - 150	0.0000	+/-0.50	
M3PFBS	101554.3	1.9945	113,294.00	1.9945	90	50 - 150	0.0000	+/-0.50	
M7PFUnA	508676	3.986	647,332.00	3.986	79	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	26774.99	3.493333	52,187.00	3.493333	51	50 - 150	0.0000	+/-0.50	
M5PFPeA	452495.9	1.80795	462,050.00	1.80795	98	50 - 150	0.0000	+/-0.50	
M5PFHxA	554801.7	2.696967	634,911.00	2.696967	87	50 - 150	0.0000	+/-0.50	
M3PFHxS	56399.59	3.276217	77,679.00	3.276217	73	50 - 150	0.0000	+/-0.50	
M4PFHpA	467455.8	3.243783	598,102.00	3.243783	78	50 - 150	0.0000	+/-0.50	
M8PFOA	426204.4	3.51015	517,972.00	3.51015	82	50 - 150	0.0000	+/-0.50	
M8PFOS	77404.4	3.692067	88,643.00	3.692067	87	50 - 150	0.0000	+/-0.50	
M9PFNA	356716.1	3.693117	509,245.00	3.693117	70	50 - 150	0.0000	+/-0.50	
MPFDoA	468672.1	4.120767	647,636.00	4.120767	72	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	122682.1	3.993467	168,108.00	3.993467	73	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	146109.2	3.921883	200,513.00	3.921883	73	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-I (d) (22C1360-09RE1)			Lab File ID: 22C1360-09RE1.d			Analyzed: 04/23/22 01:37			
M8FOSA	351261	4.028533	392,182.00	4.028533	90	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	97906.45	2.570733	150,390.00	2.57895	65	50 - 150	-0.0082	+/-0.50	
M2PFTA	976361.4	4.362167	1,223,176.00	4.362167	80	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	147887.5	3.82705	162,910.00	3.835017	91	50 - 150	-0.0080	+/-0.50	
MPFBA	765509.7	1.116633	730,051.00	1.108317	105	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	239153.4	2.904767	198,207.00	2.904767	121	50 - 150	0.0000	+/-0.50	
M6PFDA	818638.6	3.8355	808,634.00	3.843467	101	50 - 150	-0.0080	+/-0.50	
M3PFBS	190476.2	1.969733	176,349.00	1.969733	108	50 - 150	0.0000	+/-0.50	
M7PFUnA	1055993	3.978	1,050,382.00	3.986	101	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	70202.98	3.493333	83,000.00	3.493333	85	50 - 150	0.0000	+/-0.50	
M5PFPeA	686554.1	1.7826	617,572.00	1.7826	111	50 - 150	0.0000	+/-0.50	
M5PFHxA	1025071	2.655	918,177.00	2.663233	112	50 - 150	-0.0082	+/-0.50	
M3PFHxS	148357.5	3.25875	138,530.00	3.266833	107	50 - 150	-0.0081	+/-0.50	
M4PFHpA	1011676	3.227617	907,922.00	3.2357	111	50 - 150	-0.0081	+/-0.50	
M8PFOA	974275.6	3.493867	889,155.00	3.50185	110	50 - 150	-0.0080	+/-0.50	
M8PFOS	145900.2	3.684083	131,846.00	3.684083	111	50 - 150	0.0000	+/-0.50	
M9PFNA	741747	3.685133	700,400.00	3.693117	106	50 - 150	-0.0080	+/-0.50	
MPFDoA	1035198	4.112617	1,109,375.00	4.120767	93	50 - 150	-0.0081	+/-0.50	
d5-NEtFOSAA	207873.1	3.985467	214,041.00	3.993467	97	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	256675.7	3.913883	263,317.00	3.913883	97	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B304652-BLK1)			Lab File ID: B304652-BLK1.d			Analyzed: 04/13/22 11:31			
M8FOSA	215002.3	4.044517	240,692.00	4.044517	89	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	91787.26	2.644867	102,612.00	2.644867	89	50 - 150	0.0000	+/-0.50	
M2PFTA	688050.8	4.3784	815,036.00	4.3784	84	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	83678.2	3.858883	95,977.00	3.858867	87	50 - 150	0.0000	+/-0.50	
MPFBA	517230.3	1.12495	498,450.00	1.12495	104	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	190487	2.954083	177,223.00	2.94595	107	50 - 150	0.0081	+/-0.50	
M6PFDA	420093.3	3.859367	468,839.00	3.859367	90	50 - 150	0.0000	+/-0.50	
M3PFBS	108773.7	2.019367	111,010.00	2.02765	98	50 - 150	-0.0083	+/-0.50	
M7PFUnA	555543.6	4.009967	614,606.00	4.009967	90	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	51785.5	3.509617	53,640.00	3.509617	97	50 - 150	0.0000	+/-0.50	
M5PFPeA	427846.9	1.8328	437,731.00	1.8328	98	50 - 150	0.0000	+/-0.50	
M5PFHxA	601219.5	2.73085	607,626.00	2.73085	99	50 - 150	0.0000	+/-0.50	
M3PFHxS	77501.28	3.292283	76,859.00	3.292283	101	50 - 150	0.0000	+/-0.50	
M4PFHpA	556111.1	3.259933	562,898.00	3.259933	99	50 - 150	0.0000	+/-0.50	
M8PFOA	558833.9	3.518133	523,293.00	3.518133	107	50 - 150	0.0000	+/-0.50	
M8PFOS	85134.27	3.708283	89,052.00	3.70005	96	50 - 150	0.0082	+/-0.50	
M9PFNA	446175.8	3.709283	444,545.00	3.709283	100	50 - 150	0.0000	+/-0.50	
MPFDoA	531963.9	4.144834	622,230.00	4.144834	85	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	130932.6	4.00945	165,253.00	4.00945	79	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	164201.4	3.937867	188,513.00	3.937867	87	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B304652-BS1)			Lab File ID: B304652-BS1.d			Analyzed: 04/13/22 11:24			
M8FOSA	216594.2	4.044517	240,692.00	4.044517	90	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	94249.09	2.644867	102,612.00	2.644867	92	50 - 150	0.0000	+/-0.50	
M2PFTA	713594.6	4.3784	815,036.00	4.3784	88	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	99755.6	3.858883	95,977.00	3.858867	104	50 - 150	0.0000	+/-0.50	
MPFBA	528158.7	1.12495	498,450.00	1.12495	106	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	178402.1	2.954083	177,223.00	2.94595	101	50 - 150	0.0081	+/-0.50	
M6PFDA	476675.2	3.859367	468,839.00	3.859367	102	50 - 150	0.0000	+/-0.50	
M3PFBS	112554.8	2.02765	111,010.00	2.02765	101	50 - 150	0.0000	+/-0.50	
M7PFUnA	608234.9	4.009967	614,606.00	4.009967	99	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	57581.46	3.509617	53,640.00	3.509617	107	50 - 150	0.0000	+/-0.50	
M5PFPeA	448272.5	1.8328	437,731.00	1.8328	102	50 - 150	0.0000	+/-0.50	
M5PFHxA	613704.5	2.739033	607,626.00	2.73085	101	50 - 150	0.0082	+/-0.50	
M3PFHxS	79345	3.292283	76,859.00	3.292283	103	50 - 150	0.0000	+/-0.50	
M4PFHpA	571267.8	3.259933	562,898.00	3.259933	101	50 - 150	0.0000	+/-0.50	
M8PFOA	527251.2	3.518133	523,293.00	3.518133	101	50 - 150	0.0000	+/-0.50	
M8PFOS	95063.77	3.708283	89,052.00	3.70005	107	50 - 150	0.0082	+/-0.50	
M9PFNA	528982.6	3.709283	444,545.00	3.709283	119	50 - 150	0.0000	+/-0.50	
MPFDoA	567603	4.144834	622,230.00	4.144834	91	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	134333.1	4.017433	165,253.00	4.00945	81	50 - 150	0.0080	+/-0.50	
d3-NMeFOSAA	183958.1	3.937867	188,513.00	3.937867	98	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B305683-BLK1)			Lab File ID: B305683-BLK1R.d			Analyzed: 04/20/22 11:39			
M8FOSA	370666.4	4.0525	442,453.00	4.044517	84	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	141878.5	2.58715	176,622.00	2.595367	80	50 - 150	-0.0082	+/-0.50	
M2PFTA	1079267	4.3784	1,350,839.00	4.370283	80	50 - 150	0.0081	+/-0.50	
M2-8:2FTS	245142.8	3.858883	221,049.00	3.850917	111	50 - 150	0.0080	+/-0.50	
MPFBA	751085.7	1.116633	716,710.00	1.116633	105	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	268082.9	2.921133	236,189.00	2.921133	114	50 - 150	0.0000	+/-0.50	
M6PFDA	815699.3	3.859367	889,530.00	3.851417	92	50 - 150	0.0080	+/-0.50	
M3PFBS	181268.5	1.978033	187,326.00	1.986217	97	50 - 150	-0.0082	+/-0.50	
M7PFUnA	999941.3	4.001983	1,017,722.00	3.993983	98	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	94227.13	3.509617	95,971.00	3.501317	98	50 - 150	0.0083	+/-0.50	
M5PFPeA	607557	1.79965	611,813.00	1.79965	99	50 - 150	0.0000	+/-0.50	
M5PFHxA	933904.4	2.672333	942,448.00	2.680533	99	50 - 150	-0.0082	+/-0.50	
M3PFHxS	135298.2	3.28425	146,100.00	3.2762	93	50 - 150	0.0081	+/-0.50	
M4PFHpA	945650.3	3.251867	945,463.00	3.243783	100	50 - 150	0.0081	+/-0.50	
M8PFOA	877453.2	3.51815	912,572.00	3.51015	96	50 - 150	0.0080	+/-0.50	
M8PFOS	139673.9	3.708283	160,000.00	3.70005	87	50 - 150	0.0082	+/-0.50	
M9PFNA	722870	3.709283	757,803.00	3.7011	95	50 - 150	0.0082	+/-0.50	
MPFDoA	1010011	4.136817	1,176,922.00	4.136817	86	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	238744.1	4.00945	249,102.00	4.00145	96	50 - 150	0.0080	+/-0.50	
d3-NMeFOSAA	265625.5	3.937867	264,561.00	3.929867	100	50 - 150	0.0080	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B305683-BS1)			Lab File ID: B305683-BS1.d			Analyzed: 04/20/22 04:48			
M8FOSA	504645.9	4.044517	442,453.00	4.044517	114	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	175025.3	2.6118	176,622.00	2.6118	99	50 - 150	0.0000	+/-0.50	
M2PFTA	1611524	4.370283	1,350,839.00	4.370283	119	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	261807.3	3.858883	221,049.00	3.850917	118	50 - 150	0.0080	+/-0.50	
MPFBA	987504.1	1.12495	716,710.00	1.12495	138	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	290666.1	2.929717	236,189.00	2.929717	123	50 - 150	0.0000	+/-0.50	
M6PFDA	1006259	3.851417	889,530.00	3.851417	113	50 - 150	0.0000	+/-0.50	
M3PFBS	245061.2	1.9945	187,326.00	1.9945	131	50 - 150	0.0000	+/-0.50	
M7PFUnA	1443804	4.001983	1,017,722.00	4.001983	142	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	106601.6	3.501317	95,971.00	3.501317	111	50 - 150	0.0000	+/-0.50	
M5PFPeA	810825.5	1.816233	611,813.00	1.80795	133	50 - 150	0.0083	+/-0.50	
M5PFHxA	1247025	2.696967	942,448.00	2.69695	132	50 - 150	0.0000	+/-0.50	
M3PFHxS	193353.2	3.28425	146,100.00	3.2762	132	50 - 150	0.0081	+/-0.50	
M4PFHpA	1276715	3.25185	945,463.00	3.243767	135	50 - 150	0.0081	+/-0.50	
M8PFOA	1223629	3.51815	912,572.00	3.51015	134	50 - 150	0.0080	+/-0.50	
M8PFOS	173922.2	3.70005	160,000.00	3.70005	109	50 - 150	0.0000	+/-0.50	
M9PFNA	953961.3	3.7011	757,803.00	3.7011	126	50 - 150	0.0000	+/-0.50	
MPFDoA	1347217	4.136817	1,176,922.00	4.136817	114	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	310403.6	4.00945	249,102.00	4.00945	125	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	334350.7	3.929867	264,561.00	3.929867	126	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B306172-BLK1)			Lab File ID: B306172-BLK1.d			Analyzed: 04/23/22 01:15			
M8FOSA	376004	4.028533	392,182.00	4.028533	96	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	169269.2	2.570733	150,390.00	2.57895	113	50 - 150	-0.0082	+/-0.50	
M2PFTA	1311081	4.362167	1,223,176.00	4.362167	107	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	205835.7	3.835	162,910.00	3.835017	126	50 - 150	0.0000	+/-0.50	
MPFBA	887470.4	1.108317	730,051.00	1.108317	122	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	281940.9	2.904767	198,207.00	2.904767	142	50 - 150	0.0000	+/-0.50	
M6PFDA	905602.3	3.8355	808,634.00	3.843467	112	50 - 150	-0.0080	+/-0.50	
M3PFBS	198623	1.969733	176,349.00	1.969733	113	50 - 150	0.0000	+/-0.50	
M7PFUnA	1086676	3.986	1,050,382.00	3.986	103	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	98039.78	3.48535	83,000.00	3.493333	118	50 - 150	-0.0080	+/-0.50	
M5PFPeA	703374.1	1.7826	617,572.00	1.7826	114	50 - 150	0.0000	+/-0.50	
M5PFHxA	1049585	2.663233	918,177.00	2.663233	114	50 - 150	0.0000	+/-0.50	
M3PFHxS	151968.4	3.266817	138,530.00	3.266833	110	50 - 150	0.0000	+/-0.50	
M4PFHpA	1050051	3.2357	907,922.00	3.2357	116	50 - 150	0.0000	+/-0.50	
M8PFOA	995616.1	3.50185	889,155.00	3.50185	112	50 - 150	0.0000	+/-0.50	
M8PFOS	155624.4	3.692083	131,846.00	3.684083	118	50 - 150	0.0080	+/-0.50	
M9PFNA	836686.3	3.685133	700,400.00	3.693117	119	50 - 150	-0.0080	+/-0.50	
MPFDoA	1066963	4.120767	1,109,375.00	4.120767	96	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	229653	3.993467	214,041.00	3.993467	107	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	255566.5	3.913883	263,317.00	3.913883	97	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B306172-BS1)			Lab File ID: B306172-BS1.d			Analyzed: 04/23/22 01:01			
M8FOSA	391052.4	4.036517	392,182.00	4.028533	100	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	183049.1	2.570733	150,390.00	2.57895	122	50 - 150	-0.0082	+/-0.50	
M2PFTA	1425687	4.362167	1,223,176.00	4.362167	117	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	231253.6	3.835017	162,910.00	3.835017	142	50 - 150	0.0000	+/-0.50	
MPFBA	974043.6	1.108317	730,051.00	1.108317	133	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	267262.2	2.904767	198,207.00	2.904767	135	50 - 150	0.0000	+/-0.50	
M6PFDA	994108.7	3.8355	808,634.00	3.843467	123	50 - 150	-0.0080	+/-0.50	
M3PFBS	218497.7	1.969733	176,349.00	1.969733	124	50 - 150	0.0000	+/-0.50	
M7PFUnA	1238504	3.986	1,050,382.00	3.986	118	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	107541.9	3.493333	83,000.00	3.493333	130	50 - 150	0.0000	+/-0.50	
M5PFPeA	776375.6	1.791367	617,572.00	1.7826	126	50 - 150	0.0088	+/-0.50	
M5PFHxA	1166024	2.663233	918,177.00	2.663233	127	50 - 150	0.0000	+/-0.50	
M3PFHxS	167505.6	3.266833	138,530.00	3.266833	121	50 - 150	0.0000	+/-0.50	
M4PFHpA	1161490	3.2357	907,922.00	3.2357	128	50 - 150	0.0000	+/-0.50	
M8PFOA	1119197	3.50185	889,155.00	3.50185	126	50 - 150	0.0000	+/-0.50	
M8PFOS	180675.7	3.684083	131,846.00	3.684083	137	50 - 150	0.0000	+/-0.50	
M9PFNA	902801.2	3.685133	700,400.00	3.693117	129	50 - 150	-0.0080	+/-0.50	
MPFDoA	1228694	4.120767	1,109,375.00	4.120767	111	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	268163.6	3.993467	214,041.00	3.993467	125	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	304700.2	3.913883	263,317.00	3.913883	116	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B306172-BSD1)			Lab File ID: B306172-BSD1.d			Analyzed: 04/23/22 01:08			
M8FOSA	413678	4.028533	392,182.00	4.028533	105	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	182802.5	2.57895	150,390.00	2.57895	122	50 - 150	0.0000	+/-0.50	
M2PFTA	1365600	4.362167	1,223,176.00	4.362167	112	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	266840.4	3.82705	162,910.00	3.835017	164	50 - 150	-0.0080	+/-0.50	*
MPFBA	960020.8	1.108317	730,051.00	1.108317	132	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	285608.7	2.91295	198,207.00	2.904767	144	50 - 150	0.0082	+/-0.50	
M6PFDA	990201.8	3.8355	808,634.00	3.843467	122	50 - 150	-0.0080	+/-0.50	
M3PFBS	212539.2	1.969733	176,349.00	1.969733	121	50 - 150	0.0000	+/-0.50	
M7PFUnA	1195416	3.986	1,050,382.00	3.986	114	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	105234.5	3.48535	83,000.00	3.493333	127	50 - 150	-0.0080	+/-0.50	
M5PFPeA	761611.1	1.791367	617,572.00	1.7826	123	50 - 150	0.0088	+/-0.50	
M5PFHxA	1152684	2.663233	918,177.00	2.663233	126	50 - 150	0.0000	+/-0.50	
M3PFHxS	161628	3.266833	138,530.00	3.266833	117	50 - 150	0.0000	+/-0.50	
M4PFHpA	1140797	3.2357	907,922.00	3.2357	126	50 - 150	0.0000	+/-0.50	
M8PFOA	1064163	3.50185	889,155.00	3.50185	120	50 - 150	0.0000	+/-0.50	
M8PFOS	181166.6	3.684083	131,846.00	3.684083	137	50 - 150	0.0000	+/-0.50	
M9PFNA	894322.1	3.685133	700,400.00	3.693117	128	50 - 150	-0.0080	+/-0.50	
MPFDoA	1170356	4.120767	1,109,375.00	4.120767	105	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	269202.8	3.993467	214,041.00	3.993467	126	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	294227.5	3.913883	263,317.00	3.913883	112	50 - 150	0.0000	+/-0.50	

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Minor)	NH-P
9Cl-PF3ONS (F53B Major)	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 (PFEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA	NH-P
N-MeFOSAA	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-butanesulfonamide (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
Perfluoropetanesulfonic 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

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

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

22CB160

Pace Analytical®

Phone: 413-525-2332
Fax: 413-525-6405
Access COC's and Support Requests

http://www.pacelabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 5_07/13/2021

Page ____ of ____

Company Name: Horsley Witten Group
Address: 90 Route 6A Sandwich MA
Phone: (508) 833-6600 02563
Project Name: HW
Project Location: Hyannis, MA
Project Number: 210624
Project Manager: Bryan Massa
Pace Quote Name/Number:
Invoice Recipient:
Sampled By: SB + CA

Requested Turnaround Time:
7-Day ☐ 10-Day ☐
PFAS 10-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: bmassa@horsleywitten.com
Fax To #:

Dissolved Metals Samples:
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples:
○ Field Filtered
○ Lab to Filter

PCB ONLY
SOXHLET ☐
NON SOXHLET ☐

ANALYSIS REQUESTED

Pace Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS ISOTope
1	HW-U(s)	3/15/22	12:35	Grab	GW				✓			✓
2	HW-U(m)	3/15/22	1500	Grab	GW				✓			✓
3	HW-U(d)	3/15/22	13:00	Grab	GW				✓			✓
4	HW-R(S)	3/16/22	10:50	Grab	GW				✓			✓
5	HW-J	3/16/22	12:15	Grab	GW				✓			✓
6	HW-F	3/16/22	14:20	Grab	GW				✓			✓
7	HW-E	3/16/22	16:00	Grab	GW				✓			✓
(8)	~~HW-I(s)~~	~~3/18/22~~		Grab	GW				✓			✓
8	HW-I(m)	3/18/22	12:15	Grab	GW				✓			✓
9	HW-I(d)	3/18/22	11:20	Grab	GW				✓			✓

Client Comments:

Relinquished by: (signature)	Date/Time:
Caroline Anthony	3/20/22 15:30
Received by: (signature)	Date/Time:
	3/21/22 13:15
Relinquished by: (signature)	Date/Time:
	3/21/22 13:5
Received by: (signature)	Date/Time:
	3/21/22 1315
Relinquished by: (signature)	Date/Time:
	3/21/22 1600
Received by: (signature)	Date/Time:
20	3/21/22 1600
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Lab Comments:

Detection Limit Requirements:
MA GW-1
CT
RCP

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

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

NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

[2] Preservation Code
Courier Use Only
Total Number Of:
VIALS
GLASS
PLASTIC
BACTERIA
ENCORE

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

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.

Table of Contents

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

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

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

Client Horsley Witten

Received By _____ Date 3/2/22 Time 1000

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

Were samples within Temperature? 2-6°C T By Gun # 5 Actual Temp - 2.0 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? n/a Were Samples Tampered with? n/a

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

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

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

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? n/a MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? Acid n/a Base n/a

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	18	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

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

Comments:

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

April 21, 2022

Bryan Massa
Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563

Project Location: Hyannis, MA
Client Job Number:
Project Number: 21084
Laboratory Work Order Number: 22C1361

Enclosed are results of analyses for samples as received by the laboratory on March 21, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew J Beaupre
Project Manager

Table of Contents

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

Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563
ATTN: Bryan Massa

REPORT DATE: 4/21/2022

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 21084

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22C1361

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

PROJECT LOCATION: Hyannis, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
HW-W (m)	22C1361-01	Ground Water		SOP-454 PFAS	
HW-W (DD)	22C1361-02	Ground Water		SOP-454 PFAS	
HW-W (D)	22C1361-03	Ground Water		SOP-454 PFAS	
OW-19 (s)	22C1361-04	Ground Water		SOP-454 PFAS	
OW-19 (D)	22C1361-05	Ground Water		SOP-454 PFAS	
OW-19 (M)	22C1361-06	Ground Water		SOP-454 PFAS	

con-test®
A Pace Analytical® Laboratory

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

CASE NARRATIVE SUMMARY

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

SOP-454 PFAS

Qualifications:

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:

Perfluoroheptanoic acid (PFHpA)
22C1361-01RE1[HW-W (m)], 22C1361-02RE1[HW-W (DD)], 22C1361-03RE1[HW-W (D)], 22C1361-04RE1[OW-19 (s)], 22C1361-05RE1[OW-19 (D)], 22C1361-06RE1[OW-19 (M)], B306011-BLK1, B306011-BS1

Perfluoroundecanoic acid (PFUnA)
22C1361-01RE1[HW-W (m)], 22C1361-02RE1[HW-W (DD)], 22C1361-03RE1[HW-W (D)], 22C1361-04RE1[OW-19 (s)], 22C1361-05RE1[OW-19 (D)], 22C1361-06RE1[OW-19 (M)], B306011-BLK1, B306011-BS1

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:

M3HFPO-DA
22C1361-01RE1[HW-W (m)], 22C1361-03RE1[HW-W (D)], 22C1361-04RE1[OW-19 (s)], 22C1361-05RE1[OW-19 (D)], 22C1361-06RE1[OW-19 (M)]

M8PFOS
22C1361-04RE1[OW-19 (s)]

PF-21

Extracted Internal Standard was outside of control limits in original analysis. Re-extraction/re-analysis outside of holding time resulted in conforming data. Both results reported.

Analyte & Samples(s) Qualified:

22C1361-01RE1[HW-W (m)], 22C1361-02RE1[HW-W (DD)], 22C1361-03RE1[HW-W (D)], 22C1361-04RE1[OW-19 (s)], 22C1361-05RE1[OW-19 (D)], 22C1361-06RE1[OW-19 (M)]

M2-4:2FTS
22C1361-01[HW-W (m)], 22C1361-02[HW-W (DD)], 22C1361-03[HW-W (D)], 22C1361-04[OW-19 (s)], 22C1361-05[OW-19 (D)], 22C1361-06[OW-19 (M)]

M2-6:2FTS
22C1361-01[HW-W (m)], 22C1361-02[HW-W (DD)], 22C1361-03[HW-W (D)], 22C1361-04[OW-19 (s)], 22C1361-05[OW-19 (D)], 22C1361-06[OW-19 (M)]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

M3HFPO-DA
B306011-BS1

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:

Perfluorononanesulfonic acid (PFN
S070477-CCV1

V-20

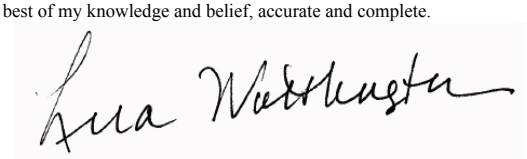
Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Hexafluoropropylene oxide dimer a
S070641-CCV2

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

The results of analyses reported only relate to samples submitted to 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

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: HW-W (m) | Sampled: 3/16/2022 10:30

Sample ID: 22C1361-01

Sample Matrix: Ground Water

Sample Flags: PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	6.9	1.8	0.68	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorobutanoic acid (PFBA)	7.1	1.8	0.67	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.26	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluoropentanoic acid (PFPeA)	13	1.8	0.36	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluoropentanoic acid (PFPeA)	14	1.8	0.35	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorohexanoic acid (PFHxA)	7.2	1.8	0.35	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorohexanoic acid (PFHxA)	7.6	1.8	0.35	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.58	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.58	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.22	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.22	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	1.3	1.8	0.55	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	1.4	1.8	0.55	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.45	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.44	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.40	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.40	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.85	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.85	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
N-EtFOSAA	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
N-EtFOSAA	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
N-MeFOSAA	ND	1.8	0.69	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
N-MeFOSAA	ND	1.8	0.69	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.26	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorooctanesulfonamide (FOSA)	85	1.8	0.38	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorooctanesulfonamide (FOSA)	80	1.8	0.38	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: HW-W (m) | Sampled: 3/16/2022 10:30

Sample ID: 22C1361-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	0.18	1.8	0.15	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	2.6	1.8	0.28	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	2.6	1.8	0.28	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.17	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.17	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorohexanesulfonic acid (PFHxS)	14	1.8	0.31	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorohexanesulfonic acid (PFHxS)	14	1.8	0.31	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.38	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	3.6	1.8	0.33	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	3.4	1.8	0.33	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	0.23	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.27	1.8	0.23	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluoroundecanoic acid (PFUnA)	0.81	1.8	0.34	ng/L	1	L-03, J	SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluoroundecanoic acid (PFUnA)	0.85	1.8	0.33	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluoroheptanoic acid (PFHpA)	4.0	1.8	0.31	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluoroheptanoic acid (PFHpA)	4.1	1.8	0.31	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorooctanoic acid (PFOA)	3.1	1.8	0.62	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorooctanoic acid (PFOA)	3.2	1.8	0.61	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorooctanesulfonic acid (PFOS)	71	1.8	0.55	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorooctanesulfonic acid (PFOS)	68	1.8	0.54	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH
Perfluorononanoic acid (PFNA)	0.51	1.8	0.31	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:33	BLH
Perfluorononanoic acid (PFNA)	0.55	1.8	0.31	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:33	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: HW-W (DD) | Sampled: 3/16/2022 12:00

Sample ID: 22C1361-02

Sample Matrix: Ground Water

Sample Flags: PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	7.8	1.9	0.69	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorobutanoic acid (PFBA)	6.9	1.8	0.68	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorobutanesulfonic acid (PFBS)	0.74	1.9	0.26	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorobutanesulfonic acid (PFBS)	0.68	1.8	0.26	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluoropentanoic acid (PFPeA)	23	1.9	0.37	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluoropentanoic acid (PFPeA)	22	1.8	0.36	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorohexanoic acid (PFHxA)	14	1.9	0.36	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorohexanoic acid (PFHxA)	13	1.8	0.35	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	0.60	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.59	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	0.36	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.36	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	0.32	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	0.22	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.22	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	0.57	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	0.46	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.45	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	0.41	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.40	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	0.22	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	0.87	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.86	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
N-EtFOSAA	ND	1.9	0.59	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
N-EtFOSAA	ND	1.8	0.58	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
N-MeFOSAA	ND	1.9	0.71	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
N-MeFOSAA	ND	1.8	0.70	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.26	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	0.30	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.9	0.39	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.9	0.16	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: HW-W (DD) | Sampled: 3/16/2022 12:00

Sample ID: 22C1361-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	0.29	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.28	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	0.18	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.17	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorohexanesulfonic acid (PFHxS)	19	1.9	0.32	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorohexanesulfonic acid (PFHxS)	20	1.8	0.31	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	0.39	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.38	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	0.32	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	0.53	1.9	0.34	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.87	1.9	0.24	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluoropetanesulfonic acid (PFPeS)	1.1	1.8	0.24	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	0.34	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluoroheptanoic acid (PFHpA)	9.6	1.9	0.32	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluoroheptanoic acid (PFHpA)	7.7	1.8	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorooctanoic acid (PFOA)	8.6	1.9	0.63	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorooctanoic acid (PFOA)	5.9	1.8	0.62	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorooctanesulfonic acid (PFOS)	36	1.9	0.56	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorooctanesulfonic acid (PFOS)	35	1.8	0.55	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH
Perfluorononanoic acid (PFNA)	2.0	1.9	0.32	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:41	BLH
Perfluorononanoic acid (PFNA)	1.5	1.8	0.32	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:40	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: HW-W (D) | Sampled: 3/16/2022 13:15

Sample ID: 22C1361-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	8.8	1.7	0.65	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorobutanoic acid (PFBA)	6.4	1.8	0.68	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorobutanesulfonic acid (PFBS)	0.93	1.7	0.25	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorobutanesulfonic acid (PFBS)	0.63	1.8	0.26	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluoropentanoic acid (PFPeA)	26	1.7	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluoropentanoic acid (PFPeA)	19	1.8	0.36	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorohexanoic acid (PFHxA)	16	1.7	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorohexanoic acid (PFHxA)	12	1.8	0.35	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.59	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.7	0.56	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
9Cl-PF3ONS (F53B Major)	ND	1.7	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.36	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	0.21	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.22	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	0.53	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorodecanoic acid (PFDA)	ND	1.7	0.43	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.45	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.7	0.39	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.41	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	0.20	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.82	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.86	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
N-EtFOSAA	ND	1.7	0.55	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
N-EtFOSAA	ND	1.8	0.58	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
N-MeFOSAA	ND	1.7	0.66	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
N-MeFOSAA	ND	1.8	0.70	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	0.25	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.26	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	0.28	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.7	0.37	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.15	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: HW-W (D) | Sampled: 3/16/2022 13:15

Sample ID: 22C1361-03

Sample Matrix: Ground Water

Sample Flags: PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	0.27	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	0.17	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.18	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorohexanesulfonic acid (PFHxS)	22	1.7	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorohexanesulfonic acid (PFHxS)	19	1.8	0.31	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	0.36	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.38	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	0.59	1.7	0.32	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluoropetanesulfonic acid (PFPeS)	1.3	1.7	0.22	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.85	1.8	0.24	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.34	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluoroheptanoic acid (PFHpA)	10	1.7	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluoroheptanoic acid (PFHpA)	7.4	1.8	0.32	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorooctanoic acid (PFOA)	9.7	1.7	0.59	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorooctanoic acid (PFOA)	5.1	1.8	0.63	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorooctanesulfonic acid (PFOS)	34	1.7	0.52	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorooctanesulfonic acid (PFOS)	34	1.8	0.55	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH
Perfluorononanoic acid (PFNA)	2.3	1.7	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:47	BLH
Perfluorononanoic acid (PFNA)	1.4	1.8	0.32	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:48	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: OW-19 (s) | Sampled: 3/16/2022 15:15

Sample ID: 22C1361-04

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	6.2	1.9	0.70	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorobutanoic acid (PFBA)	5.6	1.7	0.65	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorobutanesulfonic acid (PFBS)	1.6	1.9	0.26	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorobutanesulfonic acid (PFBS)	1.3	1.7	0.24	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluoropentanoic acid (PFPeA)	13	1.9	0.37	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluoropentanoic acid (PFPeA)	11	1.7	0.34	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorohexanoic acid (PFHxA)	8.5	1.9	0.36	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorohexanoic acid (PFHxA)	7.3	1.7	0.34	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	0.60	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.7	0.56	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	0.36	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
9Cl-PF3ONS (F53B Major)	ND	1.7	0.34	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	0.33	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	0.22	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	0.21	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	0.57	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	0.53	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	0.46	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorodecanoic acid (PFDA)	ND	1.7	0.43	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	0.41	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.7	0.38	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	0.22	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	0.20	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	0.88	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.82	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
N-EtFOSAA	ND	1.9	0.59	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
N-EtFOSAA	ND	1.7	0.55	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
N-MeFOSAA	ND	1.9	0.71	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
N-MeFOSAA	ND	1.7	0.66	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	0.28	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.9	0.39	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.7	0.37	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.9	0.16	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: OW-19 (s) | Sampled: 3/16/2022 15:15

Sample ID: 22C1361-04

Sample Matrix: Ground Water

Sample Flags: PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.15	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	0.29	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	0.27	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	0.18	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	0.17	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorohexanesulfonic acid (PFHxS)	4.4	1.9	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorohexanesulfonic acid (PFHxS)	3.3	1.7	0.29	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	0.39	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	0.36	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.35	1.9	0.24	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.27	1.7	0.22	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.7	0.32	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluoroheptanoic acid (PFHpA)	6.2	1.9	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluoroheptanoic acid (PFHpA)	5.7	1.7	0.30	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorooctanoic acid (PFOA)	8.5	1.9	0.64	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorooctanoic acid (PFOA)	7.0	1.7	0.59	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorooctanesulfonic acid (PFOS)	7.1	1.9	0.56	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorooctanesulfonic acid (PFOS)	6.3	1.7	0.52	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH
Perfluorononanoic acid (PFNA)	1.2	1.9	0.32	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 5:54	BLH
Perfluorononanoic acid (PFNA)	0.90	1.7	0.30	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 18:55	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: OW-19 (D) | Sampled: 3/18/2022 12:45

Sample ID: 22C1361-05

Sample Matrix: Ground Water

Sample Flags: PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	22	1.8	0.66	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorobutanoic acid (PFBA)	21	1.9	0.70	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorobutanesulfonic acid (PFBS)	1.6	1.8	0.25	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorobutanesulfonic acid (PFBS)	1.6	1.9	0.26	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluoropentanoic acid (PFPeA)	89	1.8	0.35	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluoropentanoic acid (PFPeA)	93	1.9	0.37	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorohexanoic acid (PFHxA)	64	1.8	0.34	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorohexanoic acid (PFHxA)	66	1.9	0.36	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	0.60	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	0.36	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	0.33	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	0.22	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.54	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	0.57	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.44	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	0.46	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	0.41	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	0.22	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluoroheptanesulfonic acid (PFHpS)	0.94	1.8	0.83	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	0.88	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
N-EtFOSAA	ND	1.9	0.59	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
N-MeFOSAA	ND	1.9	0.71	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.9	0.39	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: OW-19 (D) | Sampled: 3/18/2022 12:45

Sample ID: 22C1361-05

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	ND	1.9	0.16	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.28	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	0.29	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluoro-1-butanesulfonamide (FBSA)	0.53	1.8	0.17	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluoro-1-butanesulfonamide (FBSA)	0.49	1.9	0.18	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorohexanesulfonic acid (PFHxS)	29	1.8	0.30	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorohexanesulfonic acid (PFHxS)	29	1.9	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	0.39	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	0.33	1.8	0.32	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluoropetanesulfonic acid (PFPeS)	2.0	1.8	0.23	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluoropetanesulfonic acid (PFPeS)	2.8	1.9	0.24	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	0.26	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluoroheptanoic acid (PFHpA)	18	1.8	0.31	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluoroheptanoic acid (PFHpA)	18	1.9	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorooctanoic acid (PFOA)	7.3	1.8	0.60	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorooctanoic acid (PFOA)	7.8	1.9	0.64	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorooctanesulfonic acid (PFOS)	44	1.8	0.53	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorooctanesulfonic acid (PFOS)	41	1.9	0.56	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH
Perfluorononanoic acid (PFNA)	0.44	1.8	0.31	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 19:02	BLH
Perfluorononanoic acid (PFNA)	0.42	1.9	0.32	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 6:01	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: OW-19 (M) | Sampled: 3/18/2022 13:35

Sample ID: 22C1361-06

Sample Matrix: Ground Water

Sample Flags: PF-21

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	3.5	1.8	0.66	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorobutanoic acid (PFBA)	4.1	1.8	0.65	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorobutanesulfonic acid (PFBS)	0.57	1.8	0.25	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorobutanesulfonic acid (PFBS)	0.69	1.8	0.25	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluoropentanoic acid (PFPeA)	8.8	1.8	0.35	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluoropentanoic acid (PFPeA)	9.9	1.8	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorohexanoic acid (PFHxA)	5.6	1.8	0.34	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorohexanoic acid (PFHxA)	6.0	1.8	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.54	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.53	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.43	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.43	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.20	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.20	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.83	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.82	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
N-EtFOSAA	ND	1.8	0.55	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA
Sample Description:
Work Order: 22C1361

Date Received: 3/21/2022

Field Sample #: OW-19 (M)
Sampled: 3/18/2022 13:35

Sample ID: 22C1361-06

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.27	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.27	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.17	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.17	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorohexanesulfonic acid (PFHxS)	11	1.8	0.30	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorohexanesulfonic acid (PFHxS)	13	1.8	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.36	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.67	1.8	0.23	ng/L	1	J	SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluoropetanesulfonic acid (PFPeS)	0.91	1.8	0.23	ng/L	1	J	SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluoroheptanoic acid (PFHpA)	3.7	1.8	0.30	ng/L	1	L-03	SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluoroheptanoic acid (PFHpA)	3.8	1.8	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorooctanoic acid (PFOA)	4.2	1.8	0.60	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorooctanoic acid (PFOA)	4.5	1.8	0.60	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorooctanesulfonic acid (PFOS)	12	1.8	0.53	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorooctanesulfonic acid (PFOS)	12	1.8	0.53	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH
Perfluorononanoic acid (PFNA)	2.2	1.8	0.31	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:10	BLH
Perfluorononanoic acid (PFNA)	2.2	1.8	0.30	ng/L	1		SOP-454 PFAS	4/5/22	4/15/22 6:09	BLH

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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22C1361-01 [HW-W (m)]	B304896	278	1.00	04/05/22
22C1361-02 [HW-W (DD)]	B304896	273	1.00	04/05/22
22C1361-03 [HW-W (D)]	B304896	287	1.00	04/05/22
22C1361-04 [OW-19 (s)]	B304896	268	1.00	04/05/22
22C1361-05 [OW-19 (D)]	B304896	268	1.00	04/05/22
22C1361-06 [OW-19 (M)]	B304896	285	1.00	04/05/22

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22C1361-01RE1 [HW-W (m)]	B306011	275	1.00	04/18/22
22C1361-02RE1 [HW-W (DD)]	B306011	269	1.00	04/18/22
22C1361-03RE1 [HW-W (D)]	B306011	273	1.00	04/18/22
22C1361-04RE1 [OW-19 (s)]	B306011	288	1.00	04/18/22
22C1361-05RE1 [OW-19 (D)]	B306011	282	1.00	04/18/22
22C1361-06RE1 [OW-19 (M)]	B306011	283	1.00	04/18/22

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B304896 - SOP 454-PFAAS										
Blank (B304896-BLK1)				Prepared: 04/05/22 Analyzed: 04/13/22						
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 Minor)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Major)	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	ND	1.8	ng/L							
N-MeFOSAA	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							
Perfluoropetanesulfonic 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 (B304896-BS1)				Prepared: 04/05/22 Analyzed: 04/13/22						
Perfluorobutanoic acid (PFBA)	9.04	1.9	ng/L	9.26		97.7	73-129			
Perfluorobutanesulfonic acid (PFBS)	7.71	1.9	ng/L	8.19		94.2	72-130			
Perfluoropentanoic acid (PFPeA)	9.04	1.9	ng/L	9.26		97.7	72-129			
Perfluorohexanoic acid (PFHxA)	9.06	1.9	ng/L	9.26		97.9	72-129			
11Cl-PF3OUdS (F53B Minor)	9.49	1.9	ng/L	8.72		109	50-150			
9Cl-PF3ONS (F53B Major)	11.4	1.9	ng/L	8.63		132	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	7.74	1.9	ng/L	8.72		88.8	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	10.9	1.9	ng/L	9.26		118	50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.97	1.9	ng/L	8.88		101	67-138			
Perfluorodecanoic acid (PFDA)	9.34	1.9	ng/L	9.26		101	71-129			
Perfluorododecanoic acid (PFDoA)	8.06	1.9	ng/L	9.26		87.1	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.45	1.9	ng/L	8.24		103	50-150			

con-test®
A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B304896 - SOP 454-PFAAS										
LCS (B304896-BS1)				Prepared: 04/05/22 Analyzed: 04/13/22						
Perfluoroheptanesulfonic acid (PFHpS)	7.90	1.9	ng/L	8.84		89.3	69-134			
N-EtFOSAA	10.4	1.9	ng/L	9.26		112	61-135			
N-MeFOSAA	10.7	1.9	ng/L	9.26		115	65-136			
Perfluorotetradecanoic acid (PFTA)	8.48	1.9	ng/L	9.26		91.6	71-132			
Perfluorotridecanoic acid (PFTrDA)	8.44	1.9	ng/L	9.26		91.2	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.23	1.9	ng/L	8.65		107	63-143			
Perfluorodecanesulfonic acid (PFDS)	8.75	1.9	ng/L	8.93		98.0	53-142			
Perfluorooctanesulfonamide (FOSA)	9.22	1.9	ng/L	9.26		99.6	67-137			
Perfluorononanesulfonic acid (PFNS)	8.78	1.9	ng/L	8.88		98.8	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	10.1	1.9	ng/L	9.26		109	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	8.46	1.9	ng/L	9.26		91.4	50-150			
Perfluorohexanesulfonic acid (PFHxS)	7.90	1.9	ng/L	8.47		93.3	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	9.15	1.9	ng/L	9.26		98.8	50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.93	1.9	ng/L	9.26		107	50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.90	1.9	ng/L	8.79		113	64-140			
Perfluoropetanesulfonic acid (PFPeS)	9.38	1.9	ng/L	8.70		108	71-127			
Perfluoroundecanoic acid (PFUnA)	8.29	1.9	ng/L	9.26		89.6	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.56	1.9	ng/L	9.26		103	50-150			
Perfluoroheptanoic acid (PFHpA)	8.51	1.9	ng/L	9.26		91.9	72-130			
Perfluorooctanoic acid (PFOA)	9.76	1.9	ng/L	9.26		105	71-133			
Perfluorooctanesulfonic acid (PFOS)	7.80	1.9	ng/L	8.56		91.1	65-140			
Perfluorononanoic acid (PFNA)	8.58	1.9	ng/L	9.26		92.7	69-130			
LCS Dup (B304896-BSD1)				Prepared: 04/05/22 Analyzed: 04/13/22						
Perfluorobutanoic acid (PFBA)	8.84	1.8	ng/L	9.22		95.9	73-129	2.24	30	
Perfluorobutanesulfonic acid (PFBS)	7.77	1.8	ng/L	8.16		95.3	72-130	0.774	30	
Perfluoropentanoic acid (PFPeA)	8.80	1.8	ng/L	9.22		95.4	72-129	2.72	30	
Perfluorohexanoic acid (PFHxA)	8.79	1.8	ng/L	9.22		95.4	72-129	2.99	30	
11Cl-PF3OUdS (F53B Minor)	9.48	1.8	ng/L	8.69		109	50-150	0.168	30	
9Cl-PF3ONS (F53B Major)	11.6	1.8	ng/L	8.59		135	50-150	1.44	30	
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	7.61	1.8	ng/L	8.69		87.6	50-150	1.75	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	10.1	1.8	ng/L	9.22		109	50-150	7.92	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.71	1.8	ng/L	8.85		98.5	67-138	2.89	30	
Perfluorodecanoic acid (PFDA)	8.02	1.8	ng/L	9.22		86.9	71-129	15.2	30	
Perfluorododecanoic acid (PFDoA)	8.26	1.8	ng/L	9.22		89.6	72-134	2.42	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.26	1.8	ng/L	8.21		101	50-150	2.26	30	
Perfluoroheptanesulfonic acid (PFHpS)	7.66	1.8	ng/L	8.81		87.0	69-134	3.09	30	
N-EtFOSAA	9.76	1.8	ng/L	9.22		106	61-135	6.36	30	
N-MeFOSAA	10.6	1.8	ng/L	9.22		115	65-136	1.06	30	
Perfluorotetradecanoic acid (PFTA)	8.36	1.8	ng/L	9.22		90.7	71-132	1.41	30	
Perfluorotridecanoic acid (PFTrDA)	8.50	1.8	ng/L	9.22		92.2	65-144	0.666	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.01	1.8	ng/L	8.62		104	63-143	2.41	30	
Perfluorodecanesulfonic acid (PFDS)	8.02	1.8	ng/L	8.90		90.1	53-142	8.76	30	
Perfluorooctanesulfonamide (FOSA)	9.09	1.8	ng/L	9.22		98.6	67-137	1.46	30	
Perfluorononanesulfonic acid (PFNS)	7.94	1.8	ng/L	8.85		89.7	69-127	10.0	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	9.04	1.8	ng/L	9.22		98.0	50-150	10.7	30	
Perfluoro-1-butanesulfonamide (FBSA)	8.33	1.8	ng/L	9.22		90.3	50-150	1.55	30	
Perfluorohexanesulfonic acid (PFHxS)	8.12	1.8	ng/L	8.44		96.2	68-131	2.68	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	8.93	1.8	ng/L	9.22		96.9	50-150	2.35	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	9.61	1.8	ng/L	9.22		104	50-150	3.33	30	

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B304896 - SOP 454-PFAAS										
LCS Dup (B304896-BSD1)				Prepared: 04/05/22 Analyzed: 04/13/22						
6:2 Fluorotelomersulfonic acid (6:2FTS A)	10.2	1.8	ng/L	8.76		117	64-140	3.14	30	
Perfluoropetanesulfonic acid (PFPeS)	9.42	1.8	ng/L	8.67		109	71-127	0.372	30	
Perfluoroundecanoic acid (PFUnA)	8.18	1.8	ng/L	9.22		88.7	69-133	1.35	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.28	1.8	ng/L	9.22		101	50-150	2.97	30	
Perfluoroheptanoic acid (PFHpA)	8.20	1.8	ng/L	9.22		89.0	72-130	3.61	30	
Perfluorooctanoic acid (PFOA)	9.37	1.8	ng/L	9.22		102	71-133	4.05	30	
Perfluorooctanesulfonic acid (PFOS)	7.55	1.8	ng/L	8.53		88.6	65-140	3.16	30	
Perfluorononanoic acid (PFNA)	8.19	1.8	ng/L	9.22		88.9	69-130	4.65	30	
Batch B306011 - SOP 454-PFAAS										
Blank (B306011-BLK1)				Prepared: 04/18/22 Analyzed: 04/20/22						
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 Minor)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Major)	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	ND	1.8	ng/L							
N-MeFOSAA	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							
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L							L-03
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L							L-03
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L							

con-test®
A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B306011 - SOP 454-PFAAS											
LCS (B306011-BS1)				Prepared: 04/18/22 Analyzed: 04/20/22							
Perfluorobutanoic acid (PFBA)	6.75	1.8	ng/L	9.18		73.5		73-129			
Perfluorobutanesulfonic acid (PFBS)	5.95	1.8	ng/L	8.13		73.3		72-130			
Perfluoropentanoic acid (PFPeA)	6.88	1.8	ng/L	9.18		75.0		72-129			
Perfluorohexanoic acid (PFHxA)	6.87	1.8	ng/L	9.18		74.8		72-129			
11Cl-PF3OUdS (F53B Minor)	5.27	1.8	ng/L	8.65		60.9		50-150			
9Cl-PF3ONS (F53B Major)	6.34	1.8	ng/L	8.56		74.1		50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	5.39	1.8	ng/L	8.65		62.3		50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.15	1.8	ng/L	9.18		67.0		50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	7.40	1.8	ng/L	8.81		84.0		67-138			
Perfluorodecanoic acid (PFDA)	7.19	1.8	ng/L	9.18		78.3		71-129			
Perfluorododecanoic acid (PFDoA)	6.86	1.8	ng/L	9.18		74.7		72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	5.67	1.8	ng/L	8.17		69.4		50-150			
Perfluoroheptanesulfonic acid (PFHpS)	6.93	1.8	ng/L	8.77		79.0		69-134			
N-EtFOSAA	7.92	1.8	ng/L	9.18		86.3		61-135			
N-MeFOSAA	7.17	1.8	ng/L	9.18		78.1		65-136			
Perfluorotetradecanoic acid (PFTA)	6.97	1.8	ng/L	9.18		75.9		71-132			
Perfluorotridecanoic acid (PFTrDA)	6.67	1.8	ng/L	9.18		72.6		65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	6.52	1.8	ng/L	8.58		76.0		63-143			
Perfluorodecanesulfonic acid (PFDS)	5.06	1.8	ng/L	8.86		57.1		53-142			
Perfluorooctanesulfonamide (FOSA)	6.66	1.8	ng/L	9.18		72.5		67-137			
Perfluorononanesulfonic acid (PFNS)	6.25	1.8	ng/L	8.81		70.9		69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	7.00	1.8	ng/L	9.18		76.3		50-150			
Perfluoro-1-butanesulfonamide (FBSA)	5.98	1.8	ng/L	9.18		65.2		50-150			
Perfluorohexanesulfonic acid (PFHxS)	6.18	1.8	ng/L	8.40		73.6		68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	6.12	1.8	ng/L	9.18		66.7		50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	6.37	1.8	ng/L	9.18		69.4		50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6.40	1.8	ng/L	8.72		73.3		64-140			
Perfluoropetanesulfonic acid (PFPeS)	6.63	1.8	ng/L	8.63		76.8		71-127			
Perfluoroundecanoic acid (PFUnA)	6.11	1.8	ng/L	9.18		**66.5**	*	69-133			L-03
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.26	1.8	ng/L	9.18		68.2		50-150			
Perfluoroheptanoic acid (PFHpA)	6.41	1.8	ng/L	9.18		**69.8**	*	72-130			L-03
Perfluorooctanoic acid (PFOA)	7.78	1.8	ng/L	9.18		84.7		71-133			
Perfluorooctanesulfonic acid (PFOS)	6.09	1.8	ng/L	8.49		71.7		65-140			
Perfluorononanoic acid (PFNA)	6.86	1.8	ng/L	9.18		74.7		69-130			

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.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
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.
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-21	Extracted Internal Standard was outside of control limits in original analysis. Re-extraction/re-analysis outside of holding time resulted in conforming data. Both results reported.
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.

con-test® A Pace Analytical® Laboratory

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
HW-W (m) (22C1361-01)			Lab File ID: 22C1361-01.d			Analyzed: 04/15/22 05:33			
M8FOSA	171427.6	4.044517	268,147.00	4.044517	64	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	41103.04	2.595367	86,178.00	2.58715	48	50 - 150	0.0082	+/-0.50	*
M2PFTA	601727.9	4.354033	850,063.00	4.354033	71	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	56622.91	3.842967	78,483.00	3.842967	72	50 - 150	0.0000	+/-0.50	
MPFBA	538196.6	1.116633	526,018.00	1.108317	102	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	162892.7	2.91295	184,514.00	2.91295	88	50 - 150	0.0000	+/-0.50	
M6PFDA	384242.9	3.84345	508,640.00	3.84345	76	50 - 150	0.0000	+/-0.50	
M3PFBS	95083.66	1.986217	113,294.00	1.978033	84	50 - 150	0.0082	+/-0.50	
M7PFUnA	527329.9	3.986	647,332.00	3.986	81	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	23855.59	3.493333	52,187.00	3.493333	46	50 - 150	0.0000	+/-0.50	*
M5PFPeA	454858.8	1.79965	462,050.00	1.79965	98	50 - 150	0.0000	+/-0.50	
M5PFHxA	530261.4	2.680533	634,911.00	2.672333	84	50 - 150	0.0082	+/-0.50	
M3PFHxS	48586.08	3.266817	77,679.00	3.266817	63	50 - 150	0.0000	+/-0.50	
M4PFHpA	413301.1	3.2357	598,102.00	3.2357	69	50 - 150	0.0000	+/-0.50	
M8PFOA	365318.8	3.50185	517,972.00	3.50185	71	50 - 150	0.0000	+/-0.50	
M8PFOS	72803.81	3.692067	88,643.00	3.684083	82	50 - 150	0.0080	+/-0.50	
M9PFNA	318515.3	3.685133	509,245.00	3.685133	63	50 - 150	0.0000	+/-0.50	
MPFDoA	499141.8	4.120767	647,636.00	4.120767	77	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	122007.8	3.993467	168,108.00	3.993467	73	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	141238.3	3.913883	200,513.00	3.913883	70	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-W (m) (22C1361-01RE1)			Lab File ID: 22C1361-01RE1.d			Analyzed: 04/20/22 18:33			
M8FOSA	407221.9	4.052516	378,123.00	4.044517	108	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	109157.7	2.595367	179,573.00	2.595367	61	50 - 150	0.0000	+/-0.50	
M2PFTA	1204003	4.370283	1,230,238.00	4.370283	98	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	225035.7	3.850933	237,838.00	3.850917	95	50 - 150	0.0000	+/-0.50	
MPFBA	918265.6	1.116633	694,686.00	1.116633	132	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	336807	2.929717	193,884.00	2.921133	174	50 - 150	0.0086	+/-0.50	*
M6PFDA	868827.9	3.859367	769,309.00	3.851417	113	50 - 150	0.0080	+/-0.50	
M3PFBS	221979.2	1.986217	182,019.00	1.978033	122	50 - 150	0.0082	+/-0.50	
M7PFUnA	1093663	4.001983	962,444.00	3.993983	114	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	87780.57	3.509617	97,273.00	3.501317	90	50 - 150	0.0083	+/-0.50	
M5PFPeA	757475.9	1.79965	604,770.00	1.79965	125	50 - 150	0.0000	+/-0.50	
M5PFHxA	1130385	2.680533	917,609.00	2.680533	123	50 - 150	0.0000	+/-0.50	
M3PFHxS	166681.6	3.28425	134,138.00	3.276217	124	50 - 150	0.0080	+/-0.50	
M4PFHpA	1104904	3.251867	888,102.00	3.243783	124	50 - 150	0.0081	+/-0.50	
M8PFOA	1048783	3.51815	838,987.00	3.51815	125	50 - 150	0.0000	+/-0.50	
M8PFOS	154828.8	3.700067	126,484.00	3.700067	122	50 - 150	0.0000	+/-0.50	
M9PFNA	769006.1	3.7011	672,493.00	3.7011	114	50 - 150	0.0000	+/-0.50	
MPFDoA	1111359	4.136817	1,026,235.00	4.136817	108	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	207189.4	4.00945	223,546.00	4.00945	93	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	271346	3.929883	275,452.00	3.929883	99	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-W (DD) (22C1361-02)			Lab File ID: 22C1361-02.d			Analyzed: 04/15/22 05:40			
M8FOSA	179909.2	4.044517	268,147.00	4.044517	67	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	39611.14	2.595367	86,178.00	2.58715	46	50 - 150	0.0082	+/-0.50	*
M2PFTA	651409.9	4.354033	850,063.00	4.354033	77	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	50617.82	3.842967	78,483.00	3.842967	64	50 - 150	0.0000	+/-0.50	
MPFBA	567102	1.116633	526,018.00	1.108317	108	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	193778.7	2.91295	184,514.00	2.91295	105	50 - 150	0.0000	+/-0.50	
M6PFDA	438113.2	3.84345	508,640.00	3.84345	86	50 - 150	0.0000	+/-0.50	
M3PFBS	101551.8	1.986217	113,294.00	1.978033	90	50 - 150	0.0082	+/-0.50	
M7PFUnA	566352.8	3.986	647,332.00	3.986	87	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	22395.99	3.493333	52,187.00	3.493333	43	50 - 150	0.0000	+/-0.50	*
M5PFPeA	478469.8	1.79965	462,050.00	1.79965	104	50 - 150	0.0000	+/-0.50	
M5PFHxA	551732.7	2.680533	634,911.00	2.672333	87	50 - 150	0.0082	+/-0.50	
M3PFHxS	51561.31	3.266817	77,679.00	3.266817	66	50 - 150	0.0000	+/-0.50	
M4PFHpA	463144.9	3.2357	598,102.00	3.2357	77	50 - 150	0.0000	+/-0.50	
M8PFOA	376725.8	3.50185	517,972.00	3.50185	73	50 - 150	0.0000	+/-0.50	
M8PFOS	74929.61	3.692083	88,643.00	3.684083	85	50 - 150	0.0080	+/-0.50	
M9PFNA	333989.8	3.685133	509,245.00	3.685133	66	50 - 150	0.0000	+/-0.50	
MPFDoA	546340.1	4.120767	647,636.00	4.120767	84	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	131671.3	3.993467	168,108.00	3.993467	78	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	151303.1	3.913883	200,513.00	3.913883	75	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
HW-W (DD) (22C1361-02RE1)			Lab File ID: 22C1361-02RE1.d			Analyzed: 04/20/22 18:41			
M8FOSA	369778.9	4.044517	378,123.00	4.044517	98	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	95215.87	2.58715	179,573.00	2.595367	53	50 - 150	-0.0082	+/-0.50	
M2PFTA	1161376	4.370283	1,230,238.00	4.370283	94	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	207414.4	3.850917	237,838.00	3.850917	87	50 - 150	0.0000	+/-0.50	
MPFBA	838107	1.116633	694,686.00	1.116633	121	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	269492.9	2.929717	193,884.00	2.921133	139	50 - 150	0.0086	+/-0.50	
M6PFDA	807661.9	3.851417	769,309.00	3.851417	105	50 - 150	0.0000	+/-0.50	
M3PFBS	203842.9	1.978033	182,019.00	1.978033	112	50 - 150	0.0000	+/-0.50	
M7PFUnA	885254.4	4.001983	962,444.00	3.993983	92	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	75737.88	3.501317	97,273.00	3.501317	78	50 - 150	0.0000	+/-0.50	
M5PFPeA	697958.6	1.79965	604,770.00	1.79965	115	50 - 150	0.0000	+/-0.50	
M5PFHxA	1041931	2.672333	917,609.00	2.680533	114	50 - 150	-0.0082	+/-0.50	
M3PFHxS	154782.5	3.28425	134,138.00	3.276217	115	50 - 150	0.0080	+/-0.50	
M4PFHpA	1003059	3.243783	888,102.00	3.243783	113	50 - 150	0.0000	+/-0.50	
M8PFOA	942464	3.51815	838,987.00	3.51815	112	50 - 150	0.0000	+/-0.50	
M8PFOS	139967.5	3.700067	126,484.00	3.700067	111	50 - 150	0.0000	+/-0.50	
M9PFNA	730215.9	3.7011	672,493.00	3.7011	109	50 - 150	0.0000	+/-0.50	
MPFDoA	926570.4	4.136817	1,026,235.00	4.136817	90	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	205644.2	4.00945	223,546.00	4.00945	92	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	210587	3.929883	275,452.00	3.929883	76	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-W (D) (22C1361-03)			Lab File ID: 22C1361-03.d			Analyzed: 04/15/22 05:47			
M8FOSA	174701.1	4.044517	268,147.00	4.044517	65	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	31639.22	2.58715	86,178.00	2.58715	37	50 - 150	0.0000	+/-0.50	*
M2PFTA	618174.7	4.354033	850,063.00	4.354033	73	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	47059.27	3.842967	78,483.00	3.842967	60	50 - 150	0.0000	+/-0.50	
MPFBA	526209.7	1.108317	526,018.00	1.108317	100	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	191458.4	2.91295	184,514.00	2.91295	104	50 - 150	0.0000	+/-0.50	
M6PFDA	401287.3	3.84345	508,640.00	3.84345	79	50 - 150	0.0000	+/-0.50	
M3PFBS	95538.4	1.978033	113,294.00	1.978033	84	50 - 150	0.0000	+/-0.50	
M7PFUnA	508997.7	3.986	647,332.00	3.986	79	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	19263.69	3.493333	52,187.00	3.493333	37	50 - 150	0.0000	+/-0.50	*
M5PFPeA	446086.6	1.79965	462,050.00	1.79965	97	50 - 150	0.0000	+/-0.50	
M5PFHxA	514677.8	2.680533	634,911.00	2.672333	81	50 - 150	0.0082	+/-0.50	
M3PFHxS	49418.51	3.266817	77,679.00	3.266817	64	50 - 150	0.0000	+/-0.50	
M4PFHpA	429333.3	3.2357	598,102.00	3.2357	72	50 - 150	0.0000	+/-0.50	
M8PFOA	344592.9	3.50185	517,972.00	3.50185	67	50 - 150	0.0000	+/-0.50	
M8PFOS	73079.13	3.692067	88,643.00	3.684083	82	50 - 150	0.0080	+/-0.50	
M9PFNA	324395.3	3.685133	509,245.00	3.685133	64	50 - 150	0.0000	+/-0.50	
MPFDoA	517445.2	4.120767	647,636.00	4.120767	80	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	107934.2	3.993467	168,108.00	3.993467	64	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	141277.6	3.913883	200,513.00	3.913883	70	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
HW-W (D) (22C1361-03RE1)			Lab File ID: 22C1361-03RE1.d			Analyzed: 04/20/22 18:48			
M8FOSA	412237.5	4.044517	378,123.00	4.044517	109	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	112688.8	2.57895	179,573.00	2.595367	63	50 - 150	-0.0164	+/-0.50	
M2PFTA	1315751	4.370283	1,230,238.00	4.370283	107	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	210978.7	3.850917	237,838.00	3.850917	89	50 - 150	0.0000	+/-0.50	
MPFBA	937169.6	1.116633	694,686.00	1.116633	135	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	294329.2	2.91295	193,884.00	2.921133	152	50 - 150	-0.0082	+/-0.50	*
M6PFDA	876106.1	3.851417	769,309.00	3.851417	114	50 - 150	0.0000	+/-0.50	
M3PFBS	227370	1.978033	182,019.00	1.978033	125	50 - 150	0.0000	+/-0.50	
M7PFUnA	1045144	4.001983	962,444.00	3.993983	109	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	89684.78	3.501317	97,273.00	3.501317	92	50 - 150	0.0000	+/-0.50	
M5PFPeA	777064.3	1.791367	604,770.00	1.79965	128	50 - 150	-0.0083	+/-0.50	
M5PFHxA	1173508	2.663233	917,609.00	2.680533	128	50 - 150	-0.0173	+/-0.50	
M3PFHxS	168547.2	3.276217	134,138.00	3.276217	126	50 - 150	0.0000	+/-0.50	
M4PFHpA	1149036	3.243783	888,102.00	3.243783	129	50 - 150	0.0000	+/-0.50	
M8PFOA	1081937	3.51815	838,987.00	3.51815	129	50 - 150	0.0000	+/-0.50	
M8PFOS	161856.8	3.700067	126,484.00	3.700067	128	50 - 150	0.0000	+/-0.50	
M9PFNA	818643.8	3.7011	672,493.00	3.7011	122	50 - 150	0.0000	+/-0.50	
MPFDoA	1106705	4.136817	1,026,235.00	4.136817	108	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	249307.9	4.00945	223,546.00	4.00945	112	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	250977.9	3.929883	275,452.00	3.929883	91	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
OW-19 (s) (22C1361-04)			Lab File ID: 22C1361-04.d			Analyzed: 04/15/22 05:54			
M8FOSA	155486.8	4.044517	268,147.00	4.044517	58	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	36307.95	2.595367	86,178.00	2.58715	42	50 - 150	0.0082	+/-0.50	*
M2PFTA	503973.6	4.354033	850,063.00	4.354033	59	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	42264.71	3.842967	78,483.00	3.842967	54	50 - 150	0.0000	+/-0.50	
MPFBA	529387.9	1.116633	526,018.00	1.108317	101	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	179389.5	2.91295	184,514.00	2.91295	97	50 - 150	0.0000	+/-0.50	
M6PFDA	449475.5	3.84345	508,640.00	3.84345	88	50 - 150	0.0000	+/-0.50	
M3PFBS	101598.7	1.986217	113,294.00	1.978033	90	50 - 150	0.0082	+/-0.50	
M7PFUnA	585183.1	3.986	647,332.00	3.986	90	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	23628.64	3.493333	52,187.00	3.493333	45	50 - 150	0.0000	+/-0.50	*
M5PFPeA	468037.7	1.79965	462,050.00	1.79965	101	50 - 150	0.0000	+/-0.50	
M5PFHxA	541949.1	2.680533	634,911.00	2.672333	85	50 - 150	0.0082	+/-0.50	
M3PFHxS	52448.55	3.266833	77,679.00	3.266817	68	50 - 150	0.0000	+/-0.50	
M4PFHpA	458478.5	3.2357	598,102.00	3.2357	77	50 - 150	0.0000	+/-0.50	
M8PFOA	378621.1	3.50185	517,972.00	3.50185	73	50 - 150	0.0000	+/-0.50	
M8PFOS	75736.05	3.684083	88,643.00	3.684083	85	50 - 150	0.0000	+/-0.50	
M9PFNA	356343.9	3.685133	509,245.00	3.685133	70	50 - 150	0.0000	+/-0.50	
MPFDoA	553495.6	4.120767	647,636.00	4.120767	85	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	114714	3.993467	168,108.00	3.993467	68	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	140522.7	3.913883	200,513.00	3.913883	70	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
OW-19 (s) (22C1361-04RE1)			Lab File ID: 22C1361-04RE1.d			Analyzed: 04/20/22 18:55			
M8FOSA	459023	4.044517	378,123.00	4.044517	121	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	126561.4	2.57895	179,573.00	2.595367	70	50 - 150	-0.0164	+/-0.50	
M2PFTA	1453029	4.370283	1,230,238.00	4.370283	118	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	225643.4	3.850917	237,838.00	3.850917	95	50 - 150	0.0000	+/-0.50	
MPFBA	911770.6	1.116633	694,686.00	1.116633	131	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	293025.5	2.91295	193,884.00	2.921133	151	50 - 150	-0.0082	+/-0.50	*
M6PFDA	990953.8	3.851417	769,309.00	3.851417	129	50 - 150	0.0000	+/-0.50	
M3PFBS	245578.2	1.978033	182,019.00	1.978033	135	50 - 150	0.0000	+/-0.50	
M7PFUnA	1234570	3.993983	962,444.00	3.993983	128	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	104081	3.501317	97,273.00	3.501317	107	50 - 150	0.0000	+/-0.50	
M5PFPeA	834037.4	1.791367	604,770.00	1.79965	138	50 - 150	-0.0083	+/-0.50	
M5PFHxA	1251034	2.672333	917,609.00	2.680533	136	50 - 150	-0.0082	+/-0.50	
M3PFHxS	184371.2	3.276217	134,138.00	3.276217	137	50 - 150	0.0000	+/-0.50	
M4PFHpA	1230729	3.243783	888,102.00	3.243783	139	50 - 150	0.0000	+/-0.50	
M8PFOA	1135159	3.51815	838,987.00	3.51815	135	50 - 150	0.0000	+/-0.50	
M8PFOS	191930.5	3.700067	126,484.00	3.700067	152	50 - 150	0.0000	+/-0.50	*
M9PFNA	946716.1	3.7011	672,493.00	3.7011	141	50 - 150	0.0000	+/-0.50	
MPFDoA	1289063	4.136817	1,026,235.00	4.136817	126	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	249312.6	4.00945	223,546.00	4.00945	112	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	265583.3	3.929883	275,452.00	3.929883	96	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
OW-19 (D) (22C1361-05)			Lab File ID: 22C1361-05.d			Analyzed: 04/15/22 06:01			
M8FOSA	187020.3	4.044517	268,147.00	4.044517	70	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	38310.02	2.58715	86,178.00	2.58715	44	50 - 150	0.0000	+/-0.50	*
M2PFTA	668283.5	4.354033	850,063.00	4.354033	79	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	58336.84	3.842967	78,483.00	3.842967	74	50 - 150	0.0000	+/-0.50	
MPFBA	559978.7	1.108317	526,018.00	1.108317	106	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	172816.8	2.91295	184,514.00	2.91295	94	50 - 150	0.0000	+/-0.50	
M6PFDA	451136.6	3.84345	508,640.00	3.84345	89	50 - 150	0.0000	+/-0.50	
M3PFBS	108878.6	1.978033	113,294.00	1.978033	96	50 - 150	0.0000	+/-0.50	
M7PFUnA	589601.8	3.986	647,332.00	3.986	91	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	21056.8	3.493333	52,187.00	3.493333	40	50 - 150	0.0000	+/-0.50	*
M5PFPeA	474952.9	1.79965	462,050.00	1.79965	103	50 - 150	0.0000	+/-0.50	
M5PFHxA	562245	2.680533	634,911.00	2.672333	89	50 - 150	0.0082	+/-0.50	
M3PFHxS	56483.64	3.266817	77,679.00	3.266817	73	50 - 150	0.0000	+/-0.50	
M4PFHpA	493463.1	3.2357	598,102.00	3.2357	83	50 - 150	0.0000	+/-0.50	
M8PFOA	405024.1	3.50185	517,972.00	3.50185	78	50 - 150	0.0000	+/-0.50	
M8PFOS	80411.21	3.684083	88,643.00	3.684083	91	50 - 150	0.0000	+/-0.50	
M9PFNA	359977.5	3.685133	509,245.00	3.685133	71	50 - 150	0.0000	+/-0.50	
MPFDoA	611546	4.120767	647,636.00	4.120767	94	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	147488.6	3.993467	168,108.00	3.993467	88	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	151592.6	3.913883	200,513.00	3.913883	76	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
OW-19 (D) (22C1361-05RE1)			Lab File ID: 22C1361-05RE1.d			Analyzed: 04/20/22 19:02			
M8FOSA	356767.4	4.044517	378,123.00	4.044517	94	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	90384.49	2.57895	179,573.00	2.595367	50	50 - 150	-0.0164	+/-0.50	
M2PFTA	1154572	4.370283	1,230,238.00	4.370283	94	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	206442.1	3.850917	237,838.00	3.850917	87	50 - 150	0.0000	+/-0.50	
MPFBA	826726.6	1.116633	694,686.00	1.116633	119	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	318343.2	2.921133	193,884.00	2.921133	164	50 - 150	0.0000	+/-0.50	*
M6PFDA	861321.8	3.851417	769,309.00	3.851417	112	50 - 150	0.0000	+/-0.50	
M3PFBS	207034.3	1.978033	182,019.00	1.978033	114	50 - 150	0.0000	+/-0.50	
M7PFUnA	1008722	4.001983	962,444.00	3.993983	105	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	78803.03	3.509617	97,273.00	3.501317	81	50 - 150	0.0083	+/-0.50	
M5PFPeA	701721.6	1.791367	604,770.00	1.79965	116	50 - 150	-0.0083	+/-0.50	
M5PFHxA	1064600	2.663233	917,609.00	2.680533	116	50 - 150	-0.0173	+/-0.50	
M3PFHxS	154426.7	3.276217	134,138.00	3.276217	115	50 - 150	0.0000	+/-0.50	
M4PFHpA	1048164	3.243783	888,102.00	3.243783	118	50 - 150	0.0000	+/-0.50	
M8PFOA	986180.8	3.51815	838,987.00	3.51815	118	50 - 150	0.0000	+/-0.50	
M8PFOS	160403	3.700067	126,484.00	3.700067	127	50 - 150	0.0000	+/-0.50	
M9PFNA	772746.3	3.7011	672,493.00	3.7011	115	50 - 150	0.0000	+/-0.50	
MPFDoA	990496.8	4.136817	1,026,235.00	4.136817	97	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	237740.3	4.00945	223,546.00	4.00945	106	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	254233.8	3.929883	275,452.00	3.929883	92	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
OW-19 (M) (22C1361-06)			Lab File ID: 22C1361-06.d			Analyzed: 04/15/22 06:09			
M8FOSA	166784.8	4.044517	268,147.00	4.044517	62	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	41465.27	2.58715	86,178.00	2.58715	48	50 - 150	0.0000	+/-0.50	*
M2PFTA	642388.8	4.354033	850,063.00	4.354033	76	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	67865.63	3.842967	78,483.00	3.842967	86	50 - 150	0.0000	+/-0.50	
MPFBA	531985.5	1.108317	526,018.00	1.108317	101	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	182596.3	2.91295	184,514.00	2.91295	99	50 - 150	0.0000	+/-0.50	
M6PFDA	423865.3	3.84345	508,640.00	3.84345	83	50 - 150	0.0000	+/-0.50	
M3PFBS	104679.4	1.978033	113,294.00	1.978033	92	50 - 150	0.0000	+/-0.50	
M7PFUnA	547829.3	3.986	647,332.00	3.986	85	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	25008.09	3.493333	52,187.00	3.493333	48	50 - 150	0.0000	+/-0.50	*
M5PFPeA	459672.3	1.791367	462,050.00	1.79965	99	50 - 150	-0.0083	+/-0.50	
M5PFHxA	539085.4	2.672333	634,911.00	2.672333	85	50 - 150	0.0000	+/-0.50	
M3PFHxS	55409	3.266817	77,679.00	3.266817	71	50 - 150	0.0000	+/-0.50	
M4PFHpA	474830.3	3.2357	598,102.00	3.2357	79	50 - 150	0.0000	+/-0.50	
M8PFOA	405900.1	3.50185	517,972.00	3.50185	78	50 - 150	0.0000	+/-0.50	
M8PFOS	76716.77	3.692067	88,643.00	3.684083	87	50 - 150	0.0080	+/-0.50	
M9PFNA	346664.7	3.693117	509,245.00	3.685133	68	50 - 150	0.0080	+/-0.50	
MPFDoA	545318.5	4.120767	647,636.00	4.120767	84	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	140710.5	3.993467	168,108.00	3.993467	84	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	155693.3	3.913883	200,513.00	3.913883	78	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
OW-19 (M) (22C1361-06RE1)			Lab File ID: 22C1361-06RE1.d			Analyzed: 04/20/22 19:10			
M8FOSA	428870.8	4.044517	378,123.00	4.044517	113	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	111248	2.57895	179,573.00	2.595367	62	50 - 150	-0.0164	+/-0.50	
M2PFTA	1207846	4.370283	1,230,238.00	4.370283	98	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	219781.3	3.850917	237,838.00	3.850917	92	50 - 150	0.0000	+/-0.50	
MPFBA	915286.6	1.116633	694,686.00	1.116633	132	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	295224.6	2.921133	193,884.00	2.921133	152	50 - 150	0.0000	+/-0.50	*
M6PFDA	953730.5	3.851417	769,309.00	3.851417	124	50 - 150	0.0000	+/-0.50	
M3PFBS	229779.8	1.978033	182,019.00	1.978033	126	50 - 150	0.0000	+/-0.50	
M7PFUnA	1049342	4.001983	962,444.00	3.993983	109	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	92088.4	3.501317	97,273.00	3.501317	95	50 - 150	0.0000	+/-0.50	
M5PFPeA	773422.2	1.791367	604,770.00	1.79965	128	50 - 150	-0.0083	+/-0.50	
M5PFHxA	1155910	2.663233	917,609.00	2.680533	126	50 - 150	-0.0173	+/-0.50	
M3PFHxS	174413.8	3.276217	134,138.00	3.276217	130	50 - 150	0.0000	+/-0.50	
M4PFHpA	1131665	3.243783	888,102.00	3.243783	127	50 - 150	0.0000	+/-0.50	
M8PFOA	1045084	3.51815	838,987.00	3.51815	125	50 - 150	0.0000	+/-0.50	
M8PFOS	162507.9	3.700067	126,484.00	3.700067	128	50 - 150	0.0000	+/-0.50	
M9PFNA	806796.7	3.7011	672,493.00	3.7011	120	50 - 150	0.0000	+/-0.50	
MPFDoA	1006848	4.136817	1,026,235.00	4.136817	98	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	221897	4.001467	223,546.00	4.00945	99	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	256823.9	3.929883	275,452.00	3.929883	93	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B304896-BLK1)			Lab File ID: B304896-BLK1.d			Analyzed: 04/13/22 13:41			
M8FOSA	272815.3	4.044517	240,692.00	4.044517	113	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	92390.63	2.644867	102,612.00	2.644867	90	50 - 150	0.0000	+/-0.50	
M2PFTA	885433.7	4.3784	815,036.00	4.3784	109	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	98011.47	3.858867	95,977.00	3.858883	102	50 - 150	0.0000	+/-0.50	
MPFBA	611424.9	1.12495	498,450.00	1.12495	123	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	160021.3	2.954083	177,223.00	2.954083	90	50 - 150	0.0000	+/-0.50	
M6PFDA	550037.6	3.859367	468,839.00	3.859367	117	50 - 150	0.0000	+/-0.50	
M3PFBS	127063.1	2.02765	111,010.00	2.02765	114	50 - 150	0.0000	+/-0.50	
M7PFUnA	643320.2	4.009967	614,606.00	4.009967	105	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	55405.11	3.509617	53,640.00	3.509617	103	50 - 150	0.0000	+/-0.50	
M5PFPeA	509799.9	1.8328	437,731.00	1.8328	116	50 - 150	0.0000	+/-0.50	
M5PFHxA	705259.4	2.73085	607,626.00	2.73085	116	50 - 150	0.0000	+/-0.50	
M3PFHxS	96245.61	3.292283	76,859.00	3.292283	125	50 - 150	0.0000	+/-0.50	
M4PFHpA	705208.2	3.259933	562,898.00	3.259933	125	50 - 150	0.0000	+/-0.50	
M8PFOA	650087.4	3.518133	523,293.00	3.518133	124	50 - 150	0.0000	+/-0.50	
M8PFOS	104456.7	3.708283	89,052.00	3.70005	117	50 - 150	0.0082	+/-0.50	
M9PFNA	540683.3	3.709283	444,545.00	3.709283	122	50 - 150	0.0000	+/-0.50	
MPFDoA	703423.3	4.144834	622,230.00	4.144834	113	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	168676.5	4.00945	165,253.00	4.00945	102	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	209689.7	3.937867	188,513.00	3.937867	111	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B304896-BS1)			Lab File ID: B304896-BS1.d			Analyzed: 04/13/22 13:26			
M8FOSA	229450.9	4.044517	240,692.00	4.044517	95	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	82588.91	2.644867	102,612.00	2.644867	80	50 - 150	0.0000	+/-0.50	
M2PFTA	777055.3	4.3784	815,036.00	4.3784	95	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	76415.38	3.858883	95,977.00	3.858883	80	50 - 150	0.0000	+/-0.50	
MPFBA	554803.8	1.12495	498,450.00	1.12495	111	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	173783.7	2.954083	177,223.00	2.954083	98	50 - 150	0.0000	+/-0.50	
M6PFDA	473882	3.859367	468,839.00	3.859367	101	50 - 150	0.0000	+/-0.50	
M3PFBS	116601.1	2.02765	111,010.00	2.02765	105	50 - 150	0.0000	+/-0.50	
M7PFUnA	591861.1	4.009967	614,606.00	4.009967	96	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	46651.22	3.509617	53,640.00	3.509617	87	50 - 150	0.0000	+/-0.50	
M5PFPeA	454848	1.8328	437,731.00	1.8328	104	50 - 150	0.0000	+/-0.50	
M5PFHxA	639638.9	2.73085	607,626.00	2.73085	105	50 - 150	0.0000	+/-0.50	
M3PFHxS	84926.93	3.292283	76,859.00	3.292283	110	50 - 150	0.0000	+/-0.50	
M4PFHpA	625208.8	3.259933	562,898.00	3.259933	111	50 - 150	0.0000	+/-0.50	
M8PFOA	558851.9	3.518133	523,293.00	3.518133	107	50 - 150	0.0000	+/-0.50	
M8PFOS	93315.2	3.70005	89,052.00	3.70005	105	50 - 150	0.0000	+/-0.50	
M9PFNA	481500	3.709283	444,545.00	3.709283	108	50 - 150	0.0000	+/-0.50	
MPFDoA	607905.8	4.144834	622,230.00	4.144834	98	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	132023	4.00945	165,253.00	4.00945	80	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	177622	3.937867	188,513.00	3.937867	94	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B304896-BSD1)			Lab File ID: B304896-BSD1.d			Analyzed: 04/13/22 13:34			
M8FOSA	223698.1	4.044517	240,692.00	4.044517	93	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	84395.3	2.644867	102,612.00	2.644867	82	50 - 150	0.0000	+/-0.50	
M2PFTA	753766.3	4.3784	815,036.00	4.3784	92	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	77707.5	3.858883	95,977.00	3.858883	81	50 - 150	0.0000	+/-0.50	
MPFBA	553986.9	1.12495	498,450.00	1.12495	111	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	177552.9	2.954083	177,223.00	2.954083	100	50 - 150	0.0000	+/-0.50	
M6PFDA	505743.4	3.859367	468,839.00	3.859367	108	50 - 150	0.0000	+/-0.50	
M3PFBS	115936.3	2.02765	111,010.00	2.02765	104	50 - 150	0.0000	+/-0.50	
M7PFUnA	590136.6	4.001983	614,606.00	4.009967	96	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	45903.98	3.509617	53,640.00	3.509617	86	50 - 150	0.0000	+/-0.50	
M5PFPeA	454968.5	1.8328	437,731.00	1.8328	104	50 - 150	0.0000	+/-0.50	
M5PFHxA	642756.9	2.73085	607,626.00	2.73085	106	50 - 150	0.0000	+/-0.50	
M3PFHxS	84209.58	3.292283	76,859.00	3.292283	110	50 - 150	0.0000	+/-0.50	
M4PFHpA	615443.1	3.259933	562,898.00	3.259933	109	50 - 150	0.0000	+/-0.50	
M8PFOA	574168.3	3.526133	523,293.00	3.518133	110	50 - 150	0.0080	+/-0.50	
M8PFOS	93454.87	3.708283	89,052.00	3.70005	105	50 - 150	0.0082	+/-0.50	
M9PFNA	481968.3	3.709283	444,545.00	3.709283	108	50 - 150	0.0000	+/-0.50	
MPFDoA	586941.3	4.144834	622,230.00	4.144834	94	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	138384.6	4.00945	165,253.00	4.00945	84	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	165279.7	3.937867	188,513.00	3.937867	88	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B306011-BLK1)			Lab File ID: B306011-BLK1.d			Analyzed: 04/20/22 18:12			
M8FOSA	390916.9	4.044517	378,123.00	4.044517	103	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	201349	2.603583	179,573.00	2.595367	112	50 - 150	0.0082	+/-0.50	
M2PFTA	1098022	4.370283	1,230,238.00	4.370283	89	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	309044.6	3.850917	237,838.00	3.850917	130	50 - 150	0.0000	+/-0.50	
MPFBA	931623.3	1.116633	694,686.00	1.116633	134	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	242158.5	2.921133	193,884.00	2.921133	125	50 - 150	0.0000	+/-0.50	
M6PFDA	903744.1	3.851417	769,309.00	3.851417	117	50 - 150	0.0000	+/-0.50	
M3PFBS	218983.9	1.986217	182,019.00	1.978033	120	50 - 150	0.0082	+/-0.50	
M7PFUnA	1025295	4.001983	962,444.00	3.993983	107	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	125491.2	3.501317	97,273.00	3.501317	129	50 - 150	0.0000	+/-0.50	
M5PFPeA	754892.9	1.79965	604,770.00	1.79965	125	50 - 150	0.0000	+/-0.50	
M5PFHxA	1147077	2.696967	917,609.00	2.680533	125	50 - 150	0.0164	+/-0.50	
M3PFHxS	162869.3	3.28425	134,138.00	3.276217	121	50 - 150	0.0080	+/-0.50	
M4PFHpA	1098264	3.243783	888,102.00	3.243783	124	50 - 150	0.0000	+/-0.50	
M8PFOA	1068945	3.51815	838,987.00	3.51815	127	50 - 150	0.0000	+/-0.50	
M8PFOS	156994.1	3.700067	126,484.00	3.700067	124	50 - 150	0.0000	+/-0.50	
M9PFNA	818690.6	3.7011	672,493.00	3.7011	122	50 - 150	0.0000	+/-0.50	
MPFDoA	898557.1	4.136817	1,026,235.00	4.136817	88	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	255997.8	4.00945	223,546.00	4.00945	115	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	278167.4	3.929883	275,452.00	3.929883	101	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
LCS (B306011-BS1)			Lab File ID: B306011-BS1.d			Analyzed: 04/20/22 18:05			
M8FOSA	451313.5	4.044517	378,123.00	4.044517	119	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	229205.3	2.595367	179,573.00	2.595367	128	50 - 150	0.0000	+/-0.50	
M2PFTA	1285343	4.370283	1,230,238.00	4.370283	104	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	337259.5	3.850917	237,838.00	3.850917	142	50 - 150	0.0000	+/-0.50	
MPFBA	1015358	1.116633	694,686.00	1.116633	146	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	312528.8	2.929717	193,884.00	2.921133	161	50 - 150	0.0086	+/-0.50	*
M6PFDA	1059179	3.851417	769,309.00	3.851417	138	50 - 150	0.0000	+/-0.50	
M3PFBS	247803	1.978033	182,019.00	1.978033	136	50 - 150	0.0000	+/-0.50	
M7PFUnA	1271493	4.001983	962,444.00	3.993983	132	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	144885.7	3.501317	97,273.00	3.501317	149	50 - 150	0.0000	+/-0.50	
M5PFPeA	832169.9	1.79965	604,770.00	1.79965	138	50 - 150	0.0000	+/-0.50	
M5PFHxA	1254431	2.68875	917,609.00	2.680533	137	50 - 150	0.0082	+/-0.50	
M3PFHxS	180075.7	3.276217	134,138.00	3.276217	134	50 - 150	0.0000	+/-0.50	
M4PFHpA	1234556	3.243783	888,102.00	3.243783	139	50 - 150	0.0000	+/-0.50	
M8PFOA	1074844	3.51015	838,987.00	3.51815	128	50 - 150	-0.0080	+/-0.50	
M8PFOS	170893.7	3.700067	126,484.00	3.700067	135	50 - 150	0.0000	+/-0.50	
M9PFNA	861230.9	3.7011	672,493.00	3.7011	128	50 - 150	0.0000	+/-0.50	
MPFDoA	1164367	4.136817	1,026,235.00	4.136817	113	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	258809.7	4.00945	223,546.00	4.00945	116	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	350063	3.929883	275,452.00	3.929883	127	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Minor)	NH-P
9Cl-PF3ONS (F53B Major)	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 (PFEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA	NH-P
N-MeFOSAA	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-butanesulfonamide (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
Perfluoropetanesulfonic 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

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

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

22C1361

con-test ANALYTICAL LABORATORY

http://www.contestlabs.com

Doc # 381 Rev 2_06262019

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

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page ____ of ____

Company Name: Horsley Witten Group
Address: 90 Route 6A Sandwich, MA 02563
Phone: 508-833-6600
Project Name: HYA
Project Location: Hyannis, MA
Project Number: 21084
Project Manager: Bryan Massa
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: SB + CA

Turnaround Time (TAT) Options:
7-Day ☐ 10-Day ☐
PFAS 10-Day (std) ☑ Due Date:

Rush (Approval Required):
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Deliverables:
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: ~~Bmassa~~ Bmassa@horsleywitten.com
Fax To #:

Additional Filtering Requirements:
○ Field Filtered
○ Lab to Filter

Other Analytical Requirements:
○ Field Filtered
○ Lab to Filter

ANALYSIS REQUESTED

PFAS Isotope

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1]Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	
1	HW-W(m)	3/16/22	10:30	grab	GW				2			X
2	HW-W(DD)	3/16/22	12:00	grab	GW				2			X
3	HW-W(D)	3/16/22	13:15	grab	GW				2			X
4	OW-19(S)	3/16/22	1515	grab	GW				2			X
5	OW-19(D)	3/18/22	1245	grab	GW				2			X
6	OW-19(M)	3/18/22	1335	grab	GW				2			X

[2] Preservation Code

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

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

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

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

Relinquished by: (signature)	Date/Time:
Carolina Arroyo	3/20/22 15:30
Received by: (signature)	Date/Time:
[illegible]	3/21/22 13:15
Relinquished by: (signature)	Date/Time:
[illegible]	3/21/22 13:15
Received by: (signature)	Date/Time:
[illegible]	3/21/22 1315
Relinquished by: (signature)	Date/Time:
[illegible]	3/21/22 1600
Received by: (signature)	Date/Time:
[illegible] 2.0	3/21/22 1600
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments:

Data Deliverable Requirements:
MA: GW-1
CT:
RI:
Other:

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

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

NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Comments:

Disclaimer: Con-Test Labs is not responsible for any omitted information on the Chain of Custody. Chain of Custody is a legal document that must be complete and accurate and is used for the 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.

Table of Contents

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

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

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

Client Horsley Witten

Received By _____ Date 3/2/22 Time 1000

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

Were samples within Temperature? 2-6°C T By Gun # 5 Actual Temp - 2.0 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? n/a Were Samples Tampered with? n/a

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

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

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

Did COC include all pertinent Information? Client T Project T Analysis T ID's T Sampler Name T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? n/a MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? Acid n/a Base n/a

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	12	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

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

Comments:

con-test®
A Pace Analytical® Laboratory

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

April 21, 2022

Bryan Massa
Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563

Project Location: Hyannis, MA
Client Job Number:
Project Number: 21084
Laboratory Work Order Number: 22C1362

Enclosed are results of analyses for samples as received by the laboratory on March 21, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew J Beaupre
Project Manager

Table of Contents

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

Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563
ATTN: Bryan Massa

REPORT DATE: 4/21/2022

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 21084

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22C1362

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

PROJECT LOCATION: Hyannis, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
HW-I (s)	22C1362-01	Ground Water		SOP-454 PFAS	
HW-P (s)	22C1362-02	Ground Water		SOP-454 PFAS	
HW-P (m)	22C1362-03	Ground 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.

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

Qualifications:

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:

Perfluoroheptanoic acid (PFHpA)
B306011-BLK1, B306011-BS1

Perfluoroundecanoic acid (PFUnA)
B306011-BLK1, B306011-BS1

L-07

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

Analyte & Samples(s) Qualified:

9Cl-PF3ONS (F53B Major)
B304377-BSD1

Perfluoroheptanesulfonic acid (PFl
B304377-BS1

PF-20

Sample extracted at a dilution. Elevated reporting limits due to adjusted sample volume during preparation.

Analyte & Samples(s) Qualified:

22C1362-01RE1[HW-I (s)]

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:

11Cl-PF3OUdS (F53B Minor)
B304377-BSD1

Perfluorohexanesulfonic acid (PFH
22C1362-01[HW-I (s)], 22C1362-02[HW-P (s)], 22C1362-03[HW-P (m)], B304377-BSD1

Perfluorooctanesulfonic acid (PFO
22C1362-01[HW-I (s)], 22C1362-03[HW-P (m)], B304377-BSD1

Perfluorooctanoic acid (PFOA)
22C1362-01[HW-I (s)], 22C1362-02[HW-P (s)], 22C1362-03[HW-P (m)], B304377-BSD1

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

M3HFPO-DA
B306011-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:

Hexafluoropropylene oxide dimer a
S070641-CCV2

Z-01

Initial analysis within holding time. Re-extraction to obtain dilution results done outside of holding time.

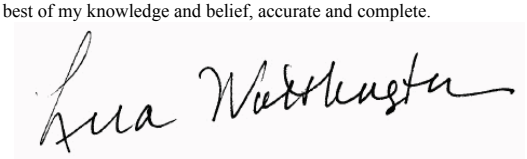
Analyte & Samples(s) Qualified:

22C1362-01RE1[HW-I (s)]

con-test®
A Pace Analytical® Laboratory

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

The results of analyses reported only relate to samples submitted to 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

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1362

Date Received: 3/21/2022

Field Sample #: HW-I (s) | Sampled: 3/18/2022 11:15

Sample ID: 22C1362-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	45	1.8	0.65	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorobutanesulfonic acid (PFBS)	1.5	1.8	0.25	ng/L	1	J	SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluoropentanoic acid (PFPeA)	180	1.8	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorohexanoic acid (PFHxA)	100	1.8	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	1.2	1.8	0.53	ng/L	1	J	SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.43	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.20	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluoroheptanesulfonic acid (PFHpS)	9.4	1.8	0.82	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
N-EtFOSAA	ND	1.8	0.55	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	0.32	1.8	0.25	ng/L	1	J	SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorononanesulfonic acid (PFNS)	2.2	1.8	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	21	1.8	0.27	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluoro-1-butanesulfonamide (FBSA)	2.3	1.8	0.17	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorohexanesulfonic acid (PFHxS)	60	1.8	0.30	ng/L	1	R-05	SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.36	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	1300	50	9.2	ng/L	1		SOP-454 PFAS	4/18/22	4/20/22 19:17	BLH
Perfluoropetanesulfonic acid (PFPeS)	4.2	1.8	0.23	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluoroheptanoic acid (PFHpA)	98	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorooctanoic acid (PFOA)	110	1.8	0.60	ng/L	1	R-05	SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorooctanesulfonic acid (PFOS)	520	1.8	0.53	ng/L	1	R-05	SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH
Perfluorononanoic acid (PFNA)	210	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:02	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1362

Date Received: 3/21/2022

Field Sample #: HW-P (s) | Sampled: 3/18/2022 13:45

Sample ID: 22C1362-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	8.8	1.8	0.66	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluoropentanoic acid (PFPeA)	24	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorohexanoic acid (PFHxA)	15	1.8	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	0.90	1.8	0.54	ng/L	1	J	SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.43	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.20	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.83	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.27	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.17	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorohexanesulfonic acid (PFHxS)	1.2	1.8	0.30	ng/L	1	R-05, J	SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.3	1.8	0.32	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	0.23	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluoroheptanoic acid (PFHpA)	10	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorooctanoic acid (PFOA)	12	1.8	0.60	ng/L	1	R-05	SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorooctanesulfonic acid (PFOS)	0.98	1.8	0.53	ng/L	1	J	SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH
Perfluorononanoic acid (PFNA)	3.9	1.8	0.30	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:09	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22C1362

Date Received: 3/21/2022

Field Sample #: HW-P (m) | Sampled: 3/18/2022 13:50

Sample ID: 22C1362-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	11	1.8	0.67	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorobutanesulfonic acid (PFBS)	0.27	1.8	0.25	ng/L	1	J	SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluoropentanoic acid (PFPeA)	29	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorohexanoic acid (PFHxA)	16	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.58	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.22	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.55	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.44	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.40	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.84	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
N-EtFOSAA	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
N-MeFOSAA	ND	1.8	0.68	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.38	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.28	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.17	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorohexanesulfonic acid (PFHxS)	2.0	1.8	0.30	ng/L	1	R-05	SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	0.23	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluoroheptanoic acid (PFHpA)	9.0	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorooctanoic acid (PFOA)	8.1	1.8	0.61	ng/L	1	R-05	SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorooctanesulfonic acid (PFOS)	2.6	1.8	0.54	ng/L	1	R-05	SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH
Perfluorononanoic acid (PFNA)	9.0	1.8	0.31	ng/L	1		SOP-454 PFAS	4/4/22	4/16/22 0:16	BLH

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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22C1362-01 [HW-I (s)]	B304377	285	1.00	04/04/22
22C1362-02 [HW-P (s)]	B304377	284	1.00	04/04/22
22C1362-03 [HW-P (m)]	B304377	278	1.00	04/04/22

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22C1362-01RE1 [HW-I (s)]	B306011	10.0	1.00	04/18/22

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B304377 - SOP 454-PFAAS										
Blank (B304377-BLK1)				Prepared: 04/04/22 Analyzed: 04/15/22						
Perfluorobutanoic acid (PFBA)	ND	1.7	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.7	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.7	ng/L							
11Cl-PF3OUdS (F53B Minor)	ND	1.7	ng/L							
9Cl-PF3ONS (F53B Major)	ND	1.7	ng/L							
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.7	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.7	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	ng/L							
N-EtFOSAA	ND	1.7	ng/L							
N-MeFOSAA	ND	1.7	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.7	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	ng/L							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.7	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	1.7	ng/L							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	ng/L							
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	ng/L							
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	ng/L							
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	ng/L							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.7	ng/L							
Perfluoropetanesulfonic acid (PFPeS)	ND	1.7	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.7	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.7	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.7	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.7	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.7	ng/L							
LCS (B304377-BS1)				Prepared: 04/04/22 Analyzed: 04/15/22						
Perfluorobutanoic acid (PFBA)	6.75	1.7	ng/L	8.68		77.8	73-129			
Perfluorobutanesulfonic acid (PFBS)	6.05	1.7	ng/L	7.68		78.8	72-130			
Perfluoropentanoic acid (PFPeA)	6.96	1.7	ng/L	8.68		80.2	72-129			
Perfluorohexanoic acid (PFHxA)	6.82	1.7	ng/L	8.68		78.6	72-129			
11Cl-PF3OUdS (F53B Minor)	7.30	1.7	ng/L	8.17		89.3	50-150			
9Cl-PF3ONS (F53B Major)	9.29	1.7	ng/L	8.09		115	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	5.72	1.7	ng/L	8.17		70.0	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.45	1.7	ng/L	8.68		97.4	50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	7.80	1.7	ng/L	8.33		93.6	67-138			
Perfluorodecanoic acid (PFDA)	6.52	1.7	ng/L	8.68		75.1	71-129			
Perfluorododecanoic acid (PFDoA)	6.56	1.7	ng/L	8.68		75.6	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	6.47	1.7	ng/L	7.72		83.8	50-150			

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes
Batch B304377 - SOP 454-PFAAS												
LCS (B304377-BS1)				Prepared: 04/04/22 Analyzed: 04/15/22								
Perfluoroheptanesulfonic acid (PFHpS)	5.32	1.7	ng/L	8.29		**64.2**	*	69-134				L-07
N-EtFOSAA	8.71	1.7	ng/L	8.68		100		61-135				
N-MeFOSAA	8.28	1.7	ng/L	8.68		95.4		65-136				
Perfluorotetradecanoic acid (PFTA)	7.10	1.7	ng/L	8.68		81.8		71-132				
Perfluorotridecanoic acid (PFTrDA)	7.28	1.7	ng/L	8.68		83.9		65-144				
4:2 Fluorotelomersulfonic acid (4:2FTS A)	6.92	1.7	ng/L	8.11		85.3		63-143				
Perfluorodecanesulfonic acid (PFDS)	6.12	1.7	ng/L	8.37		73.1		53-142				
Perfluorooctanesulfonamide (FOSA)	6.99	1.7	ng/L	8.68		80.6		67-137				
Perfluorononanesulfonic acid (PFNS)	6.64	1.7	ng/L	8.33		79.8		69-127				
Perfluoro-1-hexanesulfonamide (FHxSA)	6.96	1.7	ng/L	8.68		80.2		50-150				
Perfluoro-1-butanesulfonamide (FBSA)	6.22	1.7	ng/L	8.68		71.7		50-150				
Perfluorohexanesulfonic acid (PFHxS)	5.43	1.7	ng/L	7.94		68.4		68-131				
Perfluoro-4-oxapentanoic acid (PFMPA)	7.04	1.7	ng/L	8.68		81.1		50-150				
Perfluoro-5-oxahexanoic acid (PFMBA)	6.99	1.7	ng/L	8.68		80.6		50-150				
6:2 Fluorotelomersulfonic acid (6:2FTS A)	7.42	1.7	ng/L	8.24		90.0		64-140				
Perfluoropetanesulfonic acid (PFPeS)	7.23	1.7	ng/L	8.16		88.6		71-127				
Perfluoroundecanoic acid (PFUnA)	6.74	1.7	ng/L	8.68		77.7		69-133				
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	7.31	1.7	ng/L	8.68		84.2		50-150				
Perfluoroheptanoic acid (PFHpA)	6.43	1.7	ng/L	8.68		74.1		72-130				
Perfluorooctanoic acid (PFOA)	6.65	1.7	ng/L	8.68		76.6		71-133				
Perfluorooctanesulfonic acid (PFOS)	5.42	1.7	ng/L	8.03		67.6		65-140				
Perfluorononanoic acid (PFNA)	6.45	1.7	ng/L	8.68		74.3		69-130				
LCS Dup (B304377-BSD1)				Prepared: 04/04/22 Analyzed: 04/15/22								
Perfluorobutanoic acid (PFBA)	8.55	1.7	ng/L	8.68		98.5		73-129	23.6		30	
Perfluorobutanesulfonic acid (PFBS)	7.76	1.7	ng/L	7.68		101		72-130	24.8		30	
Perfluoropentanoic acid (PFPeA)	8.62	1.7	ng/L	8.68		99.3		72-129	21.3		30	
Perfluorohexanoic acid (PFHxA)	8.83	1.7	ng/L	8.68		102		72-129	25.7		30	
11Cl-PF3OUdS (F53B Minor)	11.8	1.7	ng/L	8.18		144		50-150	**47.0**	*	30	R-05
9Cl-PF3ONS (F53B Major)	12.2	1.7	ng/L	8.09		**151**	*	50-150	27.1		30	L-07
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	7.38	1.7	ng/L	8.18		90.3		50-150	25.3		30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.91	1.7	ng/L	8.68		103		50-150	5.40		30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	7.62	1.7	ng/L	8.34		91.4		67-138	2.27		30	
Perfluorodecanoic acid (PFDA)	8.59	1.7	ng/L	8.68		98.9		71-129	27.4		30	
Perfluorododecanoic acid (PFDoA)	7.90	1.7	ng/L	8.68		91.0		72-134	18.6		30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.27	1.7	ng/L	7.73		107		50-150	24.4		30	
Perfluoroheptanesulfonic acid (PFHpS)	7.16	1.7	ng/L	8.29		86.3		69-134	29.5		30	
N-EtFOSAA	9.86	1.7	ng/L	8.68		114		61-135	12.4		30	
N-MeFOSAA	10.4	1.7	ng/L	8.68		120		65-136	22.8		30	
Perfluorotetradecanoic acid (PFTA)	8.31	1.7	ng/L	8.68		95.8		71-132	15.8		30	
Perfluorotridecanoic acid (PFTrDA)	8.84	1.7	ng/L	8.68		102		65-144	19.4		30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.77	1.7	ng/L	8.12		108		63-143	23.7		30	
Perfluorodecanesulfonic acid (PFDS)	8.11	1.7	ng/L	8.38		96.8		53-142	28.0		30	
Perfluorooctanesulfonamide (FOSA)	8.30	1.7	ng/L	8.68		95.6		67-137	17.1		30	
Perfluorononanesulfonic acid (PFNS)	8.97	1.7	ng/L	8.34		108		69-127	29.8		30	
Perfluoro-1-hexanesulfonamide (FHxSA)	9.31	1.7	ng/L	8.68		107		50-150	28.9		30	
Perfluoro-1-butanesulfonamide (FBSA)	8.03	1.7	ng/L	8.68		92.4		50-150	25.3		30	
Perfluorohexanesulfonic acid (PFHxS)	7.48	1.7	ng/L	7.94		94.2		68-131	**31.7**	*	30	R-05
Perfluoro-4-oxapentanoic acid (PFMPA)	8.98	1.7	ng/L	8.68		103		50-150	24.3		30	
Perfluoro-5-oxahexanoic acid (PFMBA)	8.84	1.7	ng/L	8.68		102		50-150	23.3		30	

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD		RPD Limit	Notes
Batch B304377 - SOP 454-PFAAS											
LCS Dup (B304377-BSD1)				Prepared: 04/04/22 Analyzed: 04/15/22							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.87	1.7	ng/L	8.25		120	64-140	28.4		30	
Perfluoropetanesulfonic acid (PFPeS)	9.69	1.7	ng/L	8.16		119	71-127	29.1		30	
Perfluoroundecanoic acid (PFUnA)	7.87	1.7	ng/L	8.68		90.6	69-133	15.4		30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.09	1.7	ng/L	8.68		105	50-150	21.7		30	
Perfluoroheptanoic acid (PFHpA)	8.02	1.7	ng/L	8.68		92.4	72-130	22.0		30	
Perfluorooctanoic acid (PFOA)	9.46	1.7	ng/L	8.68		109	71-133	**34.9**	*	30	R-05
Perfluorooctanesulfonic acid (PFOS)	7.79	1.7	ng/L	8.03		97.0	65-140	**35.8**	*	30	R-05
Perfluorononanoic acid (PFNA)	8.21	1.7	ng/L	8.68		94.5	69-130	24.0		30	
Batch B306011 - SOP 454-PFAAS											
Blank (B306011-BLK1)				Prepared: 04/18/22 Analyzed: 04/20/22							
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 Minor)	ND	1.8	ng/L								
9Cl-PF3ONS (F53B Major)	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	ND	1.8	ng/L								
N-MeFOSAA	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								
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	ng/L								
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L								L-03
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L								
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L								L-03
Perfluorooctanoic acid (PFOA)	ND	1.8	ng/L								
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	ng/L								
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L								

con-test®
A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B306011 - SOP 454-PFAAS											
LCS (B306011-BS1)				Prepared: 04/18/22 Analyzed: 04/20/22							
Perfluorobutanoic acid (PFBA)	6.75	1.8	ng/L	9.18		73.5		73-129			
Perfluorobutanesulfonic acid (PFBS)	5.95	1.8	ng/L	8.13		73.3		72-130			
Perfluoropentanoic acid (PFPeA)	6.88	1.8	ng/L	9.18		75.0		72-129			
Perfluorohexanoic acid (PFHxA)	6.87	1.8	ng/L	9.18		74.8		72-129			
11Cl-PF3OUdS (F53B Minor)	5.27	1.8	ng/L	8.65		60.9		50-150			
9Cl-PF3ONS (F53B Major)	6.34	1.8	ng/L	8.56		74.1		50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	5.39	1.8	ng/L	8.65		62.3		50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.15	1.8	ng/L	9.18		67.0		50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	7.40	1.8	ng/L	8.81		84.0		67-138			
Perfluorodecanoic acid (PFDA)	7.19	1.8	ng/L	9.18		78.3		71-129			
Perfluorododecanoic acid (PFDoA)	6.86	1.8	ng/L	9.18		74.7		72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	5.67	1.8	ng/L	8.17		69.4		50-150			
Perfluoroheptanesulfonic acid (PFHpS)	6.93	1.8	ng/L	8.77		79.0		69-134			
N-EtFOSAA	7.92	1.8	ng/L	9.18		86.3		61-135			
N-MeFOSAA	7.17	1.8	ng/L	9.18		78.1		65-136			
Perfluorotetradecanoic acid (PFTA)	6.97	1.8	ng/L	9.18		75.9		71-132			
Perfluorotridecanoic acid (PFTrDA)	6.67	1.8	ng/L	9.18		72.6		65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	6.52	1.8	ng/L	8.58		76.0		63-143			
Perfluorodecanesulfonic acid (PFDS)	5.06	1.8	ng/L	8.86		57.1		53-142			
Perfluorooctanesulfonamide (FOSA)	6.66	1.8	ng/L	9.18		72.5		67-137			
Perfluorononanesulfonic acid (PFNS)	6.25	1.8	ng/L	8.81		70.9		69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	7.00	1.8	ng/L	9.18		76.3		50-150			
Perfluoro-1-butanesulfonamide (FBSA)	5.98	1.8	ng/L	9.18		65.2		50-150			
Perfluorohexanesulfonic acid (PFHxS)	6.18	1.8	ng/L	8.40		73.6		68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	6.12	1.8	ng/L	9.18		66.7		50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	6.37	1.8	ng/L	9.18		69.4		50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6.40	1.8	ng/L	8.72		73.3		64-140			
Perfluoropetanesulfonic acid (PFPeS)	6.63	1.8	ng/L	8.63		76.8		71-127			
Perfluoroundecanoic acid (PFUnA)	6.11	1.8	ng/L	9.18		**66.5**	*	69-133			L-03
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.26	1.8	ng/L	9.18		68.2		50-150			
Perfluoroheptanoic acid (PFHpA)	6.41	1.8	ng/L	9.18		**69.8**	*	72-130			L-03
Perfluorooctanoic acid (PFOA)	7.78	1.8	ng/L	9.18		84.7		71-133			
Perfluorooctanesulfonic acid (PFOS)	6.09	1.8	ng/L	8.49		71.7		65-140			
Perfluorononanoic acid (PFNA)	6.86	1.8	ng/L	9.18		74.7		69-130			

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.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
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.
L-07	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.
PF-20	Sample extracted at a dilution. Elevated reporting limits due to adjusted sample volume during preparation.
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.
Z-01	Initial analysis within holding time. Re-extraction to obtain dilution results done outside of holding time.

con-test® A Pace Analytical® Laboratory

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
HW-I (s) (22C1362-01)			Lab File ID: 22C1362-01.d			Analyzed: 04/16/22 00:02			
M8FOSA	222146.5	4.044517	220,320.00	4.036517	101	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	65989.65	2.6531	86,889.00	2.644867	76	50 - 150	0.0082	+/-0.50	
M2PFTA	867633.2	4.39465	851,194.00	4.39465	102	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	81079.64	3.866833	94,603.00	3.875067	86	50 - 150	-0.0082	+/-0.50	
MPFBA	532573.8	1.13325	510,672.00	1.13325	104	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	159948.7	2.954083	163,896.00	2.954083	98	50 - 150	0.0000	+/-0.50	
M6PFDA	480448	3.867333	463,682.00	3.867333	104	50 - 150	0.0000	+/-0.50	
M3PFBS	107973.3	2.02765	100,421.00	2.02765	108	50 - 150	0.0000	+/-0.50	
M7PFUnA	621788.6	4.017967	628,074.00	4.017967	99	50 - 150	0.0000	+/-0.50	
M5PFPeA	458353.3	1.8411	448,836.00	1.841083	102	50 - 150	0.0000	+/-0.50	
M5PFHxA	605951.5	2.73905	567,441.00	2.73905	107	50 - 150	0.0000	+/-0.50	
M3PFHxS	67450.4	3.2923	62,594.00	3.2923	108	50 - 150	0.0000	+/-0.50	
M4PFHpA	524335.9	3.268033	489,753.00	3.25995	107	50 - 150	0.0081	+/-0.50	
M8PFOA	425533.8	3.526133	438,813.00	3.526133	97	50 - 150	0.0000	+/-0.50	
M8PFOS	63575.11	3.71625	76,933.00	3.71625	83	50 - 150	0.0000	+/-0.50	
M9PFNA	312816	3.71725	400,811.00	3.71725	78	50 - 150	0.0000	+/-0.50	
MPFDoA	655498.9	4.153117	663,231.00	4.153117	99	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	147430.6	4.025434	155,538.00	4.025434	95	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	170187.5	3.945867	182,509.00	3.945867	93	50 - 150	0.0000	+/-0.50	
HW-I (s) (22C1362-01RE1)			Lab File ID: 22C1362-01RE1.d			Analyzed: 04/20/22 19:17			
M2-6:2FTS	95063.37	3.501317	97,273.00	3.501317	98	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-P (s) (22C1362-02)			Lab File ID: 22C1362-02.d			Analyzed: 04/16/22 00:09			
M8FOSA	208932.6	4.044517	220,320.00	4.036517	95	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	54926.5	2.644867	86,889.00	2.644867	63	50 - 150	0.0000	+/-0.50	
M2PFTA	712578.9	4.39465	851,194.00	4.39465	84	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	62250.41	3.875067	94,603.00	3.875067	66	50 - 150	0.0000	+/-0.50	
MPFBA	508643.9	1.13325	510,672.00	1.13325	100	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	162903.9	2.954083	163,896.00	2.954083	99	50 - 150	0.0000	+/-0.50	
M6PFDA	443409.1	3.867333	463,682.00	3.867333	96	50 - 150	0.0000	+/-0.50	
M3PFBS	99484.45	2.02765	100,421.00	2.02765	99	50 - 150	0.0000	+/-0.50	
M7PFUnA	585435.6	4.017967	628,074.00	4.017967	93	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	37138.04	3.5176	44,025.00	3.5176	84	50 - 150	0.0000	+/-0.50	
M5PFPeA	440202.6	1.8411	448,836.00	1.841083	98	50 - 150	0.0000	+/-0.50	
M5PFHxA	569730.9	2.730867	567,441.00	2.73905	100	50 - 150	-0.0082	+/-0.50	
M3PFHxS	65273.78	3.300333	62,594.00	3.2923	104	50 - 150	0.0080	+/-0.50	
M4PFHpA	500103.4	3.268033	489,753.00	3.25995	102	50 - 150	0.0081	+/-0.50	
M8PFOA	453501.5	3.534133	438,813.00	3.526133	103	50 - 150	0.0080	+/-0.50	
M8PFOS	79323.41	3.71625	76,933.00	3.71625	103	50 - 150	0.0000	+/-0.50	
M9PFNA	410784.1	3.71725	400,811.00	3.71725	102	50 - 150	0.0000	+/-0.50	
MPFDoA	595902.4	4.153117	663,231.00	4.153117	90	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	146086.9	4.025434	155,538.00	4.025434	94	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	158782.7	3.945867	182,509.00	3.945867	87	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-P (m) (22C1362-03)			Lab File ID: 22C1362-03.d			Analyzed: 04/16/22 00:16			
M8FOSA	224645.7	4.044517	220,320.00	4.036517	102	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	58973.74	2.6531	86,889.00	2.644867	68	50 - 150	0.0082	+/-0.50	
M2PFTA	864372.8	4.39465	851,194.00	4.39465	102	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	79524.63	3.875067	94,603.00	3.875067	84	50 - 150	0.0000	+/-0.50	
MPFBA	601655	1.13325	510,672.00	1.13325	118	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	162172.8	2.954083	163,896.00	2.954083	99	50 - 150	0.0000	+/-0.50	
M6PFDA	464661.8	3.867333	463,682.00	3.867333	100	50 - 150	0.0000	+/-0.50	
M3PFBS	113922	2.02765	100,421.00	2.02765	113	50 - 150	0.0000	+/-0.50	
M7PFUnA	649387.4	4.017967	628,074.00	4.017967	103	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	34717.43	3.5176	44,025.00	3.5176	79	50 - 150	0.0000	+/-0.50	
M5PFPeA	506573.3	1.8411	448,836.00	1.841083	113	50 - 150	0.0000	+/-0.50	
M5PFHxA	644235.4	2.73905	567,441.00	2.73905	114	50 - 150	0.0000	+/-0.50	
M3PFHxS	71324.15	3.300333	62,594.00	3.2923	114	50 - 150	0.0080	+/-0.50	
M4PFHpA	568829.8	3.268033	489,753.00	3.25995	116	50 - 150	0.0081	+/-0.50	
M8PFOA	526336.3	3.526133	438,813.00	3.526133	120	50 - 150	0.0000	+/-0.50	
M8PFOS	85452.04	3.71625	76,933.00	3.71625	111	50 - 150	0.0000	+/-0.50	
M9PFNA	451568.2	3.71725	400,811.00	3.71725	113	50 - 150	0.0000	+/-0.50	
MPFDoA	701994.9	4.153117	663,231.00	4.153117	106	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	159407.1	4.025434	155,538.00	4.025434	102	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	191895.7	3.945867	182,509.00	3.945867	105	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B304377-BLK1)			Lab File ID: B304377-BLK1.d			Analyzed: 04/15/22 23:55			
M8FOSA	225673.5	4.044517	220,320.00	4.036517	102	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	90873.42	2.6531	86,889.00	2.644867	105	50 - 150	0.0082	+/-0.50	
M2PFTA	748265.9	4.39465	851,194.00	4.39465	88	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	100395.1	3.875067	94,603.00	3.875067	106	50 - 150	0.0000	+/-0.50	
MPFBA	590553.4	1.13325	510,672.00	1.13325	116	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	180355.6	2.9622	163,896.00	2.954083	110	50 - 150	0.0081	+/-0.50	
M6PFDA	498927.3	3.867333	463,682.00	3.867333	108	50 - 150	0.0000	+/-0.50	
M3PFBS	112989	2.02765	100,421.00	2.02765	113	50 - 150	0.0000	+/-0.50	
M7PFUnA	644524.4	4.017967	628,074.00	4.017967	103	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	49823.91	3.5176	44,025.00	3.5176	113	50 - 150	0.0000	+/-0.50	
M5PFPeA	505135.8	1.8411	448,836.00	1.841083	113	50 - 150	0.0000	+/-0.50	
M5PFHxA	643200.6	2.739033	567,441.00	2.73905	113	50 - 150	0.0000	+/-0.50	
M3PFHxS	72782.84	3.300333	62,594.00	3.2923	116	50 - 150	0.0080	+/-0.50	
M4PFHpA	555507.7	3.268017	489,753.00	3.25995	113	50 - 150	0.0081	+/-0.50	
M8PFOA	496007.7	3.526133	438,813.00	3.526133	113	50 - 150	0.0000	+/-0.50	
M8PFOS	89707.86	3.71625	76,933.00	3.71625	117	50 - 150	0.0000	+/-0.50	
M9PFNA	431258	3.71725	400,811.00	3.71725	108	50 - 150	0.0000	+/-0.50	
MPFDoA	632143.1	4.153117	663,231.00	4.153117	95	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	150028.7	4.025434	155,538.00	4.025434	96	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	186340.4	3.945867	182,509.00	3.945867	102	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B304377-BS1)			Lab File ID: B304377-BS1.d			Analyzed: 04/15/22 23:40			
M8FOSA	230858.2	4.044517	220,320.00	4.036517	105	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	100313.4	2.6531	86,889.00	2.644867	115	50 - 150	0.0082	+/-0.50	
M2PFTA	818594	4.39465	851,194.00	4.39465	96	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	103938.9	3.875067	94,603.00	3.875067	110	50 - 150	0.0000	+/-0.50	
MPFBA	655192.6	1.13325	510,672.00	1.13325	128	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	170851.1	2.954083	163,896.00	2.954083	104	50 - 150	0.0000	+/-0.50	
M6PFDA	563848.5	3.867333	463,682.00	3.867333	122	50 - 150	0.0000	+/-0.50	
M3PFBS	124849.1	2.02765	100,421.00	2.02765	124	50 - 150	0.0000	+/-0.50	
M7PFUnA	673405.6	4.017967	628,074.00	4.017967	107	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	50961.15	3.5176	44,025.00	3.5176	116	50 - 150	0.0000	+/-0.50	
M5PFPeA	558219.4	1.8411	448,836.00	1.841083	124	50 - 150	0.0000	+/-0.50	
M5PFHxA	704956.2	2.73905	567,441.00	2.73905	124	50 - 150	0.0000	+/-0.50	
M3PFHxS	80363.13	3.300333	62,594.00	3.2923	128	50 - 150	0.0080	+/-0.50	
M4PFHpA	590641.9	3.268033	489,753.00	3.25995	121	50 - 150	0.0081	+/-0.50	
M8PFOA	560271.1	3.526133	438,813.00	3.526133	128	50 - 150	0.0000	+/-0.50	
M8PFOS	95045.18	3.71625	76,933.00	3.71625	124	50 - 150	0.0000	+/-0.50	
M9PFNA	462487.9	3.71725	400,811.00	3.71725	115	50 - 150	0.0000	+/-0.50	
MPFDoA	694349.7	4.153117	663,231.00	4.153117	105	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	156724.8	4.025434	155,538.00	4.025434	101	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	205733	3.945867	182,509.00	3.945867	113	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B304377-BSD1)			Lab File ID: B304377-BSD1.d			Analyzed: 04/15/22 23:48			
M8FOSA	195878.7	4.044517	220,320.00	4.036517	89	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	78147.05	2.6531	86,889.00	2.644867	90	50 - 150	0.0082	+/-0.50	
M2PFTA	683472	4.39465	851,194.00	4.39465	80	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	87018.55	3.875067	94,603.00	3.875067	92	50 - 150	0.0000	+/-0.50	
MPFBA	514052.8	1.13325	510,672.00	1.13325	101	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	166247.7	2.9622	163,896.00	2.954083	101	50 - 150	0.0081	+/-0.50	
M6PFDA	413882.3	3.867333	463,682.00	3.867333	89	50 - 150	0.0000	+/-0.50	
M3PFBS	94655.5	2.02765	100,421.00	2.02765	94	50 - 150	0.0000	+/-0.50	
M7PFUnA	544706.5	4.017967	628,074.00	4.017967	87	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	42186.02	3.5176	44,025.00	3.5176	96	50 - 150	0.0000	+/-0.50	
M5PFPeA	437697.5	1.8411	448,836.00	1.841083	98	50 - 150	0.0000	+/-0.50	
M5PFHxA	556777.9	2.73905	567,441.00	2.73905	98	50 - 150	0.0000	+/-0.50	
M3PFHxS	59472.45	3.300333	62,594.00	3.2923	95	50 - 150	0.0080	+/-0.50	
M4PFHpA	476725.8	3.268033	489,753.00	3.25995	97	50 - 150	0.0081	+/-0.50	
M8PFOA	411127.6	3.534133	438,813.00	3.526133	94	50 - 150	0.0080	+/-0.50	
M8PFOS	69237.27	3.71625	76,933.00	3.71625	90	50 - 150	0.0000	+/-0.50	
M9PFNA	375311.6	3.71725	400,811.00	3.71725	94	50 - 150	0.0000	+/-0.50	
MPFDoA	583902.2	4.153117	663,231.00	4.153117	88	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	131864.4	4.025434	155,538.00	4.025434	85	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	170707.8	3.945867	182,509.00	3.945867	94	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B306011-BLK1)			Lab File ID: B306011-BLK1.d			Analyzed: 04/20/22 18:12			
M8FOSA	390916.9	4.044517	378,123.00	4.044517	103	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	201349	2.603583	179,573.00	2.595367	112	50 - 150	0.0082	+/-0.50	
M2PFTA	1098022	4.370283	1,230,238.00	4.370283	89	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	309044.6	3.850917	237,838.00	3.850917	130	50 - 150	0.0000	+/-0.50	
MPFBA	931623.3	1.116633	694,686.00	1.116633	134	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	242158.5	2.921133	193,884.00	2.921133	125	50 - 150	0.0000	+/-0.50	
M6PFDA	903744.1	3.851417	769,309.00	3.851417	117	50 - 150	0.0000	+/-0.50	
M3PFBS	218983.9	1.986217	182,019.00	1.978033	120	50 - 150	0.0082	+/-0.50	
M7PFUnA	1025295	4.001983	962,444.00	3.993983	107	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	125491.2	3.501317	97,273.00	3.501317	129	50 - 150	0.0000	+/-0.50	
M5PFPeA	754892.9	1.79965	604,770.00	1.79965	125	50 - 150	0.0000	+/-0.50	
M5PFHxA	1147077	2.696967	917,609.00	2.680533	125	50 - 150	0.0164	+/-0.50	
M3PFHxS	162869.3	3.28425	134,138.00	3.276217	121	50 - 150	0.0080	+/-0.50	
M4PFHpA	1098264	3.243783	888,102.00	3.243783	124	50 - 150	0.0000	+/-0.50	
M8PFOA	1068945	3.51815	838,987.00	3.51815	127	50 - 150	0.0000	+/-0.50	
M8PFOS	156994.1	3.700067	126,484.00	3.700067	124	50 - 150	0.0000	+/-0.50	
M9PFNA	818690.6	3.7011	672,493.00	3.7011	122	50 - 150	0.0000	+/-0.50	
MPFDoA	898557.1	4.136817	1,026,235.00	4.136817	88	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	255997.8	4.00945	223,546.00	4.00945	115	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	278167.4	3.929883	275,452.00	3.929883	101	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B306011-BS1)			Lab File ID: B306011-BS1.d			Analyzed: 04/20/22 18:05			
M8FOSA	451313.5	4.044517	378,123.00	4.044517	119	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	229205.3	2.595367	179,573.00	2.595367	128	50 - 150	0.0000	+/-0.50	
M2PFTA	1285343	4.370283	1,230,238.00	4.370283	104	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	337259.5	3.850917	237,838.00	3.850917	142	50 - 150	0.0000	+/-0.50	
MPFBA	1015358	1.116633	694,686.00	1.116633	146	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	312528.8	2.929717	193,884.00	2.921133	161	50 - 150	0.0086	+/-0.50	*
M6PFDA	1059179	3.851417	769,309.00	3.851417	138	50 - 150	0.0000	+/-0.50	
M3PFBS	247803	1.978033	182,019.00	1.978033	136	50 - 150	0.0000	+/-0.50	
M7PFUnA	1271493	4.001983	962,444.00	3.993983	132	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	144885.7	3.501317	97,273.00	3.501317	149	50 - 150	0.0000	+/-0.50	
M5PFPeA	832169.9	1.79965	604,770.00	1.79965	138	50 - 150	0.0000	+/-0.50	
M5PFHxA	1254431	2.68875	917,609.00	2.680533	137	50 - 150	0.0082	+/-0.50	
M3PFHxS	180075.7	3.276217	134,138.00	3.276217	134	50 - 150	0.0000	+/-0.50	
M4PFHpA	1234556	3.243783	888,102.00	3.243783	139	50 - 150	0.0000	+/-0.50	
M8PFOA	1074844	3.51015	838,987.00	3.51815	128	50 - 150	-0.0080	+/-0.50	
M8PFOS	170893.7	3.700067	126,484.00	3.700067	135	50 - 150	0.0000	+/-0.50	
M9PFNA	861230.9	3.7011	672,493.00	3.7011	128	50 - 150	0.0000	+/-0.50	
MPFDoA	1164367	4.136817	1,026,235.00	4.136817	113	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	258809.7	4.00945	223,546.00	4.00945	116	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	350063	3.929883	275,452.00	3.929883	127	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Minor)	NH-P
9Cl-PF3ONS (F53B Major)	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 (PFEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA	NH-P
N-MeFOSAA	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-butanesulfonamide (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
Perfluoropetanesulfonic 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

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

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

2201302

Pace Analytical®

Phone: 413-525-2332
Fax: 413-525-6405
Access COC's and Support Requests

http://www.pacelabs.com

Doc # 381 Rev 5_07/13/2021

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page ____ of ____

Company Name: Horsley Witten Group
Address: 90 Route 6A Sandwich MA
Phone: (508) 833-6600
Project Name: HW1
Project Location: Hyannis MA
Project Number: 21634
Project Manager: Bryan Massa
Pace Quote Name/Number:
Invoice Recipient:
Sampled By: SB

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

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

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

Data Delivery
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: bmassa@horsley witten.com
Fax To #:

PCB ONLY
SOXHLET ☐
NON SOXHLET ☐

ANALYSIS REQUESTED

PFAS ISOPAC

Pace Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1]Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE
1	HW-I(S) MS	3/18/22	11:15	Grab	GW				1		
1	HW-I(S) MSD	3/18/22	11:15	Grab	GW				1		
2	HW-P(S)	3/18/22	13:45	Grab	GW				1		
3	HW-P(m)	3/18/22	13:50	Grab	GW				1		

[2] Preservation Code

Courier Use Only

Total Number Of:
VIALS
GLASS
PLASTIC
BACTERIA
ENCORE

Glassware in the fridge? Y / N

Glassware in freezer? Y / N

Prepackaged Cooler? Y / N

*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)

Relinquished by: (signature)	Date/Time:
Carla Massey	3/20/22 15:30
Received by: (signature)	Date/Time:
[illegible]	3/21/22 13:15
Relinquished by: (signature)	Date/Time:
[illegible]	3/21/22 13:15
Received by: (signature)	Date/Time:
[illegible]	3/21/22 1315
Relinquished by: (signature)	Date/Time:
[illegible]	3/21/22 1600
Received by: (signature)	Date/Time:
[illegible] 2.0	3/21/22 1000
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments:

Detection Limit Requirements
MA MCP GW-1
[illegible]
Other

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

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

NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

Lab Comments:

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.

Table of Contents

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

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

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

Client Horsley Witten

Received By _____ Date 3/21/22 Time 1600

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

Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 5 Actual Temp - 2.0

By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? n/a Were Samples Tampered with? n/a

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

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

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

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

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? n/a MS/MSD? XT

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? Acid n/a Base n/a

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	6	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

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

Comments:

* Only received 2 containers for MS/MSD sample.

MS/MSD not being run per client - 3/24/2022

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

April 21, 2022

Bryan Massa
Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563

Project Location: Hyannis, MA
Client Job Number:
Project Number: 21084
Laboratory Work Order Number: 22D0006

Enclosed are results of analyses for samples as received by the laboratory on April 1, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew J Beaupre
Project Manager

Table of Contents

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

Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563
ATTN: Bryan Massa

REPORT DATE: 4/21/2022

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 21084

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22D0006

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

PROJECT LOCATION: Hyannis, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
RB-1(M)	22D0006-01	Ground Water		SOP-454 PFAS	
RB-1(S)	22D0006-02	Ground Water		SOP-454 PFAS	
HW-S(S)	22D0006-03	Ground Water		SOP-454 PFAS	
HW-300	22D0006-04	Ground Water		SOP-454 PFAS	

con-test®
A Pace Analytical® Laboratory

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

CASE NARRATIVE SUMMARY

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

SOP-454 PFAS

Qualifications:

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:

Perfluoroheptanoic acid (PFHpA)
B306011-BLK1, B306011-BS1

Perfluoroundecanoic acid (PFUnA)
B306011-BLK1, B306011-BS1

PF-18

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

Analyte & Samples(s) Qualified:

M2-6:2FTS
22D0006-03[HW-S(S)]

PF-19

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

Analyte & Samples(s) Qualified:

M2-4:2FTS
22D0006-01[RB-1(M)]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

M2-4:2FTS
22D0006-03[HW-S(S)], 22D0006-04[HW-300]

M2-6:2FTS
22D0006-04[HW-300]

M3HFPO-DA
B306011-BS1

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:

Perfluorononanesulfonic acid (PFN
S070438-CCV1

V-20

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

Analyte & Samples(s) Qualified:

Hexafluoropropylene oxide dimer a
S070641-CCV2

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

The results of analyses reported only relate to samples submitted to 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

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA
Sample Description:
Work Order: 22D0006

Date Received: 4/1/2022

Field Sample #: RB-1(M)
Sampled: 3/31/2022 12:10

Sample ID: 22D0006-01

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)	10	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluoropentanoic acid (PFPeA)	28	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorohexanoic acid (PFHxA)	19	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorodecanoic acid (PFDA)	2.8	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
N-EtFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
N-MeFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorohexanesulfonic acid (PFHxS)	16	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	20	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluoroheptanoic acid (PFHpA)	7.3	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorooctanoic acid (PFOA)	10	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorooctanesulfonic acid (PFOS)	54	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH
Perfluorononanoic acid (PFNA)	6.2	1.8	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:42	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22D0006

Date Received: 4/1/2022

Field Sample #: RB-1(S) | Sampled: 3/31/2022 13:00

Sample ID: 22D0006-02

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)	5.7	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluoropentanoic acid (PFPeA)	13	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorohexanoic acid (PFHxA)	8.9	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
N-EtFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
N-MeFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorohexanesulfonic acid (PFHxS)	22	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluoroheptanoic acid (PFHpA)	5.1	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorooctanoic acid (PFOA)	9.2	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorooctanesulfonic acid (PFOS)	4.5	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH
Perfluorononanoic acid (PFNA)	2.9	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:49	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA
Sample Description:
Work Order: 22D0006

Date Received: 4/1/2022

Field Sample #: HW-S(S)
Sampled: 3/31/2022 11:00

Sample ID: 22D0006-03

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)	46	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorobutanesulfonic acid (PFBS)	2.5	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluoropentanoic acid (PFPeA)	180	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorohexanoic acid (PFHxA)	110	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluoroheptanesulfonic acid (PFHpS)	4.9	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
N-EtFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
N-MeFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	2.1	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluoro-1-butanesulfonamide (FBSA)	2.5	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorohexanesulfonic acid (PFHxS)	41	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluoropetanesulfonic acid (PFPeS)	4.6	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluoroheptanoic acid (PFHpA)	61	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorooctanoic acid (PFOA)	50	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorooctanesulfonic acid (PFOS)	48	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH
Perfluorononanoic acid (PFNA)	43	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 4:56	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22D0006

Date Received: 4/1/2022

Field Sample #: HW-300 | Sampled: 3/31/2022 13:00

Sample ID: 22D0006-04

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)	3.5	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluoropentanoic acid (PFPeA)	7.7	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorohexanoic acid (PFHxA)	4.4	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
N-EtFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
N-MeFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorohexanesulfonic acid (PFHxS)	6.0	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorooctanoic acid (PFOA)	3.3	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorooctanesulfonic acid (PFOS)	12	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/7/22	4/15/22 5:04	BLH

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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22D0006-01 [RB-1(M)]	B305015	282	1.00	04/07/22
22D0006-02 [RB-1(S)]	B305015	267	1.00	04/07/22
22D0006-03 [HW-S(S)]	B305015	262	1.00	04/07/22
22D0006-04 [HW-300]	B305015	267	1.00	04/07/22

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B305015 - SOP 454-PFAAS										
Blank (B305015-BLK1)				Prepared: 04/07/22 Analyzed: 04/15/22						
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 Minor)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Major)	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	ND	1.8	ng/L							
N-MeFOSAA	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							
Perfluoropetanesulfonic 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 (B305015-BS1)				Prepared: 04/07/22 Analyzed: 04/15/22						
Perfluorobutanoic acid (PFBA)	7.85	1.8	ng/L	9.07		86.5	73-129			
Perfluorobutanesulfonic acid (PFBS)	6.95	1.8	ng/L	8.03		86.5	72-130			
Perfluoropentanoic acid (PFPeA)	7.80	1.8	ng/L	9.07		86.0	72-129			
Perfluorohexanoic acid (PFHxA)	7.61	1.8	ng/L	9.07		83.9	72-129			
11Cl-PF3OUdS (F53B Minor)	8.17	1.8	ng/L	8.54		95.7	50-150			
9Cl-PF3ONS (F53B Major)	10.1	1.8	ng/L	8.45		119	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	5.60	1.8	ng/L	8.54		65.6	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.30	1.8	ng/L	9.07		80.5	50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	7.84	1.8	ng/L	8.71		90.1	67-138			
Perfluorodecanoic acid (PFDA)	7.54	1.8	ng/L	9.07		83.2	71-129			
Perfluorododecanoic acid (PFDoA)	7.85	1.8	ng/L	9.07		86.5	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	6.37	1.8	ng/L	8.07		79.0	50-150			

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B305015 - SOP 454-PFAAS										
LCS (B305015-BS1)				Prepared: 04/07/22 Analyzed: 04/15/22						
Perfluoroheptanesulfonic acid (PFHpS)	6.46	1.8	ng/L	8.66		74.6	69-134			
N-EtFOSAA	8.46	1.8	ng/L	9.07		93.3	61-135			
N-MeFOSAA	8.68	1.8	ng/L	9.07		95.7	65-136			
Perfluorotetradecanoic acid (PFTA)	8.07	1.8	ng/L	9.07		88.9	71-132			
Perfluorotridecanoic acid (PFTrDA)	7.87	1.8	ng/L	9.07		86.8	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	7.52	1.8	ng/L	8.48		88.6	63-143			
Perfluorodecanesulfonic acid (PFDS)	6.60	1.8	ng/L	8.75		75.4	53-142			
Perfluorooctanesulfonamide (FOSA)	7.81	1.8	ng/L	9.07		86.2	67-137			
Perfluorononanesulfonic acid (PFNS)	8.01	1.8	ng/L	8.71		92.0	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	7.10	1.8	ng/L	9.07		78.3	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	6.77	1.8	ng/L	9.07		74.6	50-150			
Perfluorohexanesulfonic acid (PFHxS)	7.21	1.8	ng/L	8.30		86.9	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	6.68	1.8	ng/L	9.07		73.7	50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	6.67	1.8	ng/L	9.07		73.6	50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	7.58	1.8	ng/L	8.62		88.0	64-140			
Perfluoropetanesulfonic acid (PFPeS)	8.63	1.8	ng/L	8.52		101	71-127			
Perfluoroundecanoic acid (PFUnA)	7.21	1.8	ng/L	9.07		79.5	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	7.61	1.8	ng/L	9.07		83.9	50-150			
Perfluoroheptanoic acid (PFHpA)	7.05	1.8	ng/L	9.07		77.7	72-130			
Perfluorooctanoic acid (PFOA)	8.06	1.8	ng/L	9.07		88.8	71-133			
Perfluorooctanesulfonic acid (PFOS)	6.51	1.8	ng/L	8.39		77.7	65-140			
Perfluorononanoic acid (PFNA)	7.33	1.8	ng/L	9.07		80.8	69-130			
Batch B306011 - SOP 454-PFAAS										
Blank (B306011-BLK1)				Prepared: 04/18/22 Analyzed: 04/20/22						
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 Minor)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Major)	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	ND	1.8	ng/L							
N-MeFOSAA	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							

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B306011 - SOP 454-PFAAS											
Blank (B306011-BLK1)				Prepared: 04/18/22 Analyzed: 04/20/22							
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								
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	ng/L								
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L								L-03
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L								
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L								L-03
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 (B306011-BS1)				Prepared: 04/18/22 Analyzed: 04/20/22							
Perfluorobutanoic acid (PFBA)	6.75	1.8	ng/L	9.18		73.5		73-129			
Perfluorobutanesulfonic acid (PFBS)	5.95	1.8	ng/L	8.13		73.3		72-130			
Perfluoropentanoic acid (PFPeA)	6.88	1.8	ng/L	9.18		75.0		72-129			
Perfluorohexanoic acid (PFHxA)	6.87	1.8	ng/L	9.18		74.8		72-129			
11Cl-PF3OUdS (F53B Minor)	5.27	1.8	ng/L	8.65		60.9		50-150			
9Cl-PF3ONS (F53B Major)	6.34	1.8	ng/L	8.56		74.1		50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	5.39	1.8	ng/L	8.65		62.3		50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.15	1.8	ng/L	9.18		67.0		50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	7.40	1.8	ng/L	8.81		84.0		67-138			
Perfluorodecanoic acid (PFDA)	7.19	1.8	ng/L	9.18		78.3		71-129			
Perfluorododecanoic acid (PFDoA)	6.86	1.8	ng/L	9.18		74.7		72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	5.67	1.8	ng/L	8.17		69.4		50-150			
Perfluoroheptanesulfonic acid (PFHpS)	6.93	1.8	ng/L	8.77		79.0		69-134			
N-EtFOSAA	7.92	1.8	ng/L	9.18		86.3		61-135			
N-MeFOSAA	7.17	1.8	ng/L	9.18		78.1		65-136			
Perfluorotetradecanoic acid (PFTA)	6.97	1.8	ng/L	9.18		75.9		71-132			
Perfluorotridecanoic acid (PFTrDA)	6.67	1.8	ng/L	9.18		72.6		65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	6.52	1.8	ng/L	8.58		76.0		63-143			
Perfluorodecanesulfonic acid (PFDS)	5.06	1.8	ng/L	8.86		57.1		53-142			
Perfluorooctanesulfonamide (FOSA)	6.66	1.8	ng/L	9.18		72.5		67-137			
Perfluorononanesulfonic acid (PFNS)	6.25	1.8	ng/L	8.81		70.9		69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	7.00	1.8	ng/L	9.18		76.3		50-150			
Perfluoro-1-butanesulfonamide (FBSA)	5.98	1.8	ng/L	9.18		65.2		50-150			
Perfluorohexanesulfonic acid (PFHxS)	6.18	1.8	ng/L	8.40		73.6		68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	6.12	1.8	ng/L	9.18		66.7		50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	6.37	1.8	ng/L	9.18		69.4		50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	6.40	1.8	ng/L	8.72		73.3		64-140			
Perfluoropetanesulfonic acid (PFPeS)	6.63	1.8	ng/L	8.63		76.8		71-127			
Perfluoroundecanoic acid (PFUnA)	6.11	1.8	ng/L	9.18		**66.5**	*	69-133			L-03
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.26	1.8	ng/L	9.18		68.2		50-150			
Perfluoroheptanoic acid (PFHpA)	6.41	1.8	ng/L	9.18		**69.8**	*	72-130			L-03
Perfluorooctanoic acid (PFOA)	7.78	1.8	ng/L	9.18		84.7		71-133			
Perfluorooctanesulfonic acid (PFOS)	6.09	1.8	ng/L	8.49		71.7		65-140			
Perfluorononanoic acid (PFNA)	6.86	1.8	ng/L	9.18		74.7		69-130			

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

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-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.
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
PF-19	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects. Original results reported.
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.

con-test®
A Pace Analytical® Laboratory

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
RB-1(M) (22D0006-01)			Lab File ID: 22D0006-01.d			Analyzed: 04/15/22 04:42			
M8FOSA	186782	4.044517	268,147.00	4.044517	70	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	42287.57	2.58715	86,178.00	2.58715	49	50 - 150	0.0000	+/-0.50	*
M2PFTA	720602.4	4.354033	850,063.00	4.354033	85	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	67284.1	3.842967	78,483.00	3.842967	86	50 - 150	0.0000	+/-0.50	
MPFBA	576498.8	1.108317	526,018.00	1.116633	110	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	177747.2	2.91295	184,514.00	2.91295	96	50 - 150	0.0000	+/-0.50	
M6PFDA	475910.5	3.843467	508,640.00	3.84345	94	50 - 150	0.0000	+/-0.50	
M3PFBS	115501.2	1.978033	113,294.00	1.986217	102	50 - 150	-0.0082	+/-0.50	
M7PFUnA	560339.4	3.986	647,332.00	3.986	87	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	26806.19	3.493333	52,187.00	3.493333	51	50 - 150	0.0000	+/-0.50	
M5PFPeA	487626	1.791367	462,050.00	1.79965	106	50 - 150	-0.0083	+/-0.50	
M5PFHxA	606771.8	2.672333	634,911.00	2.680533	96	50 - 150	-0.0082	+/-0.50	
M3PFHxS	68812.05	3.266833	77,679.00	3.266817	89	50 - 150	0.0000	+/-0.50	
M4PFHpA	531626.2	3.2357	598,102.00	3.2357	89	50 - 150	0.0000	+/-0.50	
M8PFOA	444899.8	3.50185	517,972.00	3.50185	86	50 - 150	0.0000	+/-0.50	
M8PFOS	83328.19	3.692083	88,643.00	3.692083	94	50 - 150	0.0000	+/-0.50	
M9PFNA	375210.8	3.685133	509,245.00	3.685133	74	50 - 150	0.0000	+/-0.50	
MPFDoA	580902.4	4.120767	647,636.00	4.120767	90	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	119315.8	3.993467	168,108.00	3.993467	71	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	155765.2	3.913883	200,513.00	3.913883	78	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
RB-1(S) (22D0006-02)			Lab File ID: 22D0006-02.d			Analyzed: 04/15/22 04:49			
M8FOSA	202290.4	4.044517	268,147.00	4.044517	75	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	44826.69	2.58715	86,178.00	2.58715	52	50 - 150	0.0000	+/-0.50	
M2PFTA	682797.2	4.354033	850,063.00	4.354033	80	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	58817	3.842967	78,483.00	3.842967	75	50 - 150	0.0000	+/-0.50	
MPFBA	584770.4	1.108317	526,018.00	1.116633	111	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	162548.4	2.91295	184,514.00	2.91295	88	50 - 150	0.0000	+/-0.50	
M6PFDA	484917.1	3.84345	508,640.00	3.84345	95	50 - 150	0.0000	+/-0.50	
M3PFBS	112413	1.978033	113,294.00	1.986217	99	50 - 150	-0.0082	+/-0.50	
M7PFUnA	573849.6	3.986	647,332.00	3.986	89	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	29074.64	3.493333	52,187.00	3.493333	56	50 - 150	0.0000	+/-0.50	
M5PFPeA	493871.9	1.791367	462,050.00	1.79965	107	50 - 150	-0.0083	+/-0.50	
M5PFHxA	609201.6	2.672333	634,911.00	2.680533	96	50 - 150	-0.0082	+/-0.50	
M3PFHxS	62155.32	3.266817	77,679.00	3.266817	80	50 - 150	0.0000	+/-0.50	
M4PFHpA	542023.1	3.2357	598,102.00	3.2357	91	50 - 150	0.0000	+/-0.50	
M8PFOA	451088.7	3.50185	517,972.00	3.50185	87	50 - 150	0.0000	+/-0.50	
M8PFOS	82376.38	3.684083	88,643.00	3.692083	93	50 - 150	-0.0080	+/-0.50	
M9PFNA	390290.6	3.685133	509,245.00	3.685133	77	50 - 150	0.0000	+/-0.50	
MPFDoA	513002.9	4.120767	647,636.00	4.120767	79	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	132305.5	3.993467	168,108.00	3.993467	79	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	162328.5	3.913883	200,513.00	3.913883	81	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-S(S) (22D0006-03)			Lab File ID: 22D0006-03.d			Analyzed: 04/15/22 04:56			
M8FOSA	188908.5	4.044517	268,147.00	4.044517	70	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	42082.31	2.595367	86,178.00	2.58715	49	50 - 150	0.0082	+/-0.50	*
M2PFTA	666320.3	4.354033	850,063.00	4.354033	78	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	54158.1	3.842967	78,483.00	3.842967	69	50 - 150	0.0000	+/-0.50	
MPFBA	520876.9	1.116633	526,018.00	1.116633	99	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	173352	2.91295	184,514.00	2.91295	94	50 - 150	0.0000	+/-0.50	
M6PFDA	424440.3	3.84345	508,640.00	3.84345	83	50 - 150	0.0000	+/-0.50	
M3PFBS	107312.7	1.978033	113,294.00	1.986217	95	50 - 150	-0.0082	+/-0.50	
M7PFUnA	557152.5	3.986	647,332.00	3.986	86	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	113726.1	3.493333	52,187.00	3.493333	218	50 - 150	0.0000	+/-0.50	*
M5PFPeA	446730.8	1.79965	462,050.00	1.79965	97	50 - 150	0.0000	+/-0.50	
M5PFHxA	559738.1	2.680533	634,911.00	2.680533	88	50 - 150	0.0000	+/-0.50	
M3PFHxS	59270.97	3.266817	77,679.00	3.266817	76	50 - 150	0.0000	+/-0.50	
M4PFHpA	492805.1	3.2357	598,102.00	3.2357	82	50 - 150	0.0000	+/-0.50	
M8PFOA	400562.4	3.50185	517,972.00	3.50185	77	50 - 150	0.0000	+/-0.50	
M8PFOS	73982.85	3.684083	88,643.00	3.692083	83	50 - 150	-0.0080	+/-0.50	
M9PFNA	367966.6	3.685133	509,245.00	3.685133	72	50 - 150	0.0000	+/-0.50	
MPFDoA	540260.3	4.120767	647,636.00	4.120767	83	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	113096.1	3.993467	168,108.00	3.993467	67	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	150519.1	3.913883	200,513.00	3.913883	75	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-300 (22D0006-04)			Lab File ID: 22D0006-04.d			Analyzed: 04/15/22 05:04			
M8FOSA	196741.4	4.044517	268,147.00	4.044517	73	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	37105.72	2.58715	86,178.00	2.58715	43	50 - 150	0.0000	+/-0.50	*
M2PFTA	707606.9	4.354033	850,063.00	4.354033	83	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	53917.48	3.842967	78,483.00	3.842967	69	50 - 150	0.0000	+/-0.50	
MPFBA	544399.1	1.108317	526,018.00	1.116633	103	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	187256.6	2.91295	184,514.00	2.91295	101	50 - 150	0.0000	+/-0.50	
M6PFDA	455417.2	3.84345	508,640.00	3.84345	90	50 - 150	0.0000	+/-0.50	
M3PFBS	107166.9	1.978033	113,294.00	1.986217	95	50 - 150	-0.0082	+/-0.50	
M7PFUnA	558361.8	3.986	647,332.00	3.986	86	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	25962.68	3.493333	52,187.00	3.493333	50	50 - 150	0.0000	+/-0.50	
M5PFPeA	466633.3	1.791367	462,050.00	1.79965	101	50 - 150	-0.0083	+/-0.50	
M5PFHxA	584848.7	2.680533	634,911.00	2.680533	92	50 - 150	0.0000	+/-0.50	
M3PFHxS	63290.39	3.266817	77,679.00	3.266817	81	50 - 150	0.0000	+/-0.50	
M4PFHpA	501634.4	3.2357	598,102.00	3.2357	84	50 - 150	0.0000	+/-0.50	
M8PFOA	440712	3.50185	517,972.00	3.50185	85	50 - 150	0.0000	+/-0.50	
M8PFOS	79240.64	3.684083	88,643.00	3.692083	89	50 - 150	-0.0080	+/-0.50	
M9PFNA	379182.6	3.685133	509,245.00	3.685133	74	50 - 150	0.0000	+/-0.50	
MPFDoA	559786.2	4.120767	647,636.00	4.120767	86	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	134474.6	3.993467	168,108.00	3.993467	80	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	149289.7	3.913883	200,513.00	3.913883	74	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 (B305015-BLK1)			Lab File ID: B305015-BLK1.d			Analyzed: 04/15/22 02:11			
M8FOSA	238765.2	4.044517	268,147.00	4.044517	89	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	89265.37	2.595367	86,178.00	2.58715	104	50 - 150	0.0082	+/-0.50	
M2PFTA	806387.9	4.354033	850,063.00	4.354033	95	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	92032.09	3.842967	78,483.00	3.842967	117	50 - 150	0.0000	+/-0.50	
MPFBA	642698.3	1.116633	526,018.00	1.108317	122	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	167169	2.91295	184,514.00	2.91295	91	50 - 150	0.0000	+/-0.50	
M6PFDA	516388.9	3.84345	508,640.00	3.84345	102	50 - 150	0.0000	+/-0.50	
M3PFBS	127887.2	1.978033	113,294.00	1.978033	113	50 - 150	0.0000	+/-0.50	
M7PFUnA	667931.8	3.986	647,332.00	3.986	103	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	49351.39	3.493333	52,187.00	3.493333	95	50 - 150	0.0000	+/-0.50	
M5PFPeA	528533.6	1.79965	462,050.00	1.791367	114	50 - 150	0.0083	+/-0.50	
M5PFHxA	701127.2	2.680533	634,911.00	2.672333	110	50 - 150	0.0082	+/-0.50	
M3PFHxS	77551.09	3.266817	77,679.00	3.266817	100	50 - 150	0.0000	+/-0.50	
M4PFHpA	660190.9	3.2357	598,102.00	3.2357	110	50 - 150	0.0000	+/-0.50	
M8PFOA	557903	3.50185	517,972.00	3.50185	108	50 - 150	0.0000	+/-0.50	
M8PFOS	96787.57	3.692083	88,643.00	3.692083	109	50 - 150	0.0000	+/-0.50	
M9PFNA	467651.6	3.693117	509,245.00	3.693117	92	50 - 150	0.0000	+/-0.50	
MPFDoA	659226.8	4.120767	647,636.00	4.120767	102	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	161203.6	3.993467	168,108.00	3.993467	96	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	187927.4	3.913883	200,513.00	3.913883	94	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B305015-BS1)			Lab File ID: B305015-BS1.d			Analyzed: 04/15/22 02:03			
M8FOSA	211602.7	4.044517	268,147.00	4.044517	79	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	78701.67	2.58715	86,178.00	2.58715	91	50 - 150	0.0000	+/-0.50	
M2PFTA	728655.3	4.354033	850,063.00	4.354033	86	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	74454.76	3.842967	78,483.00	3.842967	95	50 - 150	0.0000	+/-0.50	
MPFBA	581241.1	1.116633	526,018.00	1.108317	110	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	199090.9	2.91295	184,514.00	2.91295	108	50 - 150	0.0000	+/-0.50	
M6PFDA	493477.9	3.84345	508,640.00	3.84345	97	50 - 150	0.0000	+/-0.50	
M3PFBS	116225.7	1.978033	113,294.00	1.978033	103	50 - 150	0.0000	+/-0.50	
M7PFUnA	626995.8	3.986	647,332.00	3.986	97	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	41592.58	3.493333	52,187.00	3.493333	80	50 - 150	0.0000	+/-0.50	
M5PFPeA	479747.8	1.79965	462,050.00	1.791367	104	50 - 150	0.0083	+/-0.50	
M5PFHxA	639194	2.680533	634,911.00	2.672333	101	50 - 150	0.0082	+/-0.50	
M3PFHxS	73931.11	3.266817	77,679.00	3.266817	95	50 - 150	0.0000	+/-0.50	
M4PFHpA	625292.2	3.2357	598,102.00	3.2357	105	50 - 150	0.0000	+/-0.50	
M8PFOA	543657	3.50185	517,972.00	3.50185	105	50 - 150	0.0000	+/-0.50	
M8PFOS	91895.6	3.692083	88,643.00	3.692083	104	50 - 150	0.0000	+/-0.50	
M9PFNA	430729.6	3.693117	509,245.00	3.693117	85	50 - 150	0.0000	+/-0.50	
MPFDoA	576254.5	4.120767	647,636.00	4.120767	89	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	135395	3.993467	168,108.00	3.993467	81	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	165888.7	3.913883	200,513.00	3.913883	83	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 (B306011-BLK1)			Lab File ID: B306011-BLK1.d			Analyzed: 04/20/22 18:12			
M8FOSA	390916.9	4.044517	378,123.00	4.044517	103	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	201349	2.603583	179,573.00	2.595367	112	50 - 150	0.0082	+/-0.50	
M2PFTA	1098022	4.370283	1,230,238.00	4.370283	89	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	309044.6	3.850917	237,838.00	3.850917	130	50 - 150	0.0000	+/-0.50	
MPFBA	931623.3	1.116633	694,686.00	1.116633	134	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	242158.5	2.921133	193,884.00	2.921133	125	50 - 150	0.0000	+/-0.50	
M6PFDA	903744.1	3.851417	769,309.00	3.851417	117	50 - 150	0.0000	+/-0.50	
M3PFBS	218983.9	1.986217	182,019.00	1.978033	120	50 - 150	0.0082	+/-0.50	
M7PFUnA	1025295	4.001983	962,444.00	3.993983	107	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	125491.2	3.501317	97,273.00	3.501317	129	50 - 150	0.0000	+/-0.50	
M5PFPeA	754892.9	1.79965	604,770.00	1.79965	125	50 - 150	0.0000	+/-0.50	
M5PFHxA	1147077	2.696967	917,609.00	2.680533	125	50 - 150	0.0164	+/-0.50	
M3PFHxS	162869.3	3.28425	134,138.00	3.276217	121	50 - 150	0.0080	+/-0.50	
M4PFHpA	1098264	3.243783	888,102.00	3.243783	124	50 - 150	0.0000	+/-0.50	
M8PFOA	1068945	3.51815	838,987.00	3.51815	127	50 - 150	0.0000	+/-0.50	
M8PFOS	156994.1	3.700067	126,484.00	3.700067	124	50 - 150	0.0000	+/-0.50	
M9PFNA	818690.6	3.7011	672,493.00	3.7011	122	50 - 150	0.0000	+/-0.50	
MPFDoA	898557.1	4.136817	1,026,235.00	4.136817	88	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	255997.8	4.00945	223,546.00	4.00945	115	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	278167.4	3.929883	275,452.00	3.929883	101	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B306011-BS1)			Lab File ID: B306011-BS1.d			Analyzed: 04/20/22 18:05			
M8FOSA	451313.5	4.044517	378,123.00	4.044517	119	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	229205.3	2.595367	179,573.00	2.595367	128	50 - 150	0.0000	+/-0.50	
M2PFTA	1285343	4.370283	1,230,238.00	4.370283	104	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	337259.5	3.850917	237,838.00	3.850917	142	50 - 150	0.0000	+/-0.50	
MPFBA	1015358	1.116633	694,686.00	1.116633	146	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	312528.8	2.929717	193,884.00	2.921133	161	50 - 150	0.0086	+/-0.50	*
M6PFDA	1059179	3.851417	769,309.00	3.851417	138	50 - 150	0.0000	+/-0.50	
M3PFBS	247803	1.978033	182,019.00	1.978033	136	50 - 150	0.0000	+/-0.50	
M7PFUnA	1271493	4.001983	962,444.00	3.993983	132	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	144885.7	3.501317	97,273.00	3.501317	149	50 - 150	0.0000	+/-0.50	
M5PFPeA	832169.9	1.79965	604,770.00	1.79965	138	50 - 150	0.0000	+/-0.50	
M5PFHxA	1254431	2.68875	917,609.00	2.680533	137	50 - 150	0.0082	+/-0.50	
M3PFHxS	180075.7	3.276217	134,138.00	3.276217	134	50 - 150	0.0000	+/-0.50	
M4PFHpA	1234556	3.243783	888,102.00	3.243783	139	50 - 150	0.0000	+/-0.50	
M8PFOA	1074844	3.51015	838,987.00	3.51815	128	50 - 150	-0.0080	+/-0.50	
M8PFOS	170893.7	3.700067	126,484.00	3.700067	135	50 - 150	0.0000	+/-0.50	
M9PFNA	861230.9	3.7011	672,493.00	3.7011	128	50 - 150	0.0000	+/-0.50	
MPFDoA	1164367	4.136817	1,026,235.00	4.136817	113	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	258809.7	4.00945	223,546.00	4.00945	116	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	350063	3.929883	275,452.00	3.929883	127	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Minor)	NH-P
9Cl-PF3ONS (F53B Major)	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 (PFEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA	NH-P
N-MeFOSAA	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-butanesulfonamide (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
Perfluoropetanesulfonic 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

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

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

22D0006

con-test ANALYTICAL LABORATORY

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

http://www.contestlabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 2_06262019

Page ____ of ____

Company Name:	Horsley Witten Group
Address:	90 Route 6A Sandwich MA
Phone:	508 833 6600
Project Name:	Barnstable Municipal Airport
Project Location:	Hyannis, MA
Project Number:	21084
Project Manager:	Bryan Massa
Con-Test Quote Name/Number:	
Invoice Recipient:	
Sampled By:	SB + CA

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

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

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

Potable Water Samples?
○ Field Filtered
○ Lab to Filter

Drinking Water Samples?
○ Field Filtered
○ Lab to Filter

ANALYSIS REQUESTED

PFAS ISOTOPE

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1] Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS ISOTOPE
1	RB-1(M)	3/31	12:10	grab	GW				X			X
2	RB-1(S)		13:00						X			X
3	HW-S(S)		11:00						X			X
	HW-S(S) MS		11:00						X			X
	HW-S(S) MSD		11:00						X			X
4	HW-300		13:00						X			X

[2] Preservation Code

Container Type Only

Total Number Of:

VIALS
GLASS
PLASTIC 27
BACTERIA
ENCORE

Glassware in the fridge? Y / N

Glassware in freezer? Y / N

Prepackaged Cooler? Y / N

*Contest is not responsible for missing samples from prepacked coolers

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

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

Relinquished by: (signature)	Date/Time: 4/1 9:30
Received by: (signature)	Date/Time: 4/1/22 0945
Relinquished by: (signature)	Date/Time: 4/1/22 1745
Received by: (signature)	Date/Time: 4/1/22 1745
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments:

Data Turnaround Requirements:
MA GW-1
Other

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

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

NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Comments:

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

Table of Contents

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

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

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

Client Hawley Witten

Received By _____ Date 4/1/22 Time 1745

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

By Gun # 3 Actual Temp - 2.0

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

Was Custody Seal Intact? n/a Were Samples Tampered with? n/a

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

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

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

Did COC include all pertinent Information? Client T Project T Analysis T ID's T Sampler Name T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? n/a MS/MSD? T

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? Acid n/a Base n/a

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	12	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

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

Comments:

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

April 25, 2022

Bryan Massa
Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563

Project Location: Hyannis, MA
Client Job Number:
Project Number: 21084
Laboratory Work Order Number: 22D0007

Enclosed are results of analyses for samples as received by the laboratory on April 1, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Matthew J Beaupre
Project Manager

Table of Contents

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

Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563
ATTN: Bryan Massa

REPORT DATE: 4/25/2022

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 21084

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22D0007

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

PROJECT LOCATION: Hyannis, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
HW-2	22D0007-01	Ground Water		SOP-454 PFAS	
HW-K	22D0007-02	Ground Water		SOP-454 PFAS	
HW-3	22D0007-03	Ground Water		SOP-454 PFAS	
HW-302	22D0007-04	Ground Water		SOP-454 PFAS	
HW-4M	22D0007-05	Ground Water		SOP-454 PFAS	
HW-5	22D0007-06	Ground Water		SOP-454 PFAS	
HW-S(M)	22D0007-07	Ground Water		SOP-454 PFAS	

con-test®
A Pace Analytical® Laboratory

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

CASE NARRATIVE SUMMARY

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

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
22D0007-06[HW-5]

M2-8:2FTS
22D0007-06[HW-5]

PF-18

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

Analyte & Samples(s) Qualified:

M2-4:2FTS
22D0007-04RE1[HW-302]

M2-8:2FTS
22D0007-04RE1[HW-302]

M2PFTA
22D0007-04RE1[HW-302]

M8FOSA
22D0007-04RE1[HW-302]

MPFDoA
22D0007-04RE1[HW-302]

PF-19

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

Analyte & Samples(s) Qualified:

M2-4:2FTS
22D0007-02[HW-K]

M2PFTA
22D0007-05[HW-4M]

M8FOSA
22D0007-05[HW-4M]

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

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA
Sample Description:
Work Order: 22D0007

Date Received: 4/1/2022

Field Sample #: HW-2
Sampled: 3/25/2022 10:00

Sample ID: 22D0007-01

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)	6.1	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluoropentanoic acid (PFPeA)	25	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorohexanoic acid (PFHxA)	14	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
N-EtFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
N-MeFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorohexanesulfonic acid (PFHxS)	9.0	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	52	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluoroheptanoic acid (PFHpA)	11	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorooctanoic acid (PFOA)	10	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorooctanesulfonic acid (PFOS)	24	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH
Perfluorononanoic acid (PFNA)	5.2	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:52	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA
Sample Description:
Work Order: 22D0007

Date Received: 4/1/2022

Field Sample #: HW-K
Sampled: 3/25/2022 11:45

Sample ID: 22D0007-02

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)	28	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluoropentanoic acid (PFPeA)	78	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorohexanoic acid (PFHxA)	39	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
N-EtFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
N-MeFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluoroheptanoic acid (PFHpA)	17	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorooctanoic acid (PFOA)	12	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorooctanesulfonic acid (PFOS)	3.7	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH
Perfluorononanoic acid (PFNA)	8.7	1.9	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 4:59	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA
Sample Description:
Work Order: 22D0007

Date Received: 4/1/2022

Field Sample #: HW-3
Sampled: 3/25/2022 12:15

Sample ID: 22D0007-03

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)	30	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorobutanesulfonic acid (PFBS)	2.2	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluoropentanoic acid (PFPeA)	120	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorohexanoic acid (PFHxA)	63	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	4.8	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
N-EtFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
N-MeFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluoro-1-butanesulfonamide (FBSA)	2.5	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorohexanesulfonic acid (PFHxS)	13	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	140	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluoropetanesulfonic acid (PFPeS)	3.2	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluoroundecanoic acid (PFUnA)	2.4	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluoroheptanoic acid (PFHpA)	20	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorooctanoic acid (PFOA)	6.9	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorooctanesulfonic acid (PFOS)	24	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH
Perfluorononanoic acid (PFNA)	3.9	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:49	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22D0007

Date Received: 4/1/2022

Field Sample #: HW-302 | Sampled: 3/25/2022 12:45

Sample ID: 22D0007-04

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)	9.7	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorobutanesulfonic acid (PFBS)	2.6	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluoropentanoic acid (PFPeA)	30	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorohexanoic acid (PFHxA)	19	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
9Cl-PF3ONS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	3.2	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
N-EtFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
N-MeFOSAA	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorohexanesulfonic acid (PFHxS)	13	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	72	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluoropetanesulfonic acid (PFPeS)	2.9	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluoroundecanoic acid (PFUnA)	6.8	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluoroheptanoic acid (PFHpA)	9.2	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorooctanoic acid (PFOA)	17	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorooctanesulfonic acid (PFOS)	9.5	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH
Perfluorononanoic acid (PFNA)	20	1.9	ng/L	1		SOP-454 PFAS	4/19/22	4/22/22 3:57	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22D0007

Date Received: 4/1/2022

Field Sample #: HW-4M | Sampled: 3/25/2022 13:15

Sample ID: 22D0007-05

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)	4.2	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorobutanesulfonic acid (PFBS)	2.5	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluoropentanoic acid (PFPeA)	3.4	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorohexanoic acid (PFHxA)	5.8	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
N-EtFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
N-MeFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorohexanesulfonic acid (PFHxS)	11	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluoroheptanoic acid (PFHpA)	3.0	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorooctanoic acid (PFOA)	13	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorooctanesulfonic acid (PFOS)	25	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:21	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22D0007

Date Received: 4/1/2022

Field Sample #: HW-5 | Sampled: 3/25/2022 14:10

Sample ID: 22D0007-06

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)	5.8	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluoropentanoic acid (PFPeA)	3.0	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorohexanoic acid (PFHxA)	6.9	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
N-EtFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
N-MeFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorohexanesulfonic acid (PFHxS)	13	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluoroheptanoic acid (PFHpA)	4.8	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorooctanoic acid (PFOA)	23	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorooctanesulfonic acid (PFOS)	48	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:28	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA
Sample Description:
Work Order: 22D0007

Date Received: 4/1/2022

Field Sample #: HW-S(M)
Sampled: 3/25/2022 15:40

Sample ID: 22D0007-07

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)	1.8	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluoropentanoic acid (PFPeA)	4.9	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorohexanoic acid (PFHxA)	3.6	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
N-EtFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
N-MeFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorohexanesulfonic acid (PFHxS)	2.6	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	23	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorooctanoic acid (PFOA)	1.9	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorooctanesulfonic acid (PFOS)	5.2	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	4/11/22	4/16/22 5:35	BLH

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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22D0007-01 [HW-2]	B305014	278	1.00	04/11/22
22D0007-02 [HW-K]	B305014	269	1.00	04/11/22
22D0007-05 [HW-4M]	B305014	280	1.00	04/11/22
22D0007-06 [HW-5]	B305014	271	1.00	04/11/22
22D0007-07 [HW-S(M)]	B305014	279	1.00	04/11/22

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22D0007-03RE1 [HW-3]	B306074	264	1.00	04/19/22
22D0007-04RE1 [HW-302]	B306074	262	1.00	04/19/22

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B305014 - SOP 454-PFAAS										
Blank (B305014-BLK1)				Prepared: 04/11/22 Analyzed: 04/16/22						
Perfluorobutanoic acid (PFBA)	ND	1.7	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.7	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.7	ng/L							
11Cl-PF3OUdS (F53B Minor)	ND	1.7	ng/L							
9Cl-PF3ONS (F53B Major)	ND	1.7	ng/L							
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.7	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.7	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	ng/L							
N-EtFOSAA	ND	1.7	ng/L							
N-MeFOSAA	ND	1.7	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.7	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	ng/L							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.7	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	1.7	ng/L							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	ng/L							
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	ng/L							
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	ng/L							
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	ng/L							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.7	ng/L							
Perfluoropetanesulfonic acid (PFPeS)	ND	1.7	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.7	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.7	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.7	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.7	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.7	ng/L							
LCS (B305014-BS1)				Prepared: 04/11/22 Analyzed: 04/16/22						
Perfluorobutanoic acid (PFBA)	8.44	1.8	ng/L	8.76		96.3	73-129			
Perfluorobutanesulfonic acid (PFBS)	7.31	1.8	ng/L	7.76		94.3	72-130			
Perfluoropentanoic acid (PFPeA)	8.52	1.8	ng/L	8.76		97.2	72-129			
Perfluorohexanoic acid (PFHxA)	8.30	1.8	ng/L	8.76		94.8	72-129			
11Cl-PF3OUdS (F53B Minor)	8.11	1.8	ng/L	8.26		98.3	50-150			
9Cl-PF3ONS (F53B Major)	12.0	1.8	ng/L	8.17		147	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	6.03	1.8	ng/L	8.26		73.0	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.67	1.8	ng/L	8.76		98.9	50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.29	1.8	ng/L	8.41		98.5	67-138			
Perfluorodecanoic acid (PFDA)	7.75	1.8	ng/L	8.76		88.5	71-129			
Perfluorododecanoic acid (PFDoA)	8.17	1.8	ng/L	8.76		93.2	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	6.41	1.8	ng/L	7.80		82.2	50-150			

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B305014 - SOP 454-PFAAS										
LCS (B305014-BS1)				Prepared: 04/11/22 Analyzed: 04/16/22						
Perfluoroheptanesulfonic acid (PFHpS)	6.21	1.8	ng/L	8.37		74.2	69-134			
N-EtFOSAA	8.86	1.8	ng/L	8.76		101	61-135			
N-MeFOSAA	9.85	1.8	ng/L	8.76		112	65-136			
Perfluorotetradecanoic acid (PFTA)	8.34	1.8	ng/L	8.76		95.2	71-132			
Perfluorotridecanoic acid (PFTrDA)	7.67	1.8	ng/L	8.76		87.5	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.50	1.8	ng/L	8.19		104	63-143			
Perfluorodecanesulfonic acid (PFDS)	6.75	1.8	ng/L	8.46		79.8	53-142			
Perfluorooctanesulfonamide (FOSA)	7.80	1.8	ng/L	8.76		89.0	67-137			
Perfluorononanesulfonic acid (PFNS)	8.35	1.8	ng/L	8.41		99.3	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.23	1.8	ng/L	8.76		93.9	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	7.29	1.8	ng/L	8.76		83.2	50-150			
Perfluorohexanesulfonic acid (PFHxS)	7.57	1.8	ng/L	8.02		94.4	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	7.33	1.8	ng/L	8.76		83.7	50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	6.95	1.8	ng/L	8.76		79.3	50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.20	1.8	ng/L	8.33		98.5	64-140			
Perfluoropetanesulfonic acid (PFPeS)	9.02	1.8	ng/L	8.24		109	71-127			
Perfluoroundecanoic acid (PFUnA)	7.59	1.8	ng/L	8.76		86.6	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.26	1.8	ng/L	8.76		94.2	50-150			
Perfluoroheptanoic acid (PFHpA)	7.91	1.8	ng/L	8.76		90.3	72-130			
Perfluorooctanoic acid (PFOA)	8.91	1.8	ng/L	8.76		102	71-133			
Perfluorooctanesulfonic acid (PFOS)	7.15	1.8	ng/L	8.11		88.2	65-140			
Perfluorononanoic acid (PFNA)	7.38	1.8	ng/L	8.76		84.3	69-130			
Batch B306074 - SOP 454-PFAAS										
Blank (B306074-BLK1)				Prepared: 04/19/22 Analyzed: 04/22/22						
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 Minor)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Major)	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	ND	1.8	ng/L							
N-MeFOSAA	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							

con-test®
A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B306074 - SOP 454-PFAAS										
Blank (B306074-BLK1)				Prepared: 04/19/22 Analyzed: 04/22/22						
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							
Perfluoropetanesulfonic 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 (B306074-BS1)				Prepared: 04/19/22 Analyzed: 04/22/22						
Perfluorobutanoic acid (PFBA)	8.23	1.9	ng/L	9.29		88.6	73-129			
Perfluorobutanesulfonic acid (PFBS)	6.84	1.9	ng/L	8.22		83.2	72-130			
Perfluoropentanoic acid (PFPeA)	7.92	1.9	ng/L	9.29		85.3	72-129			
Perfluorohexanoic acid (PFHxA)	7.77	1.9	ng/L	9.29		83.6	72-129			
11Cl-PF3OUdS (F53B Minor)	5.99	1.9	ng/L	8.75		68.4	50-150			
9Cl-PF3ONS (F53B Major)	7.09	1.9	ng/L	8.66		81.9	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	6.89	1.9	ng/L	8.75		78.7	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.20	1.9	ng/L	9.29		77.5	50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	7.98	1.9	ng/L	8.92		89.4	67-138			
Perfluorodecanoic acid (PFDA)	8.07	1.9	ng/L	9.29		86.8	71-129			
Perfluorododecanoic acid (PFDoA)	8.70	1.9	ng/L	9.29		93.6	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	6.44	1.9	ng/L	8.27		77.8	50-150			
Perfluoroheptanesulfonic acid (PFHpS)	7.95	1.9	ng/L	8.87		89.6	69-134			
N-EtFOSAA	9.39	1.9	ng/L	9.29		101	61-135			
N-MeFOSAA	8.12	1.9	ng/L	9.29		87.4	65-136			
Perfluorotetradecanoic acid (PFTA)	7.90	1.9	ng/L	9.29		85.0	71-132			
Perfluorotridecanoic acid (PFTrDA)	8.28	1.9	ng/L	9.29		89.1	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	7.68	1.9	ng/L	8.69		88.4	63-143			
Perfluorodecanesulfonic acid (PFDS)	6.47	1.9	ng/L	8.97		72.1	53-142			
Perfluorooctanesulfonamide (FOSA)	8.10	1.9	ng/L	9.29		87.2	67-137			
Perfluorononanesulfonic acid (PFNS)	7.27	1.9	ng/L	8.92		81.5	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.09	1.9	ng/L	9.29		87.1	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	6.86	1.9	ng/L	9.29		73.9	50-150			
Perfluorohexanesulfonic acid (PFHxS)	6.92	1.9	ng/L	8.50		81.4	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	7.18	1.9	ng/L	9.29		77.3	50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	7.49	1.9	ng/L	9.29		80.6	50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.55	1.9	ng/L	8.83		96.9	64-140			
Perfluoropetanesulfonic acid (PFPeS)	7.13	1.9	ng/L	8.73		81.6	71-127			
Perfluoroundecanoic acid (PFUnA)	7.54	1.9	ng/L	9.29		81.2	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	7.38	1.9	ng/L	9.29		79.5	50-150			
Perfluoroheptanoic acid (PFHpA)	7.96	1.9	ng/L	9.29		85.6	72-130			
Perfluorooctanoic acid (PFOA)	8.49	1.9	ng/L	9.29		91.4	71-133			
Perfluorooctanesulfonic acid (PFOS)	7.96	1.9	ng/L	8.59		92.6	65-140			
Perfluorononanoic acid (PFNA)	8.33	1.9	ng/L	9.29		89.7	69-130			

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B306074 - SOP 454-PFAAS										
LCS Dup (B306074-BSD1)				Prepared: 04/19/22 Analyzed: 04/22/22						
Perfluorobutanoic acid (PFBA)	7.44	1.8	ng/L	9.13		81.5	73-129	10.1	30	
Perfluorobutanesulfonic acid (PFBS)	6.38	1.8	ng/L	8.08		79.0	72-130	6.88	30	
Perfluoropentanoic acid (PFPeA)	7.27	1.8	ng/L	9.13		79.7	72-129	8.53	30	
Perfluorohexanoic acid (PFHxA)	7.00	1.8	ng/L	9.13		76.7	72-129	10.4	30	
11Cl-PF3OUdS (F53B Minor)	5.80	1.8	ng/L	8.60		67.5	50-150	3.19	30	
9Cl-PF3ONS (F53B Major)	6.84	1.8	ng/L	8.51		80.4	50-150	3.61	30	
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	6.18	1.8	ng/L	8.60		71.9	50-150	10.8	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.36	1.8	ng/L	9.13		80.6	50-150	2.25	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	7.40	1.8	ng/L	8.76		84.4	67-138	7.56	30	
Perfluorodecanoic acid (PFDA)	7.22	1.8	ng/L	9.13		79.1	71-129	11.0	30	
Perfluorododecanoic acid (PFDoA)	7.87	1.8	ng/L	9.13		86.2	72-134	10.1	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	5.99	1.8	ng/L	8.12		73.8	50-150	7.15	30	
Perfluoroheptanesulfonic acid (PFHpS)	7.60	1.8	ng/L	8.72		87.2	69-134	4.48	30	
N-EtFOSAA	8.87	1.8	ng/L	9.13		97.2	61-135	5.69	30	
N-MeFOSAA	7.24	1.8	ng/L	9.13		79.3	65-136	11.4	30	
Perfluorotetradecanoic acid (PFTA)	7.52	1.8	ng/L	9.13		82.4	71-132	4.92	30	
Perfluorotridecanoic acid (PFTrDA)	7.81	1.8	ng/L	9.13		85.6	65-144	5.81	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	7.14	1.8	ng/L	8.53		83.6	63-143	7.30	30	
Perfluorodecanesulfonic acid (PFDS)	6.43	1.8	ng/L	8.81		73.0	53-142	0.626	30	
Perfluorooctanesulfonamide (FOSA)	7.71	1.8	ng/L	9.13		84.4	67-137	4.94	30	
Perfluorononanesulfonic acid (PFNS)	6.75	1.8	ng/L	8.76		77.1	69-127	7.33	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	7.87	1.8	ng/L	9.13		86.2	50-150	2.81	30	
Perfluoro-1-butanesulfonamide (FBSA)	6.34	1.8	ng/L	9.13		69.4	50-150	7.98	30	
Perfluorohexanesulfonic acid (PFHxS)	6.60	1.8	ng/L	8.35		79.1	68-131	4.69	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	6.53	1.8	ng/L	9.13		71.5	50-150	9.52	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	6.91	1.8	ng/L	9.13		75.7	50-150	8.11	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	7.99	1.8	ng/L	8.67		92.1	64-140	6.86	30	
Perfluoropetanesulfonic acid (PFPeS)	6.68	1.8	ng/L	8.58		77.8	71-127	6.52	30	
Perfluoroundecanoic acid (PFUnA)	7.36	1.8	ng/L	9.13		80.7	69-133	2.45	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.78	1.8	ng/L	9.13		74.3	50-150	8.54	30	
Perfluoroheptanoic acid (PFHpA)	7.13	1.8	ng/L	9.13		78.1	72-130	11.0	30	
Perfluorooctanoic acid (PFOA)	7.96	1.8	ng/L	9.13		87.3	71-133	6.39	30	
Perfluorooctanesulfonic acid (PFOS)	7.33	1.8	ng/L	8.44		86.8	65-140	8.28	30	
Perfluorononanoic acid (PFNA)	7.50	1.8	ng/L	9.13		82.2	69-130	10.5	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.
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	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects. Original results reported.

con-test®
A Pace Analytical® Laboratory

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
HW-2 (22D0007-01)			Lab File ID: 22D0007-01.d			Analyzed: 04/16/22 04:52			
M8FOSA	239146.9	4.044517	220,320.00	4.044517	109	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	76789.48	2.628217	86,889.00	2.628217	88	50 - 150	0.0000	+/-0.50	
M2PFTA	848369.8	4.378417	851,194.00	4.386533	100	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	107221.4	3.858883	94,603.00	3.866833	113	50 - 150	-0.0080	+/-0.50	
MPFBA	595143.9	1.12495	510,672.00	1.12495	117	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	159634.9	2.937833	163,896.00	2.945967	97	50 - 150	-0.0081	+/-0.50	
M6PFDA	536068.9	3.859367	463,682.00	3.859367	116	50 - 150	0.0000	+/-0.50	
M3PFBS	116786.3	2.011067	100,421.00	2.011067	116	50 - 150	0.0000	+/-0.50	
M7PFUnA	682928.2	4.009984	628,074.00	4.009984	109	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	64494.23	3.509617	44,025.00	3.509617	146	50 - 150	0.0000	+/-0.50	
M5PFPeA	501488.5	1.824517	448,836.00	1.824517	112	50 - 150	0.0000	+/-0.50	
M5PFHxA	650126.9	2.7145	567,441.00	2.7145	115	50 - 150	0.0000	+/-0.50	
M3PFHxS	79137.5	3.28425	62,594.00	3.28425	126	50 - 150	0.0000	+/-0.50	
M4PFHpA	609893.2	3.251867	489,753.00	3.251867	125	50 - 150	0.0000	+/-0.50	
M8PFOA	562470.3	3.51815	438,813.00	3.51815	128	50 - 150	0.0000	+/-0.50	
M8PFOS	92726.05	3.708283	76,933.00	3.708283	121	50 - 150	0.0000	+/-0.50	
M9PFNA	464483.8	3.709283	400,811.00	3.709283	116	50 - 150	0.0000	+/-0.50	
MPFDoA	694163.1	4.144834	663,231.00	4.144834	105	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	179087.9	4.01745	155,538.00	4.01745	115	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	215025.8	3.937867	182,509.00	3.937867	118	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
HW-K (22D0007-02)			Lab File ID: 22D0007-02.d			Analyzed: 04/16/22 04:59			
M8FOSA	184347.2	4.044517	220,320.00	4.044517	84	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	39130.77	2.628217	86,889.00	2.628217	45	50 - 150	0.0000	+/-0.50	*
M2PFTA	692528.6	4.378417	851,194.00	4.386533	81	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	53049.46	3.858883	94,603.00	3.866833	56	50 - 150	-0.0080	+/-0.50	
MPFBA	524022.1	1.12495	510,672.00	1.12495	103	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	144461	2.937833	163,896.00	2.945967	88	50 - 150	-0.0081	+/-0.50	
M6PFDA	448966.6	3.859367	463,682.00	3.859367	97	50 - 150	0.0000	+/-0.50	
M3PFBS	102116.5	2.011067	100,421.00	2.011067	102	50 - 150	0.0000	+/-0.50	
M7PFUnA	564981.5	4.009984	628,074.00	4.009984	90	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	25771.61	3.509617	44,025.00	3.509617	59	50 - 150	0.0000	+/-0.50	
M5PFPeA	430184.5	1.824517	448,836.00	1.824517	96	50 - 150	0.0000	+/-0.50	
M5PFHxA	559742.3	2.7145	567,441.00	2.7145	99	50 - 150	0.0000	+/-0.50	
M3PFHxS	69962.02	3.28425	62,594.00	3.28425	112	50 - 150	0.0000	+/-0.50	
M4PFHpA	517747.3	3.251867	489,753.00	3.251867	106	50 - 150	0.0000	+/-0.50	
M8PFOA	481012.8	3.51815	438,813.00	3.51815	110	50 - 150	0.0000	+/-0.50	
M8PFOS	78947.34	3.708283	76,933.00	3.708283	103	50 - 150	0.0000	+/-0.50	
M9PFNA	397851.1	3.709283	400,811.00	3.709283	99	50 - 150	0.0000	+/-0.50	
MPFDoA	550115.9	4.144834	663,231.00	4.144834	83	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	104313.9	4.01745	155,538.00	4.01745	67	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	133901.4	3.937867	182,509.00	3.937867	73	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-3 (22D0007-03RE1)			Lab File ID: 22D0007-03RE1.d			Analyzed: 04/22/22 03:49			
M8FOSA	444706	4.028533	392,664.00	4.036517	113	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	116416.6	2.562517	192,624.00	2.57895	60	50 - 150	-0.0164	+/-0.50	
M2PFTA	1203787	4.35405	1,340,659.00	4.362167	90	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	194993.9	3.82705	222,779.00	3.842967	88	50 - 150	-0.0159	+/-0.50	
MPFBA	854000.6	1.108317	734,625.00	1.108317	116	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	270165.3	2.896583	206,363.00	2.91295	131	50 - 150	-0.0164	+/-0.50	
M6PFDA	975635.3	3.8355	837,269.00	3.84345	117	50 - 150	-0.0079	+/-0.50	
M3PFBS	212745	1.96145	185,951.00	1.969733	114	50 - 150	-0.0083	+/-0.50	
M7PFUnA	1226190	3.986	1,083,013.00	3.986	113	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	110926.1	3.493333	121,196.00	3.493333	92	50 - 150	0.0000	+/-0.50	
M5PFPeA	732314.9	1.7743	630,436.00	1.7826	116	50 - 150	-0.0083	+/-0.50	
M5PFHxA	1117810	2.655	947,095.00	2.655	118	50 - 150	0.0000	+/-0.50	
M3PFHxS	171180.3	3.266833	142,591.00	3.266833	120	50 - 150	0.0000	+/-0.50	
M4PFHpA	1099868	3.227617	944,541.00	3.2357	116	50 - 150	-0.0081	+/-0.50	
M8PFOA	1098700	3.50185	908,867.00	3.50185	121	50 - 150	0.0000	+/-0.50	
M8PFOS	184588.3	3.6841	148,116.00	3.684083	125	50 - 150	0.0000	+/-0.50	
M9PFNA	922913.2	3.685133	724,207.00	3.693117	127	50 - 150	-0.0080	+/-0.50	
MPFDoA	1103110	4.120767	1,075,246.00	4.120767	103	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	223751.9	3.985467	255,385.00	3.993467	88	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	280352.8	3.913883	284,607.00	3.913883	99	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-302 (22D0007-04RE1)			Lab File ID: 22D0007-04RE1.d			Analyzed: 04/22/22 03:57			
M8FOSA	28420.47	4.028533	392,664.00	4.036517	07	50 - 150	-0.0080	+/-0.50	*
M2-4:2FTS	68675.98	2.570733	192,624.00	2.57895	36	50 - 150	-0.0082	+/-0.50	*
M2PFTA	122157.7	4.354033	1,340,659.00	4.362167	09	50 - 150	-0.0081	+/-0.50	*
M2-8:2FTS	95276.59	3.82705	222,779.00	3.842967	43	50 - 150	-0.0159	+/-0.50	*
MPFBA	785406	1.108317	734,625.00	1.108317	107	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	249805.7	2.896583	206,363.00	2.91295	121	50 - 150	-0.0164	+/-0.50	
M6PFDA	700252.7	3.8355	837,269.00	3.84345	84	50 - 150	-0.0079	+/-0.50	
M3PFBS	187267.2	1.96145	185,951.00	1.969733	101	50 - 150	-0.0083	+/-0.50	
M7PFUnA	755475.9	3.978	1,083,013.00	3.986	70	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	60950.95	3.493333	121,196.00	3.493333	50	50 - 150	0.0000	+/-0.50	
M5PFPeA	655161.6	1.7826	630,436.00	1.7826	104	50 - 150	0.0000	+/-0.50	
M5PFHxA	983929.1	2.655	947,095.00	2.655	104	50 - 150	0.0000	+/-0.50	
M3PFHxS	144483.1	3.266833	142,591.00	3.266833	101	50 - 150	0.0000	+/-0.50	
M4PFHpA	965671.3	3.227617	944,541.00	3.2357	102	50 - 150	-0.0081	+/-0.50	
M8PFOA	907020.9	3.50185	908,867.00	3.50185	100	50 - 150	0.0000	+/-0.50	
M8PFOS	140069	3.684083	148,116.00	3.684083	95	50 - 150	0.0000	+/-0.50	
M9PFNA	698741.2	3.685133	724,207.00	3.693117	96	50 - 150	-0.0080	+/-0.50	
MPFDoA	516791.6	4.120767	1,075,246.00	4.120767	48	50 - 150	0.0000	+/-0.50	*
d5-NEtFOSAA	139707.6	3.993467	255,385.00	3.993467	55	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	185185.1	3.913883	284,607.00	3.913883	65	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-4M (22D0007-05)			Lab File ID: 22D0007-05.d			Analyzed: 04/16/22 05:21			
M8FOSA	69699.15	4.044517	220,320.00	4.044517	32	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	66213.05	2.62	86,889.00	2.628217	76	50 - 150	-0.0082	+/-0.50	
M2PFTA	423928.4	4.378417	851,194.00	4.386533	50	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	89392.08	3.858883	94,603.00	3.866833	94	50 - 150	-0.0080	+/-0.50	
MPFBA	449335	1.12495	510,672.00	1.12495	88	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	150487.2	2.937833	163,896.00	2.945967	92	50 - 150	-0.0081	+/-0.50	
M6PFDA	476326.4	3.859367	463,682.00	3.859367	103	50 - 150	0.0000	+/-0.50	
M3PFBS	104972.2	2.002783	100,421.00	2.011067	105	50 - 150	-0.0083	+/-0.50	
M7PFUnA	570725.2	4.001983	628,074.00	4.009984	91	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	41765.38	3.509617	44,025.00	3.509617	95	50 - 150	0.0000	+/-0.50	
M5PFPeA	440451.9	1.824517	448,836.00	1.824517	98	50 - 150	0.0000	+/-0.50	
M5PFHxA	583714	2.706317	567,441.00	2.7145	103	50 - 150	-0.0082	+/-0.50	
M3PFHxS	75425.97	3.28425	62,594.00	3.28425	120	50 - 150	0.0000	+/-0.50	
M4PFHpA	568524.9	3.251867	489,753.00	3.251867	116	50 - 150	0.0000	+/-0.50	
M8PFOA	510605.9	3.51815	438,813.00	3.51815	116	50 - 150	0.0000	+/-0.50	
M8PFOS	89094.75	3.700067	76,933.00	3.708283	116	50 - 150	-0.0082	+/-0.50	
M9PFNA	424718.9	3.709283	400,811.00	3.709283	106	50 - 150	0.0000	+/-0.50	
MPFDoA	543725.6	4.144834	663,231.00	4.144834	82	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	124617.6	4.00945	155,538.00	4.01745	80	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	139644.2	3.937867	182,509.00	3.937867	77	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-5 (22D0007-06)			Lab File ID: 22D0007-06.d			Analyzed: 04/16/22 05:28			
M8FOSA	131630.1	4.044517	220,320.00	4.044517	60	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	107868.1	2.6118	86,889.00	2.628217	124	50 - 150	-0.0164	+/-0.50	
M2PFTA	633586.6	4.378417	851,194.00	4.386533	74	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	148507.2	3.858883	94,603.00	3.866833	157	50 - 150	-0.0080	+/-0.50	*
MPFBA	320102.3	1.12495	510,672.00	1.12495	63	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	121970	2.929717	163,896.00	2.945967	74	50 - 150	-0.0162	+/-0.50	
M6PFDA	482547.9	3.859367	463,682.00	3.859367	104	50 - 150	0.0000	+/-0.50	
M3PFBS	99136.7	1.9945	100,421.00	2.011067	99	50 - 150	-0.0166	+/-0.50	
M7PFUnA	649686.4	4.001983	628,074.00	4.009984	103	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	68317.99	3.509617	44,025.00	3.509617	155	50 - 150	0.0000	+/-0.50	*
M5PFPeA	392619	1.80795	448,836.00	1.824517	87	50 - 150	-0.0166	+/-0.50	
M5PFHxA	584014.3	2.696967	567,441.00	2.7145	103	50 - 150	-0.0175	+/-0.50	
M3PFHxS	67557.81	3.28425	62,594.00	3.28425	108	50 - 150	0.0000	+/-0.50	
M4PFHpA	524535.1	3.251867	489,753.00	3.251867	107	50 - 150	0.0000	+/-0.50	
M8PFOA	491810.6	3.51815	438,813.00	3.51815	112	50 - 150	0.0000	+/-0.50	
M8PFOS	82514.79	3.700067	76,933.00	3.708283	107	50 - 150	-0.0082	+/-0.50	
M9PFNA	444207.3	3.7011	400,811.00	3.709283	111	50 - 150	-0.0082	+/-0.50	
MPFDoA	628771.7	4.144834	663,231.00	4.144834	95	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	150461.3	4.00945	155,538.00	4.01745	97	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	172821.6	3.937867	182,509.00	3.937867	95	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
HW-S(M) (22D0007-07)			Lab File ID: 22D0007-07.d			Analyzed: 04/16/22 05:35			
M8FOSA	206673.1	4.044517	220,320.00	4.044517	94	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	44000.32	2.628217	86,889.00	2.628217	51	50 - 150	0.0000	+/-0.50	
M2PFTA	720734	4.378417	851,194.00	4.386533	85	50 - 150	-0.0081	+/-0.50	
M2-8:2FTS	58497.98	3.858883	94,603.00	3.866833	62	50 - 150	-0.0080	+/-0.50	
MPFBA	546086.4	1.12495	510,672.00	1.12495	107	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	160894.8	2.937833	163,896.00	2.945967	98	50 - 150	-0.0081	+/-0.50	
M6PFDA	502473.1	3.859367	463,682.00	3.859367	108	50 - 150	0.0000	+/-0.50	
M3PFBS	107079.5	2.011067	100,421.00	2.011067	107	50 - 150	0.0000	+/-0.50	
M7PFUnA	573851.8	4.009984	628,074.00	4.009984	91	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	28086.8	3.509617	44,025.00	3.509617	64	50 - 150	0.0000	+/-0.50	
M5PFPeA	451131.8	1.824517	448,836.00	1.824517	101	50 - 150	0.0000	+/-0.50	
M5PFHxA	584716.4	2.7145	567,441.00	2.7145	103	50 - 150	0.0000	+/-0.50	
M3PFHxS	73122.29	3.28425	62,594.00	3.28425	117	50 - 150	0.0000	+/-0.50	
M4PFHpA	572449.6	3.251867	489,753.00	3.251867	117	50 - 150	0.0000	+/-0.50	
M8PFOA	501229.6	3.51815	438,813.00	3.51815	114	50 - 150	0.0000	+/-0.50	
M8PFOS	83680.43	3.708283	76,933.00	3.708283	109	50 - 150	0.0000	+/-0.50	
M9PFNA	443850	3.709283	400,811.00	3.709283	111	50 - 150	0.0000	+/-0.50	
MPFDoA	602917.8	4.144834	663,231.00	4.144834	91	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	116783.8	4.00945	155,538.00	4.01745	75	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	150876.4	3.937867	182,509.00	3.937867	83	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B305014-BLK1)			Lab File ID: B305014-BLK1.d			Analyzed: 04/16/22 02:49			
M8FOSA	174192.6	4.044517	220,320.00	4.044517	79	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	73840.16	2.644867	86,889.00	2.644867	85	50 - 150	0.0000	+/-0.50	
M2PFTA	601072.1	4.386533	851,194.00	4.386533	71	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	77754.33	3.866833	94,603.00	3.866833	82	50 - 150	0.0000	+/-0.50	
MPFBA	512269.2	1.13325	510,672.00	1.13325	100	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	166223	2.954083	163,896.00	2.954083	101	50 - 150	0.0000	+/-0.50	
M6PFDA	404890.3	3.867333	463,682.00	3.867333	87	50 - 150	0.0000	+/-0.50	
M3PFBS	97187.57	2.019367	100,421.00	2.019367	97	50 - 150	0.0000	+/-0.50	
M7PFUnA	513218.6	4.009984	628,074.00	4.017967	82	50 - 150	-0.0080	+/-0.50	
M2-6:2FTS	37056.77	3.5176	44,025.00	3.5176	84	50 - 150	0.0000	+/-0.50	
M5PFPeA	435520.3	1.8328	448,836.00	1.8328	97	50 - 150	0.0000	+/-0.50	
M5PFHxA	538844.3	2.730867	567,441.00	2.730867	95	50 - 150	0.0000	+/-0.50	
M3PFHxS	55655.77	3.2923	62,594.00	3.2923	89	50 - 150	0.0000	+/-0.50	
M4PFHpA	463556.9	3.25995	489,753.00	3.25995	95	50 - 150	0.0000	+/-0.50	
M8PFOA	413714.1	3.526133	438,813.00	3.526133	94	50 - 150	0.0000	+/-0.50	
M8PFOS	70745.93	3.708283	76,933.00	3.708283	92	50 - 150	0.0000	+/-0.50	
M9PFNA	355045.8	3.709283	400,811.00	3.709283	89	50 - 150	0.0000	+/-0.50	
MPFDoA	488256.7	4.153117	663,231.00	4.153117	74	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	121765.9	4.01745	155,538.00	4.025434	78	50 - 150	-0.0080	+/-0.50	
d3-NMeFOSAA	143234.1	3.945867	182,509.00	3.945867	78	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B305014-BS1)			Lab File ID: B305014-BS1.d			Analyzed: 04/16/22 02:42			
M8FOSA	191212.8	4.044517	220,320.00	4.044517	87	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	72545.38	2.644867	86,889.00	2.644867	83	50 - 150	0.0000	+/-0.50	
M2PFTA	640121.4	4.386533	851,194.00	4.386533	75	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	85300.34	3.866833	94,603.00	3.866833	90	50 - 150	0.0000	+/-0.50	
MPFBA	544558.9	1.13325	510,672.00	1.13325	107	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	152658	2.954083	163,896.00	2.954083	93	50 - 150	0.0000	+/-0.50	
M6PFDA	455388	3.867333	463,682.00	3.867333	98	50 - 150	0.0000	+/-0.50	
M3PFBS	102502.7	2.019367	100,421.00	2.019367	102	50 - 150	0.0000	+/-0.50	
M7PFUnA	563382.5	4.017967	628,074.00	4.017967	90	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	36581.11	3.5176	44,025.00	3.5176	83	50 - 150	0.0000	+/-0.50	
M5PFPeA	452662.1	1.8328	448,836.00	1.8328	101	50 - 150	0.0000	+/-0.50	
M5PFHxA	560825.9	2.730867	567,441.00	2.730867	99	50 - 150	0.0000	+/-0.50	
M3PFHxS	58501.47	3.2923	62,594.00	3.2923	93	50 - 150	0.0000	+/-0.50	
M4PFHpA	477255.8	3.25995	489,753.00	3.25995	97	50 - 150	0.0000	+/-0.50	
M8PFOA	396112.4	3.526133	438,813.00	3.526133	90	50 - 150	0.0000	+/-0.50	
M8PFOS	75134.68	3.708283	76,933.00	3.708283	98	50 - 150	0.0000	+/-0.50	
M9PFNA	383032.9	3.71725	400,811.00	3.709283	96	50 - 150	0.0080	+/-0.50	
MPFDoA	508857.5	4.153117	663,231.00	4.153117	77	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	118640.3	4.025434	155,538.00	4.025434	76	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	150686.9	3.945867	182,509.00	3.945867	83	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 (B306074-BLK1)			Lab File ID: B306074-BLK1.d			Analyzed: 04/22/22 03:28			
M8FOSA	436682.3	4.028533	392,664.00	4.036517	111	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	210733.6	2.570733	192,624.00	2.57895	109	50 - 150	-0.0082	+/-0.50	
M2PFTA	1354310	4.362167	1,340,659.00	4.362167	101	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	274555.4	3.835	222,779.00	3.842967	123	50 - 150	-0.0080	+/-0.50	
MPFBA	917703.5	1.108317	734,625.00	1.108317	125	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	267471.3	2.91295	206,363.00	2.91295	130	50 - 150	0.0000	+/-0.50	
M6PFDA	958214.2	3.84345	837,269.00	3.84345	114	50 - 150	0.0000	+/-0.50	
M3PFBS	212749	1.969733	185,951.00	1.969733	114	50 - 150	0.0000	+/-0.50	
M7PFUnA	1220086	3.986	1,083,013.00	3.986	113	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	124359.5	3.493333	121,196.00	3.493333	103	50 - 150	0.0000	+/-0.50	
M5PFPeA	735309.2	1.7826	630,436.00	1.7826	117	50 - 150	0.0000	+/-0.50	
M5PFHxA	1108369	2.655	947,095.00	2.655	117	50 - 150	0.0000	+/-0.50	
M3PFHxS	166280	3.266817	142,591.00	3.266833	117	50 - 150	0.0000	+/-0.50	
M4PFHpA	1123465	3.2357	944,541.00	3.2357	119	50 - 150	0.0000	+/-0.50	
M8PFOA	1080759	3.50185	908,867.00	3.50185	119	50 - 150	0.0000	+/-0.50	
M8PFOS	172607.8	3.684083	148,116.00	3.684083	117	50 - 150	0.0000	+/-0.50	
M9PFNA	883756.1	3.685133	724,207.00	3.693117	122	50 - 150	-0.0080	+/-0.50	
MPFDoA	1182902	4.120767	1,075,246.00	4.120767	110	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	253512	3.993467	255,385.00	3.993467	99	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	310705.2	3.913883	284,607.00	3.913883	109	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
LCS (B306074-BS1)			Lab File ID: B306074-BS1.d			Analyzed: 04/22/22 03:13			
M8FOSA	398269.4	4.028533	392,664.00	4.036517	101	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	207635.5	2.57895	192,624.00	2.57895	108	50 - 150	0.0000	+/-0.50	
M2PFTA	1313065	4.362167	1,340,659.00	4.362167	98	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	267988.9	3.835017	222,779.00	3.842967	120	50 - 150	-0.0079	+/-0.50	
MPFBA	894431.8	1.108317	734,625.00	1.108317	122	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	302432.7	2.91295	206,363.00	2.91295	147	50 - 150	0.0000	+/-0.50	
M6PFDA	960868.5	3.843467	837,269.00	3.84345	115	50 - 150	0.0000	+/-0.50	
M3PFBS	212423	1.969733	185,951.00	1.969733	114	50 - 150	0.0000	+/-0.50	
M7PFUnA	1183795	3.986	1,083,013.00	3.986	109	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	127724.3	3.493333	121,196.00	3.493333	105	50 - 150	0.0000	+/-0.50	
M5PFPeA	723354.2	1.791367	630,436.00	1.7826	115	50 - 150	0.0088	+/-0.50	
M5PFHxA	1098794	2.663233	947,095.00	2.655	116	50 - 150	0.0082	+/-0.50	
M3PFHxS	163596.8	3.266833	142,591.00	3.266833	115	50 - 150	0.0000	+/-0.50	
M4PFHpA	1094380	3.2357	944,541.00	3.2357	116	50 - 150	0.0000	+/-0.50	
M8PFOA	1021203	3.50185	908,867.00	3.50185	112	50 - 150	0.0000	+/-0.50	
M8PFOS	169374	3.684083	148,116.00	3.684083	114	50 - 150	0.0000	+/-0.50	
M9PFNA	825524.1	3.685133	724,207.00	3.693117	114	50 - 150	-0.0080	+/-0.50	
MPFDoA	1126621	4.120767	1,075,246.00	4.120767	105	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	232997.3	3.993467	255,385.00	3.993467	91	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	313810.6	3.913883	284,607.00	3.913883	110	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B306074-BSD1)			Lab File ID: B306074-BSD1.d			Analyzed: 04/22/22 03:21			
M8FOSA	419006.2	4.028533	392,664.00	4.036517	107	50 - 150	-0.0080	+/-0.50	
M2-4:2FTS	219324.5	2.570733	192,624.00	2.57895	114	50 - 150	-0.0082	+/-0.50	
M2PFTA	1390123	4.362167	1,340,659.00	4.362167	104	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	283867.3	3.835017	222,779.00	3.842967	127	50 - 150	-0.0079	+/-0.50	
MPFBA	953524.4	1.108317	734,625.00	1.108317	130	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	296195.5	2.904767	206,363.00	2.91295	144	50 - 150	-0.0082	+/-0.50	
M6PFDA	1010892	3.84345	837,269.00	3.84345	121	50 - 150	0.0000	+/-0.50	
M3PFBS	223845	1.969733	185,951.00	1.969733	120	50 - 150	0.0000	+/-0.50	
M7PFUnA	1247977	3.986	1,083,013.00	3.986	115	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	132349.3	3.48535	121,196.00	3.493333	109	50 - 150	-0.0080	+/-0.50	
M5PFPeA	769740.5	1.7826	630,436.00	1.7826	122	50 - 150	0.0000	+/-0.50	
M5PFHxA	1167343	2.663233	947,095.00	2.655	123	50 - 150	0.0082	+/-0.50	
M3PFHxS	172111.4	3.266833	142,591.00	3.266833	121	50 - 150	0.0000	+/-0.50	
M4PFHpA	1172548	3.2357	944,541.00	3.2357	124	50 - 150	0.0000	+/-0.50	
M8PFOA	1085064	3.50185	908,867.00	3.50185	119	50 - 150	0.0000	+/-0.50	
M8PFOS	175301.5	3.684083	148,116.00	3.684083	118	50 - 150	0.0000	+/-0.50	
M9PFNA	899554.8	3.685133	724,207.00	3.693117	124	50 - 150	-0.0080	+/-0.50	
MPFDoA	1182108	4.120767	1,075,246.00	4.120767	110	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	250866.7	3.993467	255,385.00	3.993467	98	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	322542.7	3.913883	284,607.00	3.913883	113	50 - 150	0.0000	+/-0.50	

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Minor)	NH-P
9Cl-PF3ONS (F53B Major)	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 (PFEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA	NH-P
N-MeFOSAA	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-butanesulfonamide (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
Perfluoropetanesulfonic 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

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

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

22D0007

Pace Analytical®

Phone: 413-525-2332
Fax: 413-525-6405
Access COC's and Support Requests

http://www.pacelabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 5_07/13/2021

Page ____ of ____

Company Name: Horsley Witten Group
Address: 90 Route 6A Sandwich MA
Phone: 508-833-6600
Project Name: Barnstable Municipal
Project Location: Hyannis MA Airport
Project Number: 210624
Project Manager: Bryan Massa
Pace Quote Name/Number:
Invoice Recipient:
Sampled By: SB, CH

Requested Turnaround Time
7-Day ☐ 10-Day ☐
PFAS 10-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: bmassa@horsley
Fax To #: witten.com

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

PCB ONLY
SOXHLET ☐
NON SOXHLET ☐

ANALYSIS REQUESTED

Pace Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS-ISOPAC
1	HW-2	3/25	10:00	Grab	GW				✓			✓
2	HW-K	3/25	11:45	Grab	GW				✓			✓
3	HW-3	3/25	12:15	Grab	GW				✓			✓
4	HW-302	3/25	12:45	Grab	GW				✓			✓
5	HW-4M	3/25	13:15	Grab	GW				✓			✓
6	HW-5	3/25	14:10	Grab	GW				✓			✓
	~~HW-5(S)~~	~~3/25~~	~~16:00~~	~~Grab~~	~~GW~~				✓			✓
	~~HW-5(S) MS~~	~~3/25~~	~~16:01~~	~~Grab~~	~~GW~~				✓			✓
	~~HW-5(S) MSD~~	~~3/25~~	~~16:02~~	~~Grab~~	~~GW~~				✓			✓
7	HW-5(M)	3/25	15:40	Grab	GW				✓			✓

Relinquished by: (signature) — Date/Time: 4/1 9:30
Received by: (signature) — Date/Time: 4/1/22 0945
Relinquished by: (signature) — Date/Time: 4/1/22 1745
Received by: (signature) — Date/Time: 4/1/22 1745
Relinquished by: (signature) — Date/Time:
Received by: (signature) — Date/Time:
Relinquished by: (signature) — Date/Time:
Received by: (signature) — Date/Time:

Client Comments:

Detection Limit Requirements
MA GW-1
Other

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

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

NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

Lab Comments:

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

[2] Preservation Code

Courier Use Only
Total Number Of:
VIALS
GLASS
PLASTIC 7
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)

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

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

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

Client Hawley Witten

Received By _____ Date 4/1/22 Time 1745

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

Were samples within Temperature? 2-6°C T By Gun # 3 Actual Temp - 2.0 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? n/a Were Samples Tampered with? n/a

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

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

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

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? n/a MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? Acid n/a Base n/a

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	14	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

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

Comments:

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

June 2, 2022

Bryan Massa
Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563

Project Location: Hyannis, MA
Client Job Number:
Project Number: 21084
Laboratory Work Order Number: 22E1327

Enclosed are results of analyses for samples as received by the laboratory on May 19, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Meghan E. Kelley
Project Manager

Table of Contents

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

Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563
ATTN: Bryan Massa

REPORT DATE: 6/2/2022

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 21084

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22E1327

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

PROJECT LOCATION: Hyannis, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
HW-T(S)	22E1327-01	Ground Water		SOP-454 PFAS	
HW-T(M)	22E1327-02	Ground Water		SOP-454 PFAS	
HW-H	22E1327-03	Ground Water		SOP-454 PFAS	
Field blank	22E1327-04	Ground 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.

SOP-454 PFAS

Qualifications:

PF-18

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

Analyte & Samples(s) Qualified:

M2-4:2FTS
22E1327-02[HW-T(M)], 22E1327-03[HW-H]

M2-6:2FTS
22E1327-03[HW-H]

M2PFTA
22E1327-01[HW-T(S)]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

M2-4:2FTS
22E1327-04[Field blank]

M2-6:2FTS
22E1327-04[Field blank]

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

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22E1327

Date Received: 5/19/2022

Field Sample #: HW-T(S) | Sampled: 5/18/2022 11:15

Sample ID: 22E1327-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	5.6	1.8	0.66	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorobutanesulfonic acid (PFBS)	3.0	1.8	0.25	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluoropentanoic acid (PFPeA)	12	1.8	0.35	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorohexanoic acid (PFHxA)	15	1.8	0.34	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.54	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorodecanoic acid (PFDA)	0.47	1.8	0.43	ng/L	1	J	SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.20	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluoroheptanesulfonic acid (PFHpS)	2.4	1.8	0.83	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
N-EtFOSAA	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
N-MeFOSAA	ND	1.8	0.67	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	0.53	1.8	0.27	ng/L	1	J	SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluoro-1-butanesulfonamide (FBSA)	4.0	1.8	0.17	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorohexanesulfonic acid (PFHxS)	29	1.8	0.30	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluoropetanesulfonic acid (PFPeS)	3.9	1.8	0.23	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluoroheptanoic acid (PFHpA)	7.3	1.8	0.30	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorooctanoic acid (PFOA)	10	1.8	0.60	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorooctanesulfonic acid (PFOS)	35	1.8	0.53	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH
Perfluorononanoic acid (PFNA)	1.3	1.8	0.31	ng/L	1	J	SOP-454 PFAS	5/23/22	5/25/22 8:26	BLH

con-test® A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22E1327

Date Received: 5/19/2022

Field Sample #: HW-T(M) | Sampled: 5/18/2022 11:45

Sample ID: 22E1327-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	31	1.8	0.67	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorobutanesulfonic acid (PFBS)	1.4	1.8	0.25	ng/L	1	J	SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluoropentanoic acid (PFPeA)	120	1.8	0.35	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorohexanoic acid (PFHxA)	100	1.8	0.35	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.58	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.35	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.22	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.55	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorodecanoic acid (PFDA)	0.54	1.8	0.44	ng/L	1	J	SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.40	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluoroheptanesulfonic acid (PFHpS)	1.0	1.8	0.84	ng/L	1	J	SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
N-EtFOSAA	ND	1.8	0.57	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
N-MeFOSAA	ND	1.8	0.68	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.38	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.28	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluoro-1-butanesulfonamide (FBSA)	1.0	1.8	0.17	ng/L	1	J	SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorohexanesulfonic acid (PFHxS)	46	1.8	0.30	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.37	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluoropetanesulfonic acid (PFPeS)	5.8	1.8	0.23	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.33	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluoroheptanoic acid (PFHpA)	20	1.8	0.31	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorooctanoic acid (PFOA)	3.5	1.8	0.61	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorooctanesulfonic acid (PFOS)	5.9	1.8	0.54	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH
Perfluorononanoic acid (PFNA)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:27	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22E1327

Date Received: 5/19/2022

Field Sample #: HW-H | Sampled: 5/18/2022 11:45

Sample ID: 22E1327-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	30	1.7	0.65	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorobutanesulfonic acid (PFBS)	0.49	1.7	0.25	ng/L	1	J	SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluoropentanoic acid (PFPeA)	80	1.7	0.34	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorohexanoic acid (PFHxA)	37	1.7	0.34	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.7	0.56	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
9Cl-PF3ONS (F53B Major)	ND	1.7	0.34	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	0.21	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	0.53	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorodecanoic acid (PFDA)	ND	1.7	0.43	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.7	0.39	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	0.20	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.82	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
N-EtFOSAA	ND	1.7	0.55	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
N-MeFOSAA	ND	1.7	0.66	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	0.25	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	0.28	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.7	0.37	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.15	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	0.27	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	0.17	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorohexanesulfonic acid (PFHxS)	2.1	1.7	0.30	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	0.36	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.7	0.23	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.7	0.32	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	0.24	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluoroheptanoic acid (PFHpA)	15	1.7	0.30	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorooctanoic acid (PFOA)	ND	1.7	0.60	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.7	0.53	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH
Perfluorononanoic acid (PFNA)	ND	1.7	0.30	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:34	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Hyannis, MA | Sample Description: | Work Order: 22E1327

Date Received: 5/19/2022

Field Sample #: Field blank | Sampled: 5/18/2022 00:00

Sample ID: 22E1327-04

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	1.8	0.69	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.26	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluoropentanoic acid (PFPeA)	ND	1.8	0.36	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorohexanoic acid (PFHxA)	ND	1.8	0.36	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
11Cl-PF3OUdS (F53B Minor)	ND	1.8	0.59	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
9Cl-PF3ONS (F53B Major)	ND	1.8	0.36	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	0.22	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	0.56	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	0.45	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.41	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.21	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.87	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
N-EtFOSAA	ND	1.8	0.58	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
N-MeFOSAA	ND	1.8	0.70	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.26	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	0.26	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.30	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	0.39	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.15	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	0.29	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	0.18	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	0.31	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	0.38	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluoropetanesulfonic acid (PFPeS)	ND	1.8	0.24	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.34	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.25	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluoroheptanoic acid (PFHpA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorooctanoic acid (PFOA)	ND	1.8	0.63	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	0.55	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH
Perfluorononanoic acid (PFNA)	ND	1.8	0.32	ng/L	1		SOP-454 PFAS	5/23/22	5/25/22 9:41	BLH

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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22E1327-01 [HW-T(S)]	B308947	283	1.00	05/23/22
22E1327-02 [HW-T(M)]	B308947	278	1.00	05/23/22
22E1327-03 [HW-H]	B308947	286	1.00	05/23/22
22E1327-04 [Field blank]	B308947	271	1.00	05/23/22

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308947 - SOP 454-PFAAS										
Blank (B308947-BLK1)				Prepared: 05/23/22 Analyzed: 05/25/22						
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 Minor)	ND	1.8	ng/L							
9Cl-PF3ONS (F53B Major)	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	ND	1.8	ng/L							
N-MeFOSAA	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							
Perfluoropetanesulfonic 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 (B308947-BS1)				Prepared: 05/23/22 Analyzed: 05/25/22						
Perfluorobutanoic acid (PFBA)	8.72	1.8	ng/L	9.03		96.6	73-129			
Perfluorobutanesulfonic acid (PFBS)	7.66	1.8	ng/L	7.99		95.8	72-130			
Perfluoropentanoic acid (PFPeA)	8.70	1.8	ng/L	9.03		96.3	72-129			
Perfluorohexanoic acid (PFHxA)	8.58	1.8	ng/L	9.03		95.0	72-129			
11Cl-PF3OUdS (F53B Minor)	6.87	1.8	ng/L	8.51		80.8	50-150			
9Cl-PF3ONS (F53B Major)	7.86	1.8	ng/L	8.42		93.3	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	7.62	1.8	ng/L	8.51		89.6	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.32	1.8	ng/L	9.03		81.0	50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	7.46	1.8	ng/L	8.67		86.0	67-138			
Perfluorodecanoic acid (PFDA)	7.89	1.8	ng/L	9.03		87.4	71-129			
Perfluorododecanoic acid (PFDoA)	8.86	1.8	ng/L	9.03		98.1	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.56	1.8	ng/L	8.04		106	50-150			

con-test®
A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B308947 - SOP 454-PFAAS										
LCS (B308947-BS1)				Prepared: 05/23/22 Analyzed: 05/25/22						
Perfluoroheptanesulfonic acid (PFHpS)	8.18	1.8	ng/L	8.63		94.8	69-134			
N-EtFOSAA	10.5	1.8	ng/L	9.03		116	61-135			
N-MeFOSAA	9.57	1.8	ng/L	9.03		106	65-136			
Perfluorotetradecanoic acid (PFTA)	8.05	1.8	ng/L	9.03		89.1	71-132			
Perfluorotridecanoic acid (PFTrDA)	8.06	1.8	ng/L	9.03		89.2	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	8.20	1.8	ng/L	8.44		97.1	63-143			
Perfluorodecanesulfonic acid (PFDS)	7.70	1.8	ng/L	8.72		88.3	53-142			
Perfluorooctanesulfonamide (FOSA)	9.14	1.8	ng/L	9.03		101	67-137			
Perfluorononanesulfonic acid (PFNS)	7.91	1.8	ng/L	8.67		91.2	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.35	1.8	ng/L	9.03		92.4	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	8.97	1.8	ng/L	9.03		99.4	50-150			
Perfluorohexanesulfonic acid (PFHxS)	7.49	1.8	ng/L	8.26		90.7	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	9.08	1.8	ng/L	9.03		101	50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.31	1.8	ng/L	9.03		103	50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.77	1.8	ng/L	8.58		102	64-140			
Perfluoropetanesulfonic acid (PFPeS)	7.89	1.8	ng/L	8.49		92.9	71-127			
Perfluoroundecanoic acid (PFUnA)	7.92	1.8	ng/L	9.03		87.7	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.85	1.8	ng/L	9.03		98.0	50-150			
Perfluoroheptanoic acid (PFHpA)	8.53	1.8	ng/L	9.03		94.5	72-130			
Perfluorooctanoic acid (PFOA)	8.74	1.8	ng/L	9.03		96.7	71-133			
Perfluorooctanesulfonic acid (PFOS)	8.54	1.8	ng/L	8.35		102	65-140			
Perfluorononanoic acid (PFNA)	8.79	1.8	ng/L	9.03		97.3	69-130			

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.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
S-29	Extracted Internal Standard is outside of control limits.

con-test®
A Pace Analytical® Laboratory

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
HW-T(S) (22E1327-01)			Lab File ID: 22E1327-01.d			Analyzed: 05/25/22 08:26			
M8FOSA	172211.3	4.052516	278,163.00	4.044517	62	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	52040.45	2.6531	99,807.00	2.6531	52	50 - 150	0.0000	+/-0.50	
M2PFTA	436296.3	4.410917	1,030,924.00	4.410917	42	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	45077.03	3.875067	88,177.00	3.875067	51	50 - 150	0.0000	+/-0.50	
MPFBA	430495.9	1.12495	575,637.00	1.12495	75	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	140242.4	2.9622	175,440.00	2.9622	80	50 - 150	0.0000	+/-0.50	
M6PFDA	478890.1	3.8756	574,987.00	3.8756	83	50 - 150	0.0000	+/-0.50	
M3PFBS	102984.2	2.02765	118,880.00	2.02765	87	50 - 150	0.0000	+/-0.50	
M7PFUnA	569453.5	4.025967	738,064.00	4.025967	77	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	36860.71	3.517617	63,701.00	3.517617	58	50 - 150	0.0000	+/-0.50	
M5PFPeA	421746.2	1.8411	477,508.00	1.8411	88	50 - 150	0.0000	+/-0.50	
M5PFHxA	625170.9	2.747233	728,553.00	2.747233	86	50 - 150	0.0000	+/-0.50	
M3PFHxS	88596.94	3.2923	102,709.00	3.2923	86	50 - 150	0.0000	+/-0.50	
M4PFHpA	596395.5	3.268033	727,773.00	3.25995	82	50 - 150	0.0081	+/-0.50	
M8PFOA	591784.9	3.52615	684,344.00	3.52615	86	50 - 150	0.0000	+/-0.50	
M8PFOS	94187.07	3.716267	121,421.00	3.7083	78	50 - 150	0.0080	+/-0.50	
M9PFNA	508950.1	3.71725	620,680.00	3.71725	82	50 - 150	0.0000	+/-0.50	
MPFDoA	592002.9	4.169267	834,049.00	4.169267	71	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	106145.8	4.033433	162,923.00	4.033433	65	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	121576.4	3.953867	197,528.00	3.953867	62	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-T(M) (22E1327-02)			Lab File ID: 22E1327-02.d			Analyzed: 05/25/22 09:27			
M8FOSA	205045.4	4.052516	278,163.00	4.044517	74	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	48886.41	2.670733	99,807.00	2.6531	49	50 - 150	0.0176	+/-0.50	*
M2PFTA	812321.6	4.4191	1,030,924.00	4.410917	79	50 - 150	0.0082	+/-0.50	
M2-8:2FTS	51773.64	3.88305	88,177.00	3.875067	59	50 - 150	0.0080	+/-0.50	
MPFBA	507444.2	1.12495	575,637.00	1.12495	88	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	154759.2	2.970317	175,440.00	2.9622	88	50 - 150	0.0081	+/-0.50	
M6PFDA	463992.5	3.8756	574,987.00	3.8756	81	50 - 150	0.0000	+/-0.50	
M3PFBS	113811.1	2.044217	118,880.00	2.02765	96	50 - 150	0.0166	+/-0.50	
M7PFUnA	636550.2	4.033967	738,064.00	4.025967	86	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	39046.87	3.5256	63,701.00	3.517617	61	50 - 150	0.0080	+/-0.50	
M5PFPeA	455354	1.849383	477,508.00	1.8411	95	50 - 150	0.0083	+/-0.50	
M5PFHxA	652380.6	2.7636	728,553.00	2.747233	90	50 - 150	0.0164	+/-0.50	
M3PFHxS	89462.93	3.300333	102,709.00	3.2923	87	50 - 150	0.0080	+/-0.50	
M4PFHpA	623868.9	3.268033	727,773.00	3.25995	86	50 - 150	0.0081	+/-0.50	
M8PFOA	568513.7	3.534133	684,344.00	3.52615	83	50 - 150	0.0080	+/-0.50	
M8PFOS	96828.91	3.716267	121,421.00	3.7083	80	50 - 150	0.0080	+/-0.50	
M9PFNA	538105.4	3.71725	620,680.00	3.71725	87	50 - 150	0.0000	+/-0.50	
MPFDoA	651164.8	4.169267	834,049.00	4.169267	78	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	126535	4.041433	162,923.00	4.033433	78	50 - 150	0.0080	+/-0.50	
d3-NMeFOSAA	132127.8	3.953867	197,528.00	3.953867	67	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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
HW-H (22E1327-03)			Lab File ID: 22E1327-03.d			Analyzed: 05/25/22 09:34			
M8FOSA	141402.4	4.044517	278,163.00	4.044517	51	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	44982.08	2.661333	99,807.00	2.6531	45	50 - 150	0.0082	+/-0.50	*
M2PFTA	662453.7	4.4191	1,030,924.00	4.410917	64	50 - 150	0.0082	+/-0.50	
M2-8:2FTS	51489.2	3.875067	88,177.00	3.875067	58	50 - 150	0.0000	+/-0.50	
MPFBA	416728.9	1.12495	575,637.00	1.12495	72	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	161192.6	2.9622	175,440.00	2.9622	92	50 - 150	0.0000	+/-0.50	
M6PFDA	440172.8	3.8756	574,987.00	3.8756	77	50 - 150	0.0000	+/-0.50	
M3PFBS	103703.1	2.02765	118,880.00	2.02765	87	50 - 150	0.0000	+/-0.50	
M7PFUnA	525569.9	4.025967	738,064.00	4.025967	71	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	30871.95	3.517617	63,701.00	3.517617	48	50 - 150	0.0000	+/-0.50	*
M5PFPeA	422036.9	1.8411	477,508.00	1.8411	88	50 - 150	0.0000	+/-0.50	
M5PFHxA	613783.6	2.747233	728,553.00	2.747233	84	50 - 150	0.0000	+/-0.50	
M3PFHxS	87270.38	3.300333	102,709.00	3.2923	85	50 - 150	0.0080	+/-0.50	
M4PFHpA	547687.5	3.268033	727,773.00	3.25995	75	50 - 150	0.0081	+/-0.50	
M8PFOA	561244	3.534133	684,344.00	3.52615	82	50 - 150	0.0080	+/-0.50	
M8PFOS	91829.86	3.716267	121,421.00	3.7083	76	50 - 150	0.0080	+/-0.50	
M9PFNA	469679.3	3.71725	620,680.00	3.71725	76	50 - 150	0.0000	+/-0.50	
MPFDoA	605432	4.169267	834,049.00	4.169267	73	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	99474.08	4.033433	162,923.00	4.033433	61	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	121922.8	3.953867	197,528.00	3.953867	62	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
Field blank (22E1327-04)			Lab File ID: 22E1327-04.d			Analyzed: 05/25/22 09:41			
M8FOSA	223837.6	4.044517	278,163.00	4.044517	80	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	45659.26	2.6531	99,807.00	2.6531	46	50 - 150	0.0000	+/-0.50	*
M2PFTA	694962.1	4.410917	1,030,924.00	4.410917	67	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	44502.18	3.875067	88,177.00	3.875067	50	50 - 150	0.0000	+/-0.50	
MPFBA	607359.5	1.116633	575,637.00	1.12495	106	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	161817.8	2.9622	175,440.00	2.9622	92	50 - 150	0.0000	+/-0.50	
M6PFDA	470261.8	3.875583	574,987.00	3.8756	82	50 - 150	0.0000	+/-0.50	
M3PFBS	111508.7	2.02765	118,880.00	2.02765	94	50 - 150	0.0000	+/-0.50	
M7PFUnA	593737.9	4.025967	738,064.00	4.025967	80	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	30444.35	3.517617	63,701.00	3.517617	48	50 - 150	0.0000	+/-0.50	*
M5PFPeA	460777.9	1.8328	477,508.00	1.8411	96	50 - 150	-0.0083	+/-0.50	
M5PFHxA	664036.6	2.747233	728,553.00	2.747233	91	50 - 150	0.0000	+/-0.50	
M3PFHxS	90692.21	3.2923	102,709.00	3.2923	88	50 - 150	0.0000	+/-0.50	
M4PFHpA	608104.9	3.268033	727,773.00	3.25995	84	50 - 150	0.0081	+/-0.50	
M8PFOA	582244.7	3.52615	684,344.00	3.52615	85	50 - 150	0.0000	+/-0.50	
M8PFOS	98870.59	3.716267	121,421.00	3.7083	81	50 - 150	0.0080	+/-0.50	
M9PFNA	516327	3.71725	620,680.00	3.71725	83	50 - 150	0.0000	+/-0.50	
MPFDoA	591972.7	4.169267	834,049.00	4.169267	71	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	113734.7	4.033433	162,923.00	4.033433	70	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	147372.6	3.953867	197,528.00	3.953867	75	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B308947-BLK1)			Lab File ID: B308947-BLK1.d			Analyzed: 05/25/22 06:31			
M8FOSA	202906.7	4.052516	278,163.00	4.044517	73	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	88627.51	2.6531	99,807.00	2.6531	89	50 - 150	0.0000	+/-0.50	
M2PFTA	779326.8	4.410917	1,030,924.00	4.4191	76	50 - 150	-0.0082	+/-0.50	
M2-8:2FTS	75823.52	3.875067	88,177.00	3.875067	86	50 - 150	0.0000	+/-0.50	
MPFBA	553002.4	1.12495	575,637.00	1.12495	96	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	165693.1	2.9622	175,440.00	2.9622	94	50 - 150	0.0000	+/-0.50	
M6PFDA	495939.2	3.875583	574,987.00	3.8756	86	50 - 150	0.0000	+/-0.50	
M3PFBS	107654.4	2.02765	118,880.00	2.02765	91	50 - 150	0.0000	+/-0.50	
M7PFUnA	610149.3	4.025967	738,064.00	4.025967	83	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	52993.4	3.517617	63,701.00	3.517617	83	50 - 150	0.0000	+/-0.50	
M5PFPeA	435493.8	1.8411	477,508.00	1.8411	91	50 - 150	0.0000	+/-0.50	
M5PFHxA	651685.9	2.747233	728,553.00	2.747233	89	50 - 150	0.0000	+/-0.50	
M3PFHxS	90503.95	3.2923	102,709.00	3.2923	88	50 - 150	0.0000	+/-0.50	
M4PFHpA	621324.4	3.268033	727,773.00	3.268033	85	50 - 150	0.0000	+/-0.50	
M8PFOA	604188.7	3.52615	684,344.00	3.52615	88	50 - 150	0.0000	+/-0.50	
M8PFOS	94024.3	3.716267	121,421.00	3.716267	77	50 - 150	0.0000	+/-0.50	
M9PFNA	503218.6	3.71725	620,680.00	3.71725	81	50 - 150	0.0000	+/-0.50	
MPFDoA	642016	4.169267	834,049.00	4.169267	77	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	134947.8	4.033433	162,923.00	4.03345	83	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	162647.5	3.953867	197,528.00	3.953867	82	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B308947-BS1)			Lab File ID: B308947-BS1.d			Analyzed: 05/25/22 06:24			
M8FOSA	213232.6	4.052516	278,163.00	4.044517	77	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	94481.77	2.6531	99,807.00	2.6531	95	50 - 150	0.0000	+/-0.50	
M2PFTA	868226.1	4.410917	1,030,924.00	4.4191	84	50 - 150	-0.0082	+/-0.50	
M2-8:2FTS	84264.5	3.875067	88,177.00	3.875067	96	50 - 150	0.0000	+/-0.50	
MPFBA	589836.4	1.12495	575,637.00	1.12495	102	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	178034.9	2.9622	175,440.00	2.9622	101	50 - 150	0.0000	+/-0.50	
M6PFDA	548571.6	3.875583	574,987.00	3.8756	95	50 - 150	0.0000	+/-0.50	
M3PFBS	114140.7	2.02765	118,880.00	2.02765	96	50 - 150	0.0000	+/-0.50	
M7PFUnA	721532.4	4.025967	738,064.00	4.025967	98	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	55336.8	3.517617	63,701.00	3.517617	87	50 - 150	0.0000	+/-0.50	
M5PFPeA	454700.4	1.8411	477,508.00	1.8411	95	50 - 150	0.0000	+/-0.50	
M5PFHxA	699034.9	2.747233	728,553.00	2.747233	96	50 - 150	0.0000	+/-0.50	
M3PFHxS	96451.39	3.2923	102,709.00	3.2923	94	50 - 150	0.0000	+/-0.50	
M4PFHpA	675187.8	3.268033	727,773.00	3.268033	93	50 - 150	0.0000	+/-0.50	
M8PFOA	627493.8	3.534133	684,344.00	3.52615	92	50 - 150	0.0080	+/-0.50	
M8PFOS	103363.8	3.716267	121,421.00	3.716267	85	50 - 150	0.0000	+/-0.50	
M9PFNA	535582.9	3.71725	620,680.00	3.71725	86	50 - 150	0.0000	+/-0.50	
MPFDoA	736459.3	4.169267	834,049.00	4.169267	88	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	135919.7	4.033433	162,923.00	4.03345	83	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	170994.7	3.953867	197,528.00	3.953867	87	50 - 150	0.0000	+/-0.50	

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P
Perfluorobutanesulfonic acid (PFBS)	NH-P
Perfluoropentanoic acid (PFPeA)	NH-P
Perfluorohexanoic acid (PFHxA)	NH-P
11Cl-PF3OUdS (F53B Minor)	NH-P
9Cl-PF3ONS (F53B Major)	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 (PFEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA	NH-P
N-MeFOSAA	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-butanesulfonamide (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
Perfluoropetanesulfonic 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

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

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

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2022
CT	Connecticut Department of Publilc Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2022
FL	Florida Department of Health	E871027 NELAP	06/30/2022
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2022
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2022
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2022
NC-DW	North Carolina Department of Health	25703	07/31/2022
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2022
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2022

22E1327

Pace Analytical®

Phone: 413-525-2332
Fax: 413-525-6405
Access COC's and Support Requests

http://www.pacelabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 5_07/13/2021

Page 1 of 1

Company Name: Horsley Witten Group
Address: 90 Route 6A, Sandwich, MA
Phone: 508-833-6600
Project Name: HYA
Project Location: Hyannis, MA
Project Number: 21084
Project Manager: Bryan Massa
Pace Quote Name/Number:
Invoice Recipient:
Sampled By: SB/CA

Requested Turnaround Time
7-Day ☐ 10-Day ☐
PFAS 10-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: bmassa@horsleywitten.com
Fax To #:

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

PCB ONLY
SOXHLET ☐
NON SOXHLET ☐

ANALYSIS REQUESTED

Pace Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1] Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS isotope
1	HW-T(s)	5/18/22	11:15	grab	GW				X			X
2	HW-T(m)	↓	11:45	↓	↓				X			X
3	HW-H		11:45						X			X

[2] Preservation Code

Courier Use Only
Total Number Of:
VIALS
GLASS
PLASTIC 7
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)

Relinquished by: (signature)	Date/Time:
Carol Murphy	5/19/22 2:30
Received by: (signature)	Date/Time:
Chris Lupo	5/19/22 1445
Relinquished by: (signature)	Date/Time:
Chris Lupo	5/19/22 17a
Received by: (signature)	Date/Time:
[illegible] 27	5/19/22 1700
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments:

Detection Limit Requirements
MA GW-1
RCP
Other

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

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

NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

Lab Comments:

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.

Table of Contents

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

Pace Pace

Doc# 277 Rev 5 2017

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

Client Horsley Witten

Received By _____ Date 5/19/22 Time 1700

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

Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 2 Actual Temp - 2.7

By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

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

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

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

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

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? NA MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA 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	7	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

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

Comments:

Field Blank recieved, not on COC

con-test®
A Pace Analytical® Laboratory

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

September 20, 2022

Bryan Massa
Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563

Project Location: Mahes Wellfield
Client Job Number:
Project Number: 22071
Laboratory Work Order Number: 22H0298

Enclosed are results of analyses for samples as received by the laboratory on August 4, 2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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

Horsley Witten Group
90 Route 6A Unit #1
Sandwich, MA 02563
ATTN: Bryan Massa

REPORT DATE: 9/20/2022

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 22071

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 22H0298

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

PROJECT LOCATION: Mahes Wellfield

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
ME-1	22H0298-01	Ground Water		SOP-454 PFAS	
ME-3	22H0298-02	Ground Water		SOP-454 PFAS	
ME-2	22H0298-03	Ground Water		SOP-454 PFAS	
HW-I (s)	22H0298-04	Ground Water		SOP-454 PFAS	
HW-I (m)	22H0298-05	Ground Water		SOP-454 PFAS	
HW-I (d)	22H0298-06	Ground 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.

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

Qualifications:

L-04

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

Analyte & Samples(s) Qualified:

Hexafluoropropylene oxide dimer a
22H0298-01[ME-1], 22H0298-02[ME-3], 22H0298-03[ME-2], 22H0298-04[HW-I (s)], 22H0298-05[HW-I (m)], B315452-BS1, B315452-BSD1

N-EtFOSAA
22H0298-01[ME-1], 22H0298-02[ME-3], 22H0298-03[ME-2], 22H0298-04[HW-I (s)], 22H0298-05[HW-I (m)], B315452-BS1, B315452-BSD1

L-07

Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS results is within method specified criteria.

Analyte & Samples(s) Qualified:

6:2 Fluorotelomersulfonic acid (6:2
22H0298-01[ME-1], 22H0298-02[ME-3], 22H0298-03[ME-2], B315452-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:

d5-NEtFOSAA
22H0298-01[ME-1], 22H0298-02[ME-3], 22H0298-03[ME-2], 22H0298-04[HW-I (s)], 22H0298-05[HW-I (m)], B315452-BLK1

M2-8:2FTS
B315452-BLK1, S075995-IBL1

M3HFPO-DA
22H0298-01[ME-1], 22H0298-02[ME-3], 22H0298-03[ME-2], 22H0298-04[HW-I (s)], 22H0298-05[HW-I (m)], B315452-BLK1

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

d3-NMeFOSAA
22H0298-01[ME-1]

d5-NEtFOSAA
B315452-BS1, B315452-BSD1

M2-4:2FTS
22H0298-01[ME-1], 22H0298-01RE1[ME-1], S076727-CCV3, S076727-CCV6

M2-6:2FTS
22H0298-01[ME-1], 22H0298-04[HW-I (s)], S076727-CCV3

M2-8:2FTS
22H0298-01[ME-1], B315452-BS1

M2PFTA
22H0298-01[ME-1]

M3HFPO-DA
B315452-BS1, B315452-BSD1, S076727-CCV3, S076727-CCV4

M3PFHxS
22H0298-01[ME-1]

M4PFHpA
22H0298-01[ME-1]

M5PFHxA
22H0298-01[ME-1]

M5PFPeA
22H0298-01[ME-1]

M6PFDA
22H0298-01[ME-1]

M7PFUnA
22H0298-01[ME-1]

M8FOSA
22H0298-01[ME-1], 22H0298-06[HW-I (d)]

M8PFOA
22H0298-01[ME-1]

M8PFOS
22H0298-01[ME-1]

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

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

M9PFNA
22H0298-01[ME-1]

MPFBA
22H0298-01[ME-1]

MPFDoA
22H0298-01[ME-1]

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:

Perfluoro-4-oxapentanoic acid (PF
S076727-CCV6

Z-01

Original extract within hold. Re-extract to confirm extracted internal standard recoveries performed outside of hold. Re-extract resulted in conforming data for many analytes. Both results reported.

Analyte & Samples(s) Qualified:

22H0298-01RE1[ME-1]

Z-01a

Sample analyzed at a refortified dilution.

Analyte & Samples(s) Qualified:

22H0298-04RE1[HW-I (s)]

Z-01b

Signal to noise on quantification ion <10. Detection suspect.

Analyte & Samples(s) Qualified:

Perfluoroheptanesulfonic acid (PFI
22H0298-01[ME-1]

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

con-test®
A Pace Analytical® Laboratory

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

Project Location: Mahes Wellfield | Sample Description: | Work Order: 22H0298

Date Received: 8/4/2022

Field Sample #: ME-1 | Sampled: 7/29/2022 10:10

Sample ID: 22H0298-01

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)	25	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorobutanoic acid (PFBA)	15	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorobutanesulfonic acid (PFBS)	3.3	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorobutanesulfonic acid (PFBS)	2.3	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluoropentanoic acid (PFPeA)	89	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluoropentanoic acid (PFPeA)	55	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorohexanoic acid (PFHxA)	54	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorohexanoic acid (PFHxA)	32	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
11Cl-PF3OUdS (F53B Major)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
11Cl-PF3OUdS (F53B Major)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
9Cl-PF3ONS (F53B Minor)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
9Cl-PF3ONS (F53B Minor)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	ng/L	1	L-04	SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorodecanoic acid (PFDA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorodecanoic acid (PFDA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorododecanoic acid (PFDoA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluoroheptanesulfonic acid (PFHpS)	2.9	1.7	ng/L	1	Z-01b	SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluoroheptanesulfonic acid (PFHpS)	2.0	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
N-EtFOSAA	ND	1.7	ng/L	1	L-04	SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
N-EtFOSAA	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
N-MeFOSAA	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
N-MeFOSAA	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorotetradecanoic acid (PFTA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorooctanesulfonamide (FOSA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL

con-test®
A Pace Analytical® Laboratory

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

Project Location: Mahes Wellfield | Sample Description: | Work Order: 22H0298

Date Received: 8/4/2022

Field Sample #: ME-1 | Sampled: 7/29/2022 10:10

Sample ID: 22H0298-01

Sample Matrix: Ground Water

Sample Flags: Z-01

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorononanesulfonic acid (PFNS)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorohexanesulfonic acid (PFHxS)	58	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorohexanesulfonic acid (PFHxS)	31	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	46	1.7	ng/L	1	L-07	SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
6:2 Fluorotelomersulfonic acid (6:2FTS A)	27	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluoropetanesulfonic acid (PFPeS)	3.7	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluoropetanesulfonic acid (PFPeS)	2.1	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluoroundecanoic acid (PFUnA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluoroheptanoic acid (PFHpA)	25	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluoroheptanoic acid (PFHpA)	15	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorooctanoic acid (PFOA)	29	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorooctanoic acid (PFOA)	16	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorooctanesulfonic acid (PFOS)	120	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorooctanesulfonic acid (PFOS)	81	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH
Perfluorononanoic acid (PFNA)	21	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:51	DRL
Perfluorononanoic acid (PFNA)	12	1.7	ng/L	1		SOP-454 PFAS	9/1/22	9/19/22 3:30	BLH

con-test®
A Pace Analytical® Laboratory

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

Project Location: Mahes Wellfield | Sample Description: | Work Order: 22H0298

Date Received: 8/4/2022

Field Sample #: ME-3 | Sampled: 7/29/2022 10:20

Sample ID: 22H0298-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	6.1	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorobutanesulfonic acid (PFBS)	2.1	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluoropentanoic acid (PFPeA)	20	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorohexanoic acid (PFHxA)	15	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
11Cl-PF3OUdS (F53B Major)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
9Cl-PF3ONS (F53B Minor)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	ng/L	1	L-04	SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorodecanoic acid (PFDA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorododecanoic acid (PFDoA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
N-EtFOSAA	ND	1.7	ng/L	1	L-04	SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
N-MeFOSAA	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorotetradecanoic acid (PFTA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorooctanesulfonamide (FOSA)	4.3	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorononanesulfonic acid (PFNS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluoro-1-hexanesulfonamide (FHxSA)	1.8	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorohexanesulfonic acid (PFHxS)	29	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
6:2 Fluorotelomersulfonic acid (6:2FTS A)	5.4	1.7	ng/L	1	L-07	SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluoropetanesulfonic acid (PFPeS)	2.0	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluoroundecanoic acid (PFUnA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluoroheptanoic acid (PFHpA)	6.5	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorooctanoic acid (PFOA)	12	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorooctanesulfonic acid (PFOS)	70	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL
Perfluorononanoic acid (PFNA)	5.4	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 3:58	DRL

con-test®
A Pace Analytical® Laboratory

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

Project Location: Mahes Wellfield | Sample Description: | Work Order: 22H0298

Date Received: 8/4/2022

Field Sample #: ME-2 | Sampled: 7/29/2022 10:30

Sample ID: 22H0298-03

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)	12	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorobutanesulfonic acid (PFBS)	3.5	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluoropentanoic acid (PFPeA)	47	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorohexanoic acid (PFHxA)	34	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
11Cl-PF3OUdS (F53B Major)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
9Cl-PF3ONS (F53B Minor)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	ng/L	1	L-04	SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorodecanoic acid (PFDA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorododecanoic acid (PFDoA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
N-EtFOSAA	ND	1.7	ng/L	1	L-04	SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
N-MeFOSAA	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorotetradecanoic acid (PFTA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorooctanesulfonamide (FOSA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorononanesulfonic acid (PFNS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorohexanesulfonic acid (PFHxS)	35	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
6:2 Fluorotelomersulfonic acid (6:2FTS A)	43	1.7	ng/L	1	L-07	SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluoropetanesulfonic acid (PFPeS)	2.8	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluoroundecanoic acid (PFUnA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluoroheptanoic acid (PFHpA)	16	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorooctanoic acid (PFOA)	17	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorooctanesulfonic acid (PFOS)	51	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL
Perfluorononanoic acid (PFNA)	8.9	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:13	DRL

con-test®
A Pace Analytical® Laboratory

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

Project Location: Mahes Wellfield | Sample Description: | Work Order: 22H0298

Date Received: 8/4/2022

Field Sample #: HW-I (s) | Sampled: 8/2/2022 13:45

Sample ID: 22H0298-04

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)	53	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluorobutanesulfonic acid (PFBS)	2.8	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluoropentanoic acid (PFPeA)	210	180	ng/L	100		SOP-454 PFAS	8/24/22	9/9/22 17:30	DRL
Perfluorohexanoic acid (PFHxA)	150	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1	L-04	SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
8:2 Fluorotelomersulfonic acid (8:2FTS A)	3.1	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluoroheptanesulfonic acid (PFHpS)	18	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
N-EtFOSAA	ND	1.8	ng/L	1	L-04	SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
N-MeFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluoro-1-hexanesulfonamide (FHxSA)	39	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluoro-1-butanesulfonamide (FBSA)	6.8	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluorohexanesulfonic acid (PFHxS)	110	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
6:2 Fluorotelomersulfonic acid (6:2FTS A)	4600	180	ng/L	100		SOP-454 PFAS	8/24/22	9/9/22 17:30	DRL
Perfluoropetanesulfonic acid (PFPeS)	7.4	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluoroheptanoic acid (PFHpA)	200	180	ng/L	100		SOP-454 PFAS	8/24/22	9/9/22 17:30	DRL
Perfluorooctanoic acid (PFOA)	170	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL
Perfluorooctanesulfonic acid (PFOS)	430	180	ng/L	100		SOP-454 PFAS	8/24/22	9/9/22 17:30	DRL
Perfluorononanoic acid (PFNA)	120	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:20	DRL

con-test®
A Pace Analytical® Laboratory

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

Project Location: Mahes Wellfield | Sample Description: | Work Order: 22H0298

Date Received: 8/4/2022

Field Sample #: HW-I (m) | Sampled: 8/2/2022 14:10

Sample ID: 22H0298-05

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	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluoropentanoic acid (PFPeA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorohexanoic acid (PFHxA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
11Cl-PF3OUdS (F53B Major)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
9Cl-PF3ONS (F53B Minor)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.7	ng/L	1	L-04	SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorodecanoic acid (PFDA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorododecanoic acid (PFDoA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
N-EtFOSAA	ND	1.7	ng/L	1	L-04	SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
N-MeFOSAA	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorotetradecanoic acid (PFTA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorotridecanoic acid (PFTrDA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorooctanesulfonamide (FOSA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorononanesulfonic acid (PFNS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorohexanesulfonic acid (PFHxS)	3.2	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluoropetanesulfonic acid (PFPeS)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluoroundecanoic acid (PFUnA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluoroheptanoic acid (PFHpA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorooctanoic acid (PFOA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorooctanesulfonic acid (PFOS)	5.0	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL
Perfluorononanoic acid (PFNA)	ND	1.7	ng/L	1		SOP-454 PFAS	8/24/22	8/30/22 4:27	DRL

con-test®
A Pace Analytical® Laboratory

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

Project Location: Mahes Wellfield | Sample Description: | Work Order: 22H0298

Date Received: 8/4/2022

Field Sample #: HW-I (d) | Sampled: 8/2/2022 14:50

Sample ID: 22H0298-06

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)	10	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorobutanesulfonic acid (PFBS)	2.2	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluoropentanoic acid (PFPeA)	30	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorohexanoic acid (PFHxA)	24	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
11Cl-PF3OUdS (F53B Major)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
9Cl-PF3ONS (F53B Minor)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorodecanoic acid (PFDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorododecanoic acid (PFDoA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluoroheptanesulfonic acid (PFHpS)	3.5	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
N-EtFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
N-MeFOSAA	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorotetradecanoic acid (PFTA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorooctanesulfonamide (FOSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorononanesulfonic acid (PFNS)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorohexanesulfonic acid (PFHxS)	63	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluoropetanesulfonic acid (PFPeS)	2.3	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluoroundecanoic acid (PFUnA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluoroheptanoic acid (PFHpA)	12	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorooctanoic acid (PFOA)	13	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorooctanesulfonic acid (PFOS)	83	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH
Perfluorononanoic acid (PFNA)	ND	1.8	ng/L	1		SOP-454 PFAS	8/24/22	8/31/22 3:46	BLH

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

Sample Extraction Data

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22H0298-01 [ME-1]	B315452	289	1.00	08/24/22
22H0298-02 [ME-3]	B315452	291	1.00	08/24/22
22H0298-03 [ME-2]	B315452	288	1.00	08/24/22
22H0298-04 [HW-I (s)]	B315452	278	1.00	08/24/22
22H0298-04RE1 [HW-I (s)]	B315452	278	1.00	08/24/22
22H0298-05 [HW-I (m)]	B315452	292	1.00	08/24/22

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22H0298-06 [HW-I (d)]	B315519	278	1.00	08/24/22

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
22H0298-01RE1 [ME-1]	B316366	288	1.00	09/01/22

con-test®
A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B315452 - SOP 454-PFAAS											
Blank (B315452-BLK1)				Prepared: 08/24/22 Analyzed: 08/30/22							
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	ND	1.8	ng/L								
N-MeFOSAA	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								
Perfluoropetanesulfonic 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 (B315452-BS1)				Prepared: 08/24/22 Analyzed: 08/30/22							
Perfluorobutanoic acid (PFBA)	9.90	1.8	ng/L	9.06		109		73-129			
Perfluorobutanesulfonic acid (PFBS)	8.51	1.8	ng/L	8.02		106		72-130			
Perfluoropentanoic acid (PFPeA)	9.66	1.8	ng/L	9.06		107		72-129			
Perfluorohexanoic acid (PFHxA)	9.99	1.8	ng/L	9.06		110		72-129			
11Cl-PF3OUdS (F53B Major)	6.56	1.8	ng/L	8.54		76.9		50-150			
9Cl-PF3ONS (F53B Minor)	8.10	1.8	ng/L	8.44		95.9		50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	8.83	1.8	ng/L	8.54		103		50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	3.13	1.8	ng/L	9.06		**34.5**	*	50-150			L-04
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.82	1.8	ng/L	8.70		101		67-138			
Perfluorodecanoic acid (PFDA)	9.57	1.8	ng/L	9.06		106		71-129			
Perfluorododecanoic acid (PFDoA)	9.13	1.8	ng/L	9.06		101		72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	7.29	1.8	ng/L	8.06		90.4		50-150			

con-test®
A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B315452 - SOP 454-PFAAS											
LCS (B315452-BS1)				Prepared: 08/24/22 Analyzed: 08/30/22							
Perfluoroheptanesulfonic acid (PFHpS)	8.01	1.8	ng/L	8.65		92.6		69-134			
N-EtFOSAA	1.98	1.8	ng/L	9.06		**21.8**	*	61-135			L-04
N-MeFOSAA	11.1	1.8	ng/L	9.06		123		65-136			
Perfluorotetradecanoic acid (PFTA)	8.90	1.8	ng/L	9.06		98.3		71-132			
Perfluorotridecanoic acid (PFTrDA)	9.44	1.8	ng/L	9.06		104		65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.35	1.8	ng/L	8.47		110		63-143			
Perfluorodecanesulfonic acid (PFDS)	7.73	1.8	ng/L	8.74		88.4		53-142			
Perfluorooctanesulfonamide (FOSA)	8.51	1.8	ng/L	9.06		93.9		67-137			
Perfluorononanesulfonic acid (PFNS)	9.28	1.8	ng/L	8.70		107		69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	9.93	1.8	ng/L	9.06		110		50-150			
Perfluoro-1-butanesulfonamide (FBSA)	9.14	1.8	ng/L	9.06		101		50-150			
Perfluorohexanesulfonic acid (PFHxS)	8.45	1.8	ng/L	8.29		102		68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	9.48	1.8	ng/L	9.06		105		50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.52	1.8	ng/L	9.06		105		50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	11.0	1.8	ng/L	8.61		127		64-140			
Perfluoropetanesulfonic acid (PFPeS)	10.4	1.8	ng/L	8.52		122		71-127			
Perfluoroundecanoic acid (PFUnA)	9.07	1.8	ng/L	9.06		100		69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.83	1.8	ng/L	9.06		97.5		50-150			
Perfluoroheptanoic acid (PFHpA)	9.85	1.8	ng/L	9.06		109		72-130			
Perfluorooctanoic acid (PFOA)	10.8	1.8	ng/L	9.06		119		71-133			
Perfluorooctanesulfonic acid (PFOS)	8.98	1.8	ng/L	8.38		107		65-140			
Perfluorononanoic acid (PFNA)	9.89	1.8	ng/L	9.06		109		69-130			
LCS Dup (B315452-BSD1)				Prepared: 08/24/22 Analyzed: 08/30/22							
Perfluorobutanoic acid (PFBA)	9.80	1.8	ng/L	9.02		109		73-129	0.963	30	
Perfluorobutanesulfonic acid (PFBS)	8.43	1.8	ng/L	7.98		106		72-130	0.967	30	
Perfluoropentanoic acid (PFPeA)	9.42	1.8	ng/L	9.02		104		72-129	2.43	30	
Perfluorohexanoic acid (PFHxA)	9.74	1.8	ng/L	9.02		108		72-129	2.45	30	
11Cl-PF3OUdS (F53B Major)	7.38	1.8	ng/L	8.50		86.9		50-150	11.7	30	
9Cl-PF3ONS (F53B Minor)	8.31	1.8	ng/L	8.41		98.8		50-150	2.59	30	
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	8.61	1.8	ng/L	8.50		101		50-150	2.52	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	3.15	1.8	ng/L	9.02		**34.9**	*	50-150	0.797	30	L-04
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.49	1.8	ng/L	8.66		98.1		67-138	3.76	30	
Perfluorodecanoic acid (PFDA)	9.16	1.8	ng/L	9.02		102		71-129	4.28	30	
Perfluorododecanoic acid (PFDoA)	8.86	1.8	ng/L	9.02		98.2		72-134	3.08	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	7.07	1.8	ng/L	8.03		88.1		50-150	3.05	30	
Perfluoroheptanesulfonic acid (PFHpS)	9.12	1.8	ng/L	8.62		106		69-134	12.9	30	
N-EtFOSAA	1.82	1.8	ng/L	9.02		**20.2**	*	61-135	8.12	30	L-04
N-MeFOSAA	10.3	1.8	ng/L	9.02		114		65-136	8.02	30	
Perfluorotetradecanoic acid (PFTA)	9.34	1.8	ng/L	9.02		104		71-132	4.76	30	
Perfluorotridecanoic acid (PFTrDA)	9.90	1.8	ng/L	9.02		110		65-144	4.81	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.17	1.8	ng/L	8.44		109		63-143	1.90	30	
Perfluorodecanesulfonic acid (PFDS)	7.16	1.8	ng/L	8.71		82.2		53-142	7.71	30	
Perfluorooctanesulfonamide (FOSA)	8.05	1.8	ng/L	9.02		89.3		67-137	5.54	30	
Perfluorononanesulfonic acid (PFNS)	9.26	1.8	ng/L	8.66		107		69-127	0.181	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	10.0	1.8	ng/L	9.02		111		50-150	0.807	30	
Perfluoro-1-butanesulfonamide (FBSA)	8.76	1.8	ng/L	9.02		97.2		50-150	4.20	30	
Perfluorohexanesulfonic acid (PFHxS)	8.38	1.8	ng/L	8.25		102		68-131	0.840	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	9.28	1.8	ng/L	9.02		103		50-150	2.16	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	9.29	1.8	ng/L	9.02		103		50-150	2.40	30	

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B315452 - SOP 454-PFAAS										
LCS Dup (B315452-BSD1)				Prepared: 08/24/22 Analyzed: 08/30/22						
6:2 Fluorotelomersulfonic acid (6:2FTS A)	12.5	1.8	ng/L	8.57		**146** *	64-140	13.3	30	L-07
Perfluoropetanesulfonic acid (PFPeS)	9.68	1.8	ng/L	8.48		114	71-127	7.07	30	
Perfluoroundecanoic acid (PFUnA)	9.86	1.8	ng/L	9.02		109	69-133	8.41	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.80	1.8	ng/L	9.02		97.6	50-150	0.341	30	
Perfluoroheptanoic acid (PFHpA)	9.55	1.8	ng/L	9.02		106	72-130	3.08	30	
Perfluorooctanoic acid (PFOA)	11.1	1.8	ng/L	9.02		123	71-133	2.76	30	
Perfluorooctanesulfonic acid (PFOS)	9.62	1.8	ng/L	8.35		115	65-140	6.96	30	
Perfluorononanoic acid (PFNA)	10.4	1.8	ng/L	9.02		115	69-130	4.97	30	
Batch B315519 - SOP 454-PFAAS										
Blank (B315519-BLK1)				Prepared: 08/23/22 Analyzed: 08/31/22						
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	ND	1.8	ng/L							
N-MeFOSAA	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							
Perfluoropetanesulfonic 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							

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B315519 - SOP 454-PFAAS										
LCS (B315519-BS1)				Prepared: 08/23/22 Analyzed: 08/31/22						
Perfluorobutanoic acid (PFBA)	8.41	1.8	ng/L	9.24		91.0	73-129			
Perfluorobutanesulfonic acid (PFBS)	7.15	1.8	ng/L	8.17		87.5	72-130			
Perfluoropentanoic acid (PFPeA)	8.30	1.8	ng/L	9.24		89.9	72-129			
Perfluorohexanoic acid (PFHxA)	8.44	1.8	ng/L	9.24		91.3	72-129			
11Cl-PF3OUdS (F53B Major)	6.01	1.8	ng/L	8.70		69.0	50-150			
9Cl-PF3ONS (F53B Minor)	6.74	1.8	ng/L	8.61		78.3	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	7.56	1.8	ng/L	8.70		86.9	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	5.06	1.8	ng/L	9.24		54.8	50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	7.54	1.8	ng/L	8.87		85.0	67-138			
Perfluorodecanoic acid (PFDA)	8.24	1.8	ng/L	9.24		89.2	71-129			
Perfluorododecanoic acid (PFDoA)	8.61	1.8	ng/L	9.24		93.3	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	6.13	1.8	ng/L	8.22		74.5	50-150			
Perfluoroheptanesulfonic acid (PFHpS)	8.83	1.8	ng/L	8.82		100	69-134			
N-EtFOSAA	8.52	1.8	ng/L	9.24		92.2	61-135			
N-MeFOSAA	10.1	1.8	ng/L	9.24		109	65-136			
Perfluorotetradecanoic acid (PFTA)	8.64	1.8	ng/L	9.24		93.5	71-132			
Perfluorotridecanoic acid (PFTrDA)	8.51	1.8	ng/L	9.24		92.2	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	7.89	1.8	ng/L	8.64		91.4	63-143			
Perfluorodecanesulfonic acid (PFDS)	7.30	1.8	ng/L	8.91		81.9	53-142			
Perfluorooctanesulfonamide (FOSA)	8.86	1.8	ng/L	9.24		95.9	67-137			
Perfluorononanesulfonic acid (PFNS)	6.85	1.8	ng/L	8.87		77.3	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.44	1.8	ng/L	9.24		91.4	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	7.50	1.8	ng/L	9.24		81.2	50-150			
Perfluorohexanesulfonic acid (PFHxS)	6.71	1.8	ng/L	8.45		79.4	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	7.71	1.8	ng/L	9.24		83.5	50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	7.83	1.8	ng/L	9.24		84.8	50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.59	1.8	ng/L	8.77		109	64-140			
Perfluoropetanesulfonic acid (PFPeS)	6.72	1.8	ng/L	8.68		77.4	71-127			
Perfluoroundecanoic acid (PFUnA)	8.52	1.8	ng/L	9.24		92.2	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.36	1.8	ng/L	9.24		90.5	50-150			
Perfluoroheptanoic acid (PFHpA)	8.24	1.8	ng/L	9.24		89.2	72-130			
Perfluorooctanoic acid (PFOA)	9.98	1.8	ng/L	9.24		108	71-133			
Perfluorooctanesulfonic acid (PFOS)	7.65	1.8	ng/L	8.54		89.6	65-140			
Perfluorononanoic acid (PFNA)	8.36	1.8	ng/L	9.24		90.5	69-130			
LCS Dup (B315519-BSD1)				Prepared: 08/23/22 Analyzed: 08/31/22						
Perfluorobutanoic acid (PFBA)	8.81	1.8	ng/L	8.88		99.2	73-129	4.65	30	
Perfluorobutanesulfonic acid (PFBS)	7.50	1.8	ng/L	7.85		95.5	72-130	4.68	30	
Perfluoropentanoic acid (PFPeA)	8.75	1.8	ng/L	8.88		98.6	72-129	5.22	30	
Perfluorohexanoic acid (PFHxA)	8.77	1.8	ng/L	8.88		98.8	72-129	3.83	30	
11Cl-PF3OUdS (F53B Major)	5.88	1.8	ng/L	8.36		70.3	50-150	2.16	30	
9Cl-PF3ONS (F53B Minor)	6.69	1.8	ng/L	8.27		80.9	50-150	0.735	30	
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	8.04	1.8	ng/L	8.36		96.2	50-150	6.16	30	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	4.85	1.8	ng/L	8.88		54.7	50-150	4.15	30	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.47	1.8	ng/L	8.52		99.4	67-138	11.7	30	
Perfluorodecanoic acid (PFDA)	8.67	1.8	ng/L	8.88		97.7	71-129	5.15	30	
Perfluorododecanoic acid (PFDoA)	8.91	1.8	ng/L	8.88		100	72-134	3.37	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	6.32	1.8	ng/L	7.90		80.1	50-150	3.14	30	

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B315519 - SOP 454-PFAAS										
LCS Dup (B315519-BSD1)				Prepared: 08/23/22 Analyzed: 08/31/22						
Perfluoroheptanesulfonic acid (PFHpS)	8.62	1.8	ng/L	8.48		102	69-134	2.48	30	
N-EtFOSAA	8.44	1.8	ng/L	8.88		95.1	61-135	0.927	30	
N-MeFOSAA	9.26	1.8	ng/L	8.88		104	65-136	8.75	30	
Perfluorotetradecanoic acid (PFTA)	8.75	1.8	ng/L	8.88		98.5	71-132	1.26	30	
Perfluorotridecanoic acid (PFTrDA)	8.48	1.8	ng/L	8.88		95.5	65-144	0.444	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	7.95	1.8	ng/L	8.30		95.8	63-143	0.675	30	
Perfluorodecanesulfonic acid (PFDS)	7.50	1.8	ng/L	8.56		87.6	53-142	2.71	30	
Perfluorooctanesulfonamide (FOSA)	8.69	1.8	ng/L	8.88		97.9	67-137	1.88	30	
Perfluorononanesulfonic acid (PFNS)	6.92	1.8	ng/L	8.52		81.2	69-127	0.947	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	8.59	1.8	ng/L	8.88		96.8	50-150	1.70	30	
Perfluoro-1-butanesulfonamide (FBSA)	8.04	1.8	ng/L	8.88		90.6	50-150	7.03	30	
Perfluorohexanesulfonic acid (PFHxS)	7.40	1.8	ng/L	8.12		91.1	68-131	9.71	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	8.08	1.8	ng/L	8.88		91.0	50-150	4.59	30	
Perfluoro-5-oxahexanoic acid (PFMBA)	8.07	1.8	ng/L	8.88		90.9	50-150	2.97	30	
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.22	1.8	ng/L	8.43		109	64-140	3.93	30	
Perfluoropetanesulfonic acid (PFPeS)	7.40	1.8	ng/L	8.34		88.7	71-127	9.66	30	
Perfluoroundecanoic acid (PFUnA)	9.20	1.8	ng/L	8.88		104	69-133	7.73	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	8.50	1.8	ng/L	8.88		95.8	50-150	1.64	30	
Perfluoroheptanoic acid (PFHpA)	8.90	1.8	ng/L	8.88		100	72-130	7.62	30	
Perfluorooctanoic acid (PFOA)	8.99	1.8	ng/L	8.88		101	71-133	10.5	30	
Perfluorooctanesulfonic acid (PFOS)	7.38	1.8	ng/L	8.21		89.9	65-140	3.55	30	
Perfluorononanoic acid (PFNA)	9.35	1.8	ng/L	8.88		105	69-130	11.2	30	
Batch B316366 - SOP 454-PFAAS										
Blank (B316366-BLK1)				Prepared: 09/01/22 Analyzed: 09/19/22						
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	ND	1.8	ng/L							
N-MeFOSAA	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							

con-test® A Pace Analytical® Laboratory

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

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B316366 - SOP 454-PFAAS										
Blank (B316366-BLK1)				Prepared: 09/01/22 Analyzed: 09/19/22						
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							
Perfluoropetanesulfonic 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 (B316366-BS1)				Prepared: 09/01/22 Analyzed: 09/19/22						
Perfluorobutanoic acid (PFBA)	9.35	1.8	ng/L	9.24		101	73-129			
Perfluorobutanesulfonic acid (PFBS)	8.41	1.8	ng/L	8.17		103	72-130			
Perfluoropentanoic acid (PFPeA)	9.59	1.8	ng/L	9.24		104	72-129			
Perfluorohexanoic acid (PFHxA)	9.50	1.8	ng/L	9.24		103	72-129			
11Cl-PF3OUdS (F53B Major)	5.85	1.8	ng/L	8.70		67.2	50-150			
9Cl-PF3ONS (F53B Minor)	8.19	1.8	ng/L	8.61		95.1	50-150			
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	8.55	1.8	ng/L	8.70		98.2	50-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.89	1.8	ng/L	9.24		96.3	50-150			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.11	1.8	ng/L	8.87		91.4	67-138			
Perfluorodecanoic acid (PFDA)	9.43	1.8	ng/L	9.24		102	71-129			
Perfluorododecanoic acid (PFDoA)	8.27	1.8	ng/L	9.24		89.5	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	5.94	1.8	ng/L	8.22		72.3	50-150			
Perfluoroheptanesulfonic acid (PFHpS)	9.52	1.8	ng/L	8.82		108	69-134			
N-EtFOSAA	10.3	1.8	ng/L	9.24		111	61-135			
N-MeFOSAA	10.1	1.8	ng/L	9.24		109	65-136			
Perfluorotetradecanoic acid (PFTA)	10.2	1.8	ng/L	9.24		111	71-132			
Perfluorotridecanoic acid (PFTrDA)	9.06	1.8	ng/L	9.24		98.1	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.45	1.8	ng/L	8.64		109	63-143			
Perfluorodecanesulfonic acid (PFDS)	7.05	1.8	ng/L	8.91		79.1	53-142			
Perfluorooctanesulfonamide (FOSA)	9.81	1.8	ng/L	9.24		106	67-137			
Perfluorononanesulfonic acid (PFNS)	8.83	1.8	ng/L	8.87		99.6	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	7.82	1.8	ng/L	9.24		84.7	50-150			
Perfluoro-1-butanesulfonamide (FBSA)	8.79	1.8	ng/L	9.24		95.1	50-150			
Perfluorohexanesulfonic acid (PFHxS)	8.28	1.8	ng/L	8.45		98.0	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	8.21	1.8	ng/L	9.24		88.8	50-150			
Perfluoro-5-oxahexanoic acid (PFMBA)	8.16	1.8	ng/L	9.24		88.3	50-150			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	8.68	1.8	ng/L	8.77		98.9	64-140			
Perfluoropetanesulfonic acid (PFPeS)	8.78	1.8	ng/L	8.68		101	71-127			
Perfluoroundecanoic acid (PFUnA)	9.64	1.8	ng/L	9.24		104	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.42	1.8	ng/L	9.24		102	50-150			
Perfluoroheptanoic acid (PFHpA)	9.69	1.8	ng/L	9.24		105	72-130			
Perfluorooctanoic acid (PFOA)	10.0	1.8	ng/L	9.24		109	71-133			
Perfluorooctanesulfonic acid (PFOS)	8.85	1.8	ng/L	8.54		104	65-140			
Perfluorononanoic acid (PFNA)	9.88	1.8	ng/L	9.24		107	69-130			

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

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
L-07	Either laboratory fortified blank/laboratory control sample or duplicate recovery is outside of control limits, but the other is within limits. RPD between the two LFB/LCS 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.
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.
Z-01	Original extract within hold. Re-extract to confirm extracted internal standard recoveries performed outside of hold. Re-extract resulted in conforming data for many analytes. Both results reported.
Z-01a	Sample analyzed at a refortified dilution.
Z-01b	Signal to noise on quantification ion <10. Detection suspect.

con-test®
A Pace Analytical® Laboratory

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
ME-1 (22H0298-01)			Lab File ID: 22H0298-01.d			Analyzed: 08/30/22 03:51			
M8FOSA	113040.8	3.980583	253,489.00	3.980567	45	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	45081.32	2.4146	181,274.00	2.4146	25	50 - 150	0.0000	+/-0.50	*
M2PFTA	273052.3	4.30535	788,408.00	4.30535	35	50 - 150	0.0000	+/-0.50	*
M2-8:2FTS	61502.75	3.7789	134,920.00	3.778883	46	50 - 150	0.0000	+/-0.50	*
MPFBA	202481.4	1.058467	435,289.00	1.050167	47	50 - 150	0.0083	+/-0.50	*
M3HFPO-DA	248135.9	2.76565	109,736.00	2.76565	226	50 - 150	0.0000	+/-0.50	*
M6PFDA	230126	3.787383	576,444.00	3.779417	40	50 - 150	0.0080	+/-0.50	*
M3PFBS	64422.88	1.83695	125,952.00	1.828667	51	50 - 150	0.0083	+/-0.50	
M7PFUnA	339093.4	3.93005	898,020.00	3.93005	38	50 - 150	0.0000	+/-0.50	*
M2-6:2FTS	28424.72	3.4205	86,775.00	3.4205	33	50 - 150	0.0000	+/-0.50	*
M5PFPeA	195998.6	1.6652	415,405.00	1.6652	47	50 - 150	0.0000	+/-0.50	*
M5PFHxA	360311.6	2.498417	771,580.00	2.498433	47	50 - 150	0.0000	+/-0.50	*
M3PFHxS	38835.15	3.177667	94,993.00	3.177667	41	50 - 150	0.0000	+/-0.50	*
M4PFHpA	333994.9	3.138483	774,416.00	3.138483	43	50 - 150	0.0000	+/-0.50	*
M8PFOA	218486.7	3.43785	564,919.00	3.437833	39	50 - 150	0.0000	+/-0.50	*
M8PFOS	45008.88	3.628217	94,009.00	3.6282	48	50 - 150	0.0000	+/-0.50	*
M9PFNA	182441.8	3.62925	438,303.00	3.629233	42	50 - 150	0.0000	+/-0.50	*
MPFDoA	328482.9	4.064667	925,952.00	4.064667	35	50 - 150	0.0000	+/-0.50	*
d5-NEtFOSAA	586783.5	3.929533	199,379.00	3.937517	294	50 - 150	-0.0080	+/-0.50	*
d3-NMeFOSAA	81641.39	3.857667	260,310.00	3.85765	31	50 - 150	0.0000	+/-0.50	*

con-test® A Pace Analytical® Laboratory

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
ME-1 (22H0298-01RE1)			Lab File ID: 22H0298-01RE1.d			Analyzed: 09/19/22 03:30			
M8FOSA	176264.7	3.99655	292,494.00	3.99655	60	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	97852.95	2.439333	244,134.00	2.439333	40	50 - 150	0.0000	+/-0.50	*
M2PFTA	713115.9	4.313416	1,239,252.00	4.313416	58	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	66625.04	3.78685	119,127.00	3.78685	56	50 - 150	0.0000	+/-0.50	
MPFBA	438391.3	1.058467	436,533.00	1.058467	100	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	117732	2.782017	89,402.00	2.782017	132	50 - 150	0.0000	+/-0.50	
M6PFDA	521967	3.787367	629,060.00	3.787367	83	50 - 150	0.0000	+/-0.50	
M3PFBS	129023.3	1.861817	118,592.00	1.861817	109	50 - 150	0.0000	+/-0.50	
M7PFUnA	504676	3.930033	737,522.00	3.930033	68	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	81078.46	3.4293	141,111.00	3.4205	57	50 - 150	0.0088	+/-0.50	
M5PFPeA	410882.7	1.690017	391,952.00	1.690017	105	50 - 150	0.0000	+/-0.50	
M5PFHxA	839074.1	2.523067	820,754.00	2.523067	102	50 - 150	0.0000	+/-0.50	
M3PFHxS	120722.3	3.193817	114,140.00	3.185733	106	50 - 150	0.0081	+/-0.50	
M4PFHpA	988753.9	3.154633	966,420.00	3.14655	102	50 - 150	0.0081	+/-0.50	
M8PFOA	901638.4	3.437833	882,375.00	3.437833	102	50 - 150	0.0000	+/-0.50	
M8PFOS	85951.77	3.636183	101,504.00	3.6282	85	50 - 150	0.0080	+/-0.50	
M9PFNA	614519.3	3.629233	734,996.00	3.629233	84	50 - 150	0.0000	+/-0.50	
MPFDoA	457791	4.07265	753,263.00	4.07265	61	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	148582.1	3.937517	264,483.00	3.9375	56	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	192806.9	3.8656	308,492.00	3.8656	62	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
ME-3 (22H0298-02)			Lab File ID: 22H0298-02.d			Analyzed: 08/30/22 03:58			
M8FOSA	322919.9	3.980567	253,489.00	3.980567	127	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	110356.1	2.4146	181,274.00	2.4146	61	50 - 150	0.0000	+/-0.50	
M2PFTA	885878.5	4.305333	788,408.00	4.30535	112	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	189132.7	3.778883	134,920.00	3.778883	140	50 - 150	0.0000	+/-0.50	
MPFBA	473597.7	1.050167	435,289.00	1.050167	109	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	266785.9	2.76565	109,736.00	2.76565	243	50 - 150	0.0000	+/-0.50	*
M6PFDA	707726.8	3.787367	576,444.00	3.779417	123	50 - 150	0.0080	+/-0.50	
M3PFBS	154485	1.828667	125,952.00	1.828667	123	50 - 150	0.0000	+/-0.50	
M7PFUnA	1018033	3.930033	898,020.00	3.93005	113	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	54554.79	3.4205	86,775.00	3.4205	63	50 - 150	0.0000	+/-0.50	
M5PFPeA	480465.6	1.6652	415,405.00	1.6652	116	50 - 150	0.0000	+/-0.50	
M5PFHxA	884240.9	2.498417	771,580.00	2.498433	115	50 - 150	0.0000	+/-0.50	
M3PFHxS	102801.4	3.17765	94,993.00	3.177667	108	50 - 150	0.0000	+/-0.50	
M4PFHpA	894954.7	3.138467	774,416.00	3.138483	116	50 - 150	0.0000	+/-0.50	
M8PFOA	616688.5	3.42985	564,919.00	3.437833	109	50 - 150	-0.0080	+/-0.50	
M8PFOS	117575.2	3.6282	94,009.00	3.6282	125	50 - 150	0.0000	+/-0.50	
M9PFNA	488724.6	3.629233	438,303.00	3.629233	112	50 - 150	0.0000	+/-0.50	
MPFDoA	919479.6	4.06465	925,952.00	4.064667	99	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	932673.6	3.929517	199,379.00	3.937517	468	50 - 150	-0.0080	+/-0.50	*
d3-NMeFOSAA	255955.4	3.85765	260,310.00	3.85765	98	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
ME-2 (22H0298-03)			Lab File ID: 22H0298-03.d			Analyzed: 08/30/22 04:13			
M8FOSA	350311.6	3.980583	253,489.00	3.980567	138	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	108107.5	2.4146	181,274.00	2.414617	60	50 - 150	0.0000	+/-0.50	
M2PFTA	927392.5	4.305367	788,408.00	4.30535	118	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	170501.8	3.7789	134,920.00	3.778883	126	50 - 150	0.0000	+/-0.50	
MPFBA	519917.2	1.050167	435,289.00	1.050167	119	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	267450.4	2.76565	109,736.00	2.765667	244	50 - 150	0.0000	+/-0.50	*
M6PFDA	755278.4	3.787383	576,444.00	3.787383	131	50 - 150	0.0000	+/-0.50	
M3PFBS	156642.4	1.828667	125,952.00	1.828667	124	50 - 150	0.0000	+/-0.50	
M7PFUnA	995026.2	3.93005	898,020.00	3.93005	111	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	68410.1	3.4205	86,775.00	3.4205	79	50 - 150	0.0000	+/-0.50	
M5PFPeA	500506	1.6652	415,405.00	1.6652	120	50 - 150	0.0000	+/-0.50	
M5PFHxA	907770.9	2.498417	771,580.00	2.498433	118	50 - 150	0.0000	+/-0.50	
M3PFHxS	112809.5	3.185733	94,993.00	3.177667	119	50 - 150	0.0081	+/-0.50	
M4PFHpA	903580.1	3.14655	774,416.00	3.14655	117	50 - 150	0.0000	+/-0.50	
M8PFOA	637873.1	3.437833	564,919.00	3.42985	113	50 - 150	0.0080	+/-0.50	
M8PFOS	134660.8	3.6282	94,009.00	3.6282	143	50 - 150	0.0000	+/-0.50	
M9PFNA	547228.8	3.629233	438,303.00	3.629233	125	50 - 150	0.0000	+/-0.50	
MPFDoA	1011224	4.064667	925,952.00	4.064667	109	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	1004131	3.929517	199,379.00	3.937517	504	50 - 150	-0.0080	+/-0.50	*
d3-NMeFOSAA	276881.3	3.857667	260,310.00	3.85765	106	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-I (s) (22H0298-04)			Lab File ID: 22H0298-04.d			Analyzed: 08/30/22 04:20			
M8FOSA	300515.6	3.980583	253,489.00	3.980567	119	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	122916.5	2.414617	181,274.00	2.414617	68	50 - 150	0.0000	+/-0.50	
M2PFTA	895639.8	4.30535	788,408.00	4.30535	114	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	176371.4	3.7789	134,920.00	3.778883	131	50 - 150	0.0000	+/-0.50	
MPFBA	426981.8	1.050167	435,289.00	1.050167	98	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	273571	2.76565	109,736.00	2.765667	249	50 - 150	0.0000	+/-0.50	*
M6PFDA	696609.5	3.7874	576,444.00	3.787383	121	50 - 150	0.0000	+/-0.50	
M3PFBS	140531.2	1.836967	125,952.00	1.828667	112	50 - 150	0.0083	+/-0.50	
M7PFUnA	1000905	3.930067	898,020.00	3.93005	111	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	682463.8	3.420517	86,775.00	3.4205	786	50 - 150	0.0000	+/-0.50	*
M5PFPeA	444029.3	1.6652	415,405.00	1.6652	107	50 - 150	0.0000	+/-0.50	
M5PFHxA	828030.4	2.498433	771,580.00	2.498433	107	50 - 150	0.0000	+/-0.50	
M3PFHxS	103010.7	3.18575	94,993.00	3.177667	108	50 - 150	0.0081	+/-0.50	
M4PFHpA	823495.6	3.146567	774,416.00	3.14655	106	50 - 150	0.0000	+/-0.50	
M8PFOA	520494.8	3.429867	564,919.00	3.42985	92	50 - 150	0.0000	+/-0.50	
M8PFOS	103227	3.628217	94,009.00	3.6282	110	50 - 150	0.0000	+/-0.50	
M9PFNA	463302.8	3.62925	438,303.00	3.629233	106	50 - 150	0.0000	+/-0.50	
MPFDoA	960215.6	4.064683	925,952.00	4.064667	104	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	1031909	3.937533	199,379.00	3.937517	518	50 - 150	0.0000	+/-0.50	*
d3-NMeFOSAA	253160.7	3.857667	260,310.00	3.85765	97	50 - 150	0.0000	+/-0.50	
HW-I (s) (22H0298-04RE1)			Lab File ID: 22H0298-04RE1.d			Analyzed: 09/09/22 17:30			
M2-6:2FTS	38333.86	3.485367	56,034.00	3.485383	68	50 - 150	0.0000	+/-0.50	
M5PFPeA	176843.2	1.7743	291,406.00	1.7743	61	50 - 150	0.0000	+/-0.50	
M4PFHpA	173873.5	3.227617	341,842.00	3.227633	51	50 - 150	0.0000	+/-0.50	
M8PFOS	42189.76	3.6841	73,698.00	3.684117	57	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-I (m) (22H0298-05)			Lab File ID: 22H0298-05.d			Analyzed: 08/30/22 04:27			
M8FOSA	366857	3.980567	253,489.00	3.980567	145	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	126036.8	2.4146	181,274.00	2.414617	70	50 - 150	0.0000	+/-0.50	
M2PFTA	1008766	4.30535	788,408.00	4.30535	128	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	189433.4	3.778883	134,920.00	3.778883	140	50 - 150	0.0000	+/-0.50	
MPFBA	495869.8	1.050167	435,289.00	1.050167	114	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	281244.1	2.76565	109,736.00	2.765667	256	50 - 150	0.0000	+/-0.50	*
M6PFDA	788066.1	3.787383	576,444.00	3.787383	137	50 - 150	0.0000	+/-0.50	
M3PFBS	161686.8	1.828667	125,952.00	1.828667	128	50 - 150	0.0000	+/-0.50	
M7PFUnA	1134175	3.93005	898,020.00	3.93005	126	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	66463.64	3.4205	86,775.00	3.4205	77	50 - 150	0.0000	+/-0.50	
M5PFPeA	517533.3	1.6652	415,405.00	1.6652	125	50 - 150	0.0000	+/-0.50	
M5PFHxA	939442.4	2.498417	771,580.00	2.498433	122	50 - 150	0.0000	+/-0.50	
M3PFHxS	116674.1	3.17765	94,993.00	3.177667	123	50 - 150	0.0000	+/-0.50	
M4PFHpA	956055.7	3.14655	774,416.00	3.14655	123	50 - 150	0.0000	+/-0.50	
M8PFOA	704916.6	3.437833	564,919.00	3.42985	125	50 - 150	0.0080	+/-0.50	
M8PFOS	136408.5	3.6282	94,009.00	3.6282	145	50 - 150	0.0000	+/-0.50	
M9PFNA	568454.3	3.629233	438,303.00	3.629233	130	50 - 150	0.0000	+/-0.50	
MPFDoA	1081139	4.064667	925,952.00	4.064667	117	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	1019535	3.937517	199,379.00	3.937517	511	50 - 150	0.0000	+/-0.50	*
d3-NMeFOSAA	282085.4	3.85765	260,310.00	3.85765	108	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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
HW-I (d) (22H0298-06)			Lab File ID: 22H0298-06.d			Analyzed: 08/31/22 03:46			
M8FOSA	59545.23	3.9806	293,084.00	3.980567	20	50 - 150	0.0000	+/-0.50	*
M2-4:2FTS	89546.84	2.422817	171,911.00	2.4146	52	50 - 150	0.0082	+/-0.50	
M2PFTA	508484.7	4.305367	810,248.00	4.305333	63	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	162557.8	3.7789	160,893.00	3.778883	101	50 - 150	0.0000	+/-0.50	
MPFBA	341697.8	1.058467	450,804.00	1.050167	76	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	145892.2	2.76565	129,648.00	2.76565	113	50 - 150	0.0000	+/-0.50	
M6PFDA	509152.4	3.779433	642,324.00	3.7794	79	50 - 150	0.0000	+/-0.50	
M3PFBS	111621.9	1.83695	128,766.00	1.828667	87	50 - 150	0.0083	+/-0.50	
M7PFUnA	630761	3.922067	876,840.00	3.92205	72	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	55928.65	3.4205	87,191.00	3.4205	64	50 - 150	0.0000	+/-0.50	
M5PFPeA	365340.6	1.673467	437,818.00	1.6652	83	50 - 150	0.0083	+/-0.50	
M5PFHxA	661594.3	2.506633	785,551.00	2.498417	84	50 - 150	0.0082	+/-0.50	
M3PFHxS	89490.92	3.177667	99,698.00	3.17765	90	50 - 150	0.0000	+/-0.50	
M4PFHpA	687931.2	3.146567	809,634.00	3.138467	85	50 - 150	0.0081	+/-0.50	
M8PFOA	496728.5	3.429867	579,240.00	3.42985	86	50 - 150	0.0000	+/-0.50	
M8PFOS	87553.51	3.6282	106,944.00	3.6282	82	50 - 150	0.0000	+/-0.50	
M9PFNA	407523.6	3.62925	478,068.00	3.629233	85	50 - 150	0.0000	+/-0.50	
MPFDoA	568596	4.064683	942,196.00	4.064667	60	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	132748.2	3.929533	218,021.00	3.929517	61	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	168254.3	3.857683	248,391.00	3.85765	68	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B315452-BLK1)			Lab File ID: B315452-BLK1.d			Analyzed: 08/30/22 02:46			
M8FOSA	294407.4	3.9806	253,489.00	3.980567	116	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	158618.8	2.422817	181,274.00	2.4146	88	50 - 150	0.0082	+/-0.50	
M2PFTA	730093.6	4.305367	788,408.00	4.30535	93	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	246724.5	3.778917	134,920.00	3.778883	183	50 - 150	0.0000	+/-0.50	*
MPFBA	442933.4	1.058467	435,289.00	1.050167	102	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	358327	2.765667	109,736.00	2.76565	327	50 - 150	0.0000	+/-0.50	*
M6PFDA	648594.6	3.7874	576,444.00	3.779417	113	50 - 150	0.0080	+/-0.50	
M3PFBS	141592.5	1.836967	125,952.00	1.828667	112	50 - 150	0.0083	+/-0.50	
M7PFUnA	916817.6	3.930067	898,020.00	3.93005	102	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	69704.11	3.420517	86,775.00	3.4205	80	50 - 150	0.0000	+/-0.50	
M5PFPeA	453166.2	1.673467	415,405.00	1.6652	109	50 - 150	0.0083	+/-0.50	
M5PFHxA	831287.6	2.498433	771,580.00	2.498433	108	50 - 150	0.0000	+/-0.50	
M3PFHxS	95214.95	3.18575	94,993.00	3.177667	100	50 - 150	0.0081	+/-0.50	
M4PFHpA	796295.9	3.146567	774,416.00	3.138483	103	50 - 150	0.0081	+/-0.50	
M8PFOA	528314.4	3.437867	564,919.00	3.437833	94	50 - 150	0.0000	+/-0.50	
M8PFOS	105902.6	3.628217	94,009.00	3.6282	113	50 - 150	0.0000	+/-0.50	
M9PFNA	444566	3.629267	438,303.00	3.629233	101	50 - 150	0.0000	+/-0.50	
MPFDoA	856345.9	4.064683	925,952.00	4.064667	92	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	938126.1	3.937533	199,379.00	3.937517	471	50 - 150	0.0000	+/-0.50	*
d3-NMeFOSAA	259282.6	3.857683	260,310.00	3.85765	100	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B315452-BS1)			Lab File ID: B315452-BS1.d			Analyzed: 08/30/22 02:32			
M8FOSA	272282.5	3.980567	253,489.00	3.980567	107	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	134701.2	2.4228	181,274.00	2.4146	74	50 - 150	0.0082	+/-0.50	
M2PFTA	698668.5	4.30535	788,408.00	4.30535	89	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	205859.4	3.778883	134,920.00	3.778883	153	50 - 150	0.0000	+/-0.50	*
MPFBA	403902.1	1.058467	435,289.00	1.050167	93	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	305550.6	2.76565	109,736.00	2.76565	278	50 - 150	0.0000	+/-0.50	*
M6PFDA	623567.4	3.779417	576,444.00	3.779417	108	50 - 150	0.0000	+/-0.50	
M3PFBS	129645.2	1.83695	125,952.00	1.828667	103	50 - 150	0.0083	+/-0.50	
M7PFUnA	865399.8	3.93005	898,020.00	3.93005	96	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	57091.99	3.4205	86,775.00	3.4205	66	50 - 150	0.0000	+/-0.50	
M5PFPeA	416846.1	1.673467	415,405.00	1.6652	100	50 - 150	0.0083	+/-0.50	
M5PFHxA	760449.9	2.506633	771,580.00	2.498433	99	50 - 150	0.0082	+/-0.50	
M3PFHxS	80752.11	3.185733	94,993.00	3.177667	85	50 - 150	0.0081	+/-0.50	
M4PFHpA	708261.3	3.14655	774,416.00	3.138483	91	50 - 150	0.0081	+/-0.50	
M8PFOA	509353.6	3.437833	564,919.00	3.437833	90	50 - 150	0.0000	+/-0.50	
M8PFOS	98178.8	3.6282	94,009.00	3.6282	104	50 - 150	0.0000	+/-0.50	
M9PFNA	409364.7	3.629233	438,303.00	3.629233	93	50 - 150	0.0000	+/-0.50	
MPFDoA	831393.1	4.064667	925,952.00	4.064667	90	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	827195.6	3.929517	199,379.00	3.937517	415	50 - 150	-0.0080	+/-0.50	*
d3-NMeFOSAA	216582.1	3.85765	260,310.00	3.85765	83	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B315452-BSD1)			Lab File ID: B315452-BSD1.d			Analyzed: 08/30/22 02:39			
M8FOSA	239113.2	3.980583	253,489.00	3.980567	94	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	130908.3	2.4228	181,274.00	2.4146	72	50 - 150	0.0082	+/-0.50	
M2PFTA	623516.1	4.30535	788,408.00	4.30535	79	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	201235.6	3.7789	134,920.00	3.778883	149	50 - 150	0.0000	+/-0.50	
MPFBA	368639.5	1.058467	435,289.00	1.050167	85	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	284525.7	2.76565	109,736.00	2.76565	259	50 - 150	0.0000	+/-0.50	*
M6PFDA	583912.9	3.779417	576,444.00	3.779417	101	50 - 150	0.0000	+/-0.50	
M3PFBS	118456.3	1.83695	125,952.00	1.828667	94	50 - 150	0.0083	+/-0.50	
M7PFUnA	741424.5	3.930067	898,020.00	3.93005	83	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	54286.85	3.4205	86,775.00	3.4205	63	50 - 150	0.0000	+/-0.50	
M5PFPeA	381838.8	1.673467	415,405.00	1.6652	92	50 - 150	0.0083	+/-0.50	
M5PFHxA	694416.6	2.498417	771,580.00	2.498433	90	50 - 150	0.0000	+/-0.50	
M3PFHxS	74646.42	3.185733	94,993.00	3.177667	79	50 - 150	0.0081	+/-0.50	
M4PFHpA	645436.3	3.14655	774,416.00	3.138483	83	50 - 150	0.0081	+/-0.50	
M8PFOA	456913.4	3.437833	564,919.00	3.437833	81	50 - 150	0.0000	+/-0.50	
M8PFOS	84932.37	3.6282	94,009.00	3.6282	90	50 - 150	0.0000	+/-0.50	
M9PFNA	369743.9	3.629233	438,303.00	3.629233	84	50 - 150	0.0000	+/-0.50	
MPFDoA	741711.6	4.064683	925,952.00	4.064667	80	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	766062.1	3.929533	199,379.00	3.937517	384	50 - 150	-0.0080	+/-0.50	*
d3-NMeFOSAA	204652.1	3.857667	260,310.00	3.85765	79	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B315519-BLK1)			Lab File ID: B315519-BLK1.d			Analyzed: 08/31/22 03:39			
M8FOSA	194491	3.980583	293,084.00	3.980567	66	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	121786.2	2.4228	171,911.00	2.4146	71	50 - 150	0.0082	+/-0.50	
M2PFTA	586825.6	4.30535	810,248.00	4.305333	72	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	187112.6	3.7789	160,893.00	3.778883	116	50 - 150	0.0000	+/-0.50	
MPFBA	384914.5	1.050167	450,804.00	1.050167	85	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	133073.1	2.76565	129,648.00	2.76565	103	50 - 150	0.0000	+/-0.50	
M6PFDA	530808.2	3.779417	642,324.00	3.7794	83	50 - 150	0.0000	+/-0.50	
M3PFBS	109045.7	1.83695	128,766.00	1.828667	85	50 - 150	0.0083	+/-0.50	
M7PFUnA	654944.7	3.93005	876,840.00	3.92205	75	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	66416.34	3.4205	87,191.00	3.4205	76	50 - 150	0.0000	+/-0.50	
M5PFPeA	359940.3	1.6652	437,818.00	1.6652	82	50 - 150	0.0000	+/-0.50	
M5PFHxA	646868.8	2.498417	785,551.00	2.498417	82	50 - 150	0.0000	+/-0.50	
M3PFHxS	85741.09	3.177667	99,698.00	3.17765	86	50 - 150	0.0000	+/-0.50	
M4PFHpA	675313.4	3.14655	809,634.00	3.138467	83	50 - 150	0.0081	+/-0.50	
M8PFOA	522083.9	3.42985	579,240.00	3.42985	90	50 - 150	0.0000	+/-0.50	
M8PFOS	90527.88	3.6282	106,944.00	3.6282	85	50 - 150	0.0000	+/-0.50	
M9PFNA	401714.5	3.629233	478,068.00	3.629233	84	50 - 150	0.0000	+/-0.50	
MPFDoA	605293.8	4.064667	942,196.00	4.064667	64	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	134170.3	3.929533	218,021.00	3.929517	62	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	177637	3.857667	248,391.00	3.85765	72	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B315519-BS1)			Lab File ID: B315519-BS1.d			Analyzed: 08/31/22 03:24			
M8FOSA	204022.3	3.980567	293,084.00	3.980567	70	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	129296.3	2.4228	171,911.00	2.4146	75	50 - 150	0.0082	+/-0.50	
M2PFTA	633997.4	4.305333	810,248.00	4.305333	78	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	186857.4	3.778883	160,893.00	3.778883	116	50 - 150	0.0000	+/-0.50	
MPFBA	416491.8	1.058467	450,804.00	1.050167	92	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	146187.1	2.773833	129,648.00	2.76565	113	50 - 150	0.0082	+/-0.50	
M6PFDA	565915.1	3.7794	642,324.00	3.7794	88	50 - 150	0.0000	+/-0.50	
M3PFBS	115133	1.83695	128,766.00	1.828667	89	50 - 150	0.0083	+/-0.50	
M7PFUnA	656365.5	3.930033	876,840.00	3.92205	75	50 - 150	0.0080	+/-0.50	
M2-6:2FTS	71794.28	3.4205	87,191.00	3.4205	82	50 - 150	0.0000	+/-0.50	
M5PFPeA	388123.1	1.673467	437,818.00	1.6652	89	50 - 150	0.0083	+/-0.50	
M5PFHxA	691367	2.506633	785,551.00	2.498417	88	50 - 150	0.0082	+/-0.50	
M3PFHxS	93756.85	3.185733	99,698.00	3.17765	94	50 - 150	0.0081	+/-0.50	
M4PFHpA	720935.5	3.14655	809,634.00	3.138467	89	50 - 150	0.0081	+/-0.50	
M8PFOA	531983.4	3.437833	579,240.00	3.42985	92	50 - 150	0.0080	+/-0.50	
M8PFOS	91860.38	3.6282	106,944.00	3.6282	86	50 - 150	0.0000	+/-0.50	
M9PFNA	437894.7	3.629233	478,068.00	3.629233	92	50 - 150	0.0000	+/-0.50	
MPFDoA	663333.5	4.06465	942,196.00	4.064667	70	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	137564.3	3.929517	218,021.00	3.929517	63	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	179972	3.85765	248,391.00	3.85765	72	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B315519-BSD1)			Lab File ID: B315519-BSD1.d			Analyzed: 08/31/22 03:31			
M8FOSA	232135.6	3.980583	293,084.00	3.980567	79	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	137371.3	2.4228	171,911.00	2.4146	80	50 - 150	0.0082	+/-0.50	
M2PFTA	710081.5	4.30535	810,248.00	4.305333	88	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	172330.7	3.7789	160,893.00	3.778883	107	50 - 150	0.0000	+/-0.50	
MPFBA	421237.6	1.050167	450,804.00	1.050167	93	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	141652.3	2.76565	129,648.00	2.76565	109	50 - 150	0.0000	+/-0.50	
M6PFDA	582773.1	3.779417	642,324.00	3.7794	91	50 - 150	0.0000	+/-0.50	
M3PFBS	119041.2	1.83695	128,766.00	1.828667	92	50 - 150	0.0083	+/-0.50	
M7PFUnA	710720.8	3.92205	876,840.00	3.92205	81	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	73444.91	3.4205	87,191.00	3.4205	84	50 - 150	0.0000	+/-0.50	
M5PFPeA	395607.2	1.6652	437,818.00	1.6652	90	50 - 150	0.0000	+/-0.50	
M5PFHxA	702282.7	2.498417	785,551.00	2.498417	89	50 - 150	0.0000	+/-0.50	
M3PFHxS	92138.43	3.17765	99,698.00	3.17765	92	50 - 150	0.0000	+/-0.50	
M4PFHpA	714648.3	3.14655	809,634.00	3.138467	88	50 - 150	0.0081	+/-0.50	
M8PFOA	555480.9	3.42985	579,240.00	3.42985	96	50 - 150	0.0000	+/-0.50	
M8PFOS	103390.7	3.6282	106,944.00	3.6282	97	50 - 150	0.0000	+/-0.50	
M9PFNA	451647.9	3.629233	478,068.00	3.629233	94	50 - 150	0.0000	+/-0.50	
MPFDoA	731815.9	4.064667	942,196.00	4.064667	78	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	153174.8	3.929533	218,021.00	3.929517	70	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	202119.6	3.857667	248,391.00	3.85765	81	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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 (B316366-BLK1)			Lab File ID: B316366-BLK1.d			Analyzed: 09/19/22 02:40			
M8FOSA	217208.9	3.99655	292,494.00	3.99655	74	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	134283.7	2.439333	244,134.00	2.439333	55	50 - 150	0.0000	+/-0.50	
M2PFTA	938673.3	4.313416	1,239,252.00	4.313416	76	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	97024.48	3.78685	119,127.00	3.78685	81	50 - 150	0.0000	+/-0.50	
MPFBA	507067.1	1.050167	436,533.00	1.058467	116	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	116066.4	2.773833	89,402.00	2.782017	130	50 - 150	-0.0082	+/-0.50	
M6PFDA	626794.1	3.787367	629,060.00	3.787367	100	50 - 150	0.0000	+/-0.50	
M3PFBS	134044.1	1.861817	118,592.00	1.861817	113	50 - 150	0.0000	+/-0.50	
M7PFUnA	641612.9	3.930033	737,522.00	3.930033	87	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	87602.66	3.4293	141,111.00	3.4205	62	50 - 150	0.0088	+/-0.50	
M5PFPeA	438932.7	1.681733	391,952.00	1.690017	112	50 - 150	-0.0083	+/-0.50	
M5PFHxA	893500.4	2.523067	820,754.00	2.523067	109	50 - 150	0.0000	+/-0.50	
M3PFHxS	126112.4	3.1938	114,140.00	3.185733	110	50 - 150	0.0081	+/-0.50	
M4PFHpA	1064378	3.154633	966,420.00	3.14655	110	50 - 150	0.0081	+/-0.50	
M8PFOA	984937.8	3.437833	882,375.00	3.437833	112	50 - 150	0.0000	+/-0.50	
M8PFOS	100650.2	3.636183	101,504.00	3.6282	99	50 - 150	0.0080	+/-0.50	
M9PFNA	716694.6	3.629233	734,996.00	3.629233	98	50 - 150	0.0000	+/-0.50	
MPFDoA	631718.5	4.07265	753,263.00	4.07265	84	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	203339.5	3.9375	264,483.00	3.9375	77	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	247914.5	3.8656	308,492.00	3.8656	80	50 - 150	0.0000	+/-0.50	

con-test®
A Pace Analytical® Laboratory

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 (B316366-BS1)			Lab File ID: B316366-BS1.d			Analyzed: 09/19/22 02:33			
M8FOSA	231204.9	3.99655	292,494.00	3.99655	79	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	122585.6	2.439333	244,134.00	2.439333	50	50 - 150	0.0000	+/-0.50	
M2PFTA	926942.3	4.313416	1,239,252.00	4.313416	75	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	92017.65	3.78685	119,127.00	3.78685	77	50 - 150	0.0000	+/-0.50	
MPFBA	542887.4	1.050167	436,533.00	1.058467	124	50 - 150	-0.0083	+/-0.50	
M3HFPO-DA	117544.5	2.782017	89,402.00	2.782017	131	50 - 150	0.0000	+/-0.50	
M6PFDA	691644.5	3.787367	629,060.00	3.787367	110	50 - 150	0.0000	+/-0.50	
M3PFBS	144703.1	1.861817	118,592.00	1.861817	122	50 - 150	0.0000	+/-0.50	
M7PFUnA	656739	3.930033	737,522.00	3.930033	89	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	84980.66	3.4293	141,111.00	3.4205	60	50 - 150	0.0088	+/-0.50	
M5PFPeA	471351	1.681733	391,952.00	1.690017	120	50 - 150	-0.0083	+/-0.50	
M5PFHxA	940557.8	2.523067	820,754.00	2.523067	115	50 - 150	0.0000	+/-0.50	
M3PFHxS	133427.7	3.1938	114,140.00	3.185733	117	50 - 150	0.0081	+/-0.50	
M4PFHpA	1101564	3.154633	966,420.00	3.14655	114	50 - 150	0.0081	+/-0.50	
M8PFOA	1042088	3.437833	882,375.00	3.437833	118	50 - 150	0.0000	+/-0.50	
M8PFOS	107898.9	3.636183	101,504.00	3.6282	106	50 - 150	0.0080	+/-0.50	
M9PFNA	727099.6	3.629233	734,996.00	3.629233	99	50 - 150	0.0000	+/-0.50	
MPFDoA	617913.8	4.07265	753,263.00	4.07265	82	50 - 150	0.0000	+/-0.50	
d5-NEtFOSAA	196478.8	3.9375	264,483.00	3.9375	74	50 - 150	0.0000	+/-0.50	
d3-NMeFOSAA	252284.7	3.8656	308,492.00	3.8656	82	50 - 150	0.0000	+/-0.50	

con-test® A Pace Analytical® Laboratory

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Drinking Water	
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 (PFEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA	NH-P
N-MeFOSAA	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-butanesulfonamide (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
Perfluoropetanesulfonic 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
SOP-454 PFAS in Water	
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

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA	NH-P
N-MeFOSAA	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-butanesulfonamide (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
Perfluoropetanesulfonic 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
SOP-466 PFAS in Soil	
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 (PFEESA)	NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NH-P
N-EtFOSAA	NH-P
N-MeFOSAA	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

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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-466 PFAS in Soil	
Perfluoro-1-butanesulfonamide (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
Perfluoropetanesulfonic 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
AIHA	AIHA-LAP, LLC - ISO 17025:2017	100033	03/1/2024
MA	Massachusetts DEP	M-MA100	06/30/2023
CT	Connecticut Department of Public Health	PH-0165	12/31/2022
NY	New York State Department of Health	10899 NELAP	04/1/2023
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2023
RI	Rhode Island Department of Health	LAO00373	12/30/2022
NC	North Carolina Div. of Water Quality	652	12/31/2022
NJ	New Jersey DEP	MA007 NELAP	06/30/2023
FL	Florida Department of Health	E871027 NELAP	06/30/2023
VT	Vermont Department of Health Lead Laboratory	LL720741	07/30/2023
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2023
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2022
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023
NC-DW	North Carolina Department of Health and Human Services	25703	07/31/2023
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2023
MI	Dept. of Env, Great Lakes, and Energy	9100	09/6/2023

22H0298

Pace Analytical®

Phone: 413-525-2332
Fax: 413-525-6405
Access COC's and Support Requests

http://www.pacelabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 5_07/13/2021

Page 1 of 1

Company Name:	Horsley Witten Group
Address:	90 Route 6A
Phone:	508-833-6600
Project Name:	HYA PFAS Monitoring
Project Location:	Mahr Wellfield
Project Number:	22071
Project Manager:	Bryan Mussa
Pace Quote Name/Number:	
Invoice Recipient:	
Sampled By:	HW

Requested Turnaround Time
7-Day ☐ 10-Day ☐
PFAS 10-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 #:

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

PCB ONLY
SOXHLET ☐
NON SOXHLET ☐

ANALYSIS REQUESTED

PFAS - All - Isotope Dil. List

Pace Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1] Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS
1	MW-1	~~7/26/22~~	1010	Grab	GW	L			2			X
2	MW-3	7/26/22	1020	Grab	GW	L			2			X
3	MW-2	7/26/22	1030	Grab	GW	L			2			X
4	HW-I(s)	8/2/22	1345	Grab	GW	L			2			X
5	HW-I(m)	8/2/22	1410	Grab	GW	L			2			X
6	HW-I(d)	8/2/22	1450	Grab	GW	L			1			X

[2] Preservation Code

Courier Use Only
Total Number Of:
VIALS
GLASS
PLASTIC 11
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)

MW-1 MW-3

Relinquished by: (signature)	Date/Time: 7/26/22 1200	Client Comments: No preservative - Samples Iced
Received by: (signature) HW fridge	Date/Time: 7/26/22 1200	
Relinquished by: (signature) ~~Aaron Ballou~~	Date/Time: 8/2/22 1641	
Received by: (signature) HW fridge	Date/Time: 8/2/22 1641	
Relinquished by: (signature)	Date/Time: 8/4/22	
Received by: (signature) Paul Chesteney	Date/Time: 8-4-22 1229	
Relinquished by: (signature) Paul Chesteney	Date/Time: 8-4-22 16	
Received by: (signature)	Date/Time: 8-4-22 1645	

HW-I (MW13)

Detection Limit Requirements
MA: GW-1

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

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

Other
PWSID #

NELAC and AIHA-LAP, LLC Accredited

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

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

[3] Comments:
8-4-22 1805
DW 4.1 8/4 1805

~~Missing~~ MW-2 8/4/22

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.

Table of Contents

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 Received By: Horsley DMW Date: 08/04/22 Time: 1605

How were the samples received?	In Cooler: T	No Cooler:	On Ice: T	No Ice:			
	Direct From Sample:		Ambient:	Melted Ice:			
Were samples within Tempurature?	Within 2-6°C: T	By Gun #: 5	Actual Temp - 4.1				
		By Blank #:	Actual Temp -				
Was Custody Seal In tact?	N/A	Were Samples Tampered with?	N/A				
Was COC Relinquished ?	F	Does Chain Agree With Samples?	F				
Are there broken/leaking/loose caps on any samples?	F						
Is COC in ink/ Legible?	T	Were samples received within holding time?	T				
Did COC include all pertinent Information?	Client? T	Analysis? T	Sampler Name? T				
	Project? T	ID's? T	Collection Dates/Times? T				
Are Sample labels filled out and legible?	T						
Are there Lab to Filters?	F	Who was notified?					
Are there Rushes?	F	Who was notified?					
Are there Short Holds?	F	Who was notified?					
Samples are received within holding time?	T	Is there enough Volume?	T				
Is there Headspace where applicable?	N/A	MS/MSD?	F				
Proper Media/Containers Used?	T	splitting samples require	F				
Were trip blanks receive	F	On COC?	F				
Do All Samples Have the proper pH?	Acid N/A	Base N/A					

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic	1	16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	9	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: