



October 3, 2022

Mr. Stephen Buckley
Interim Director of Public Works
Town of Scarborough
20 Washington Avenue
Scarborough, Maine 04074

RE: PFAS Soil and Groundwater Sampling Report
Former Sludge Spreading Site
Tibbets Road, Scarborough, Maine
St.Germain File No.: 4444-0005

Dear Stephen:

St.Germain is providing you with this report for the soil and groundwater sampling of per and polyfluoroalkyl substances (PFAS) at the above-referenced former sludge spreading Site (see **Figure 1, Site Location Map**). PFAS sampling was performed in accordance with St.Germain's scope of work contained in *Revised Scope of Work and Cost - PFAS Investigation, Tibbets Road Former Sludge Spreading Site, Scarborough, Maine, June 3, 2022*.

SITE DESCRIPTION AND HISTORY

Located off the southern end of Tibbets Road in Scarborough, the 69-acre parcel of Town-owned land is undeveloped and consists of open fields and wooded areas. The Site is in a rural residential area of northwest Scarborough with the closest residential homes approximately 600 feet to the northeast. The surrounding area is served by private wells and septic systems. Although not designated for public use by the Town, the Site is used by the public for activities such as walking, biking, horseback riding, and snowmobiling (see **Figure 2, Site Plan**).

Based on the review of Town and Department of Environmental Protection (DEP) files, the Site was permitted for septic sludge spreading in 1974 for 37,000 gallons of waste spreading per acre per year. The Site received sludge from the Town of Scarborough's wastewater treatment plant and private septic system haulers. In 1977, the Town of Scarborough purchased the Site and continued to use it for sludge spreading until 1984.

No documentation was discovered indicating the exact locations where staging and spreading occurred; however, there are two distinct open areas (North and South Field) on the Site where sludge staging and spreading is believed to have occurred based on visual evidence of dark stained soil, the presence of monitoring wells, and earthen berms. A third open area (Eastern field) appears to have been undisturbed with no visible evidence sludge spreading (see Figure 2).

SITE GEOLOGY AND HYDROGEOLOGY

The surficial geology, based on the Maine Geological Survey (MGS) mapping consists of till (Pt), which is described as a poorly sorted mixture of gravel, sand, silt, and clay deposited directly by the action of glacier ice. The MGS has mapped the bedrock geology as a member of the Berwick Formation (SObf), consisting of light gray, fine grained plagioclase-quartz granofels. Bedrock outcrops exist throughout the Site and MGS outcrop mapping at the intersection of Tibbets and Broadturn Roads indicate a northeast southwest bedding strike with a 60-degree dip to the southeast. No bedrock lineaments are mapped on the Site, which can be indicators of preferential groundwater flow in the bedrock aquifer, based on the MGS published surficial bedrock lineament map at 1:250,000 scale.

In general, the Site slopes downward to the southeast toward the Nonesuch River, which makes up its eastern boundary. The river is at an elevation of 80 to 90 feet below the Site elevation and serves as its main drainage. Surface water and groundwater flow direction is expected to mimic the topographic slope, flowing in a southeasterly direction towards the river.

Applicable Regulatory Guidelines

PFAS concentrations detected in soil and groundwater are compared to the DEP Remedial Action Guidelines (RAGs), May 2021 and the DEP Interim PFAS Screening Levels for drinking water, June 2021.

| APPLICABLE REGULATORY STANDARDS | |
|---------------------------------|---|
| Media | RAGs and Maine Screening Levels |
| Soil | Park User and Leaching to Groundwater |
| Groundwater | Residential (RAGs) and DEP Interim PFAS Screening Levels for Drinking Water |

INVESTIGATION METHODS

Soil Sampling

St.Germain personnel collected two soil samples for PFAS analysis. One discrete grab sample SS-101 (0-0.5') was collected from dark brown/black soil visible at the ground surface in the upper part of the north field area. The second sample CS-101 (0-1') was a composite sample made up of six discrete samples from the south field area (see Figure 2). The soil samples were submitted to Alpha Analytical Laboratory (Alpha) of Westborough, Massachusetts, for analysis of the DEP recommended 36 PFAS target compounds by isotope dilution. See **Attachment A, Laboratory Report**, for details.

Groundwater Sampling

St.Germain collected three groundwater samples from existing wells (TRB-1B, TRB-3, and TRB-5) on Site located along the perimeter of the south field area (see Figure 2).

The following well information is based on St.Germain's field observations and measurements. There is no well installation data available, and it is not known whether the wells are screened in the overburden or bedrock.

| Well I.D. | TRB-1B | TRB-3 | TRB-5 |
|---|---|---|---|
| Well construction materials | 2-inch diameter PVC, no steel protective casing | 2-inch diameter PVC, with steel protective casing | 2-inch diameter PVC, with steel protective casing |
| Well casing stickup (feet) | 1.8 | 3.9 | 3.0 |
| Well depth from ground surface (feet) | 33.1 | 12.4 | 19.9 |
| Depth to water from ground surface at time of sampling (feet) | 28.8 | 6.7 | 10.9 |
| GPS coordinates | -70.46043, 43.59477 | -70.46115, 43.59414 | -70.46093, 43.59512 |

The three wells were purged of one well volume prior to initiation of low flow sampling. Samples were then collected in general accordance with DEP *Groundwater Sample Collection for Site Investigation and Assessment Monitoring, Revision 00, March 25, 2009, SOP #2*. See **Attachment B, Groundwater Sampling Data Records**. The groundwater samples were submitted to Alpha for the 36 PFAS target compounds by isotope dilution. See Attachment A for laboratory report.

INVESTIGATION RESULTS

Laboratory Quality Assurance/Quality Control

The laboratory report in Attachment A includes a case narrative of the laboratory's internal quality assurance/quality control (QA/QC) data. In almost every case, dilution or re-extraction of the individual samples was necessary to better quantify the detected PFAS analytes. Surrogate recoveries were outside the standard range and some qualifiers were necessary, including re-extraction and re-analysis outside the sample holding times to bring the results into acceptable ranges except where otherwise noted in the laboratory report. St.Germain has reviewed the laboratory results and qualifiers and concludes that the data are of acceptable quality and confirms its usability.

Laboratory Results for Soil

Table 1, Soil Sample Results summarizes the laboratory data and compares detected concentrations of PFAS compounds to the Park User and Leaching to Groundwater (LG) RAGs.

None of the detected compounds in the two soil samples collected at the Site had concentrations above the Park User RAGs for direct contact with soil. Perfluorooctanesulfonic Acid (PFOS) was detected in both soil samples above the LG RAG. The LG RAG represents the concentration of a contaminant in soil that is not expected to increase the concentration of that contaminant in groundwater above residential water quality standards.

Groundwater Sample Results

Table 2, Groundwater Sample Results summarizes the laboratory data and compares it to the Residential RAGs and the DEP Interim PFAS Screening Levels for drinking water.

TRB-1B and TRB-5 had trace detections of the PFAS compound, 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS), which does not have a regulatory standard. TRB-3 had detections of the PFAS compounds PFOS and PFOA below the DEP Interim Screening Levels for drinking water (see Table 2).

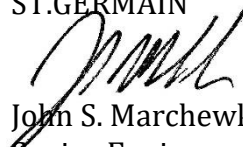
CONCLUSIONS

The results of the soil and groundwater sampling did not reveal contamination to shallow soil above the DEP Park User direct contact RAG; however, PFAS concentrations in the two soil samples exceeded their respective LG RAGs. Groundwater samples from the three on-Site wells, had low concentrations of PFAS compounds below the DEP Interim PFAS Screening Levels for drinking water.

Groundwater is expected to flow hydraulically downgradient in a southeastern direction towards the Nonesuch River and away from the nearest residents to the north and northeast of the Site. There are no residential homes between the Site and the Nonesuch River.

If you have any questions or comments, please feel free to contact us at 207-591-7000 or johnm@stgermain.com.

Sincerely,
ST.GERMAIN


John S. Marchewka, ME LG No. 319
Senior Environmental Geologist

Attachments

Figure 1 Site Location Map

Figure 2 Site Plan

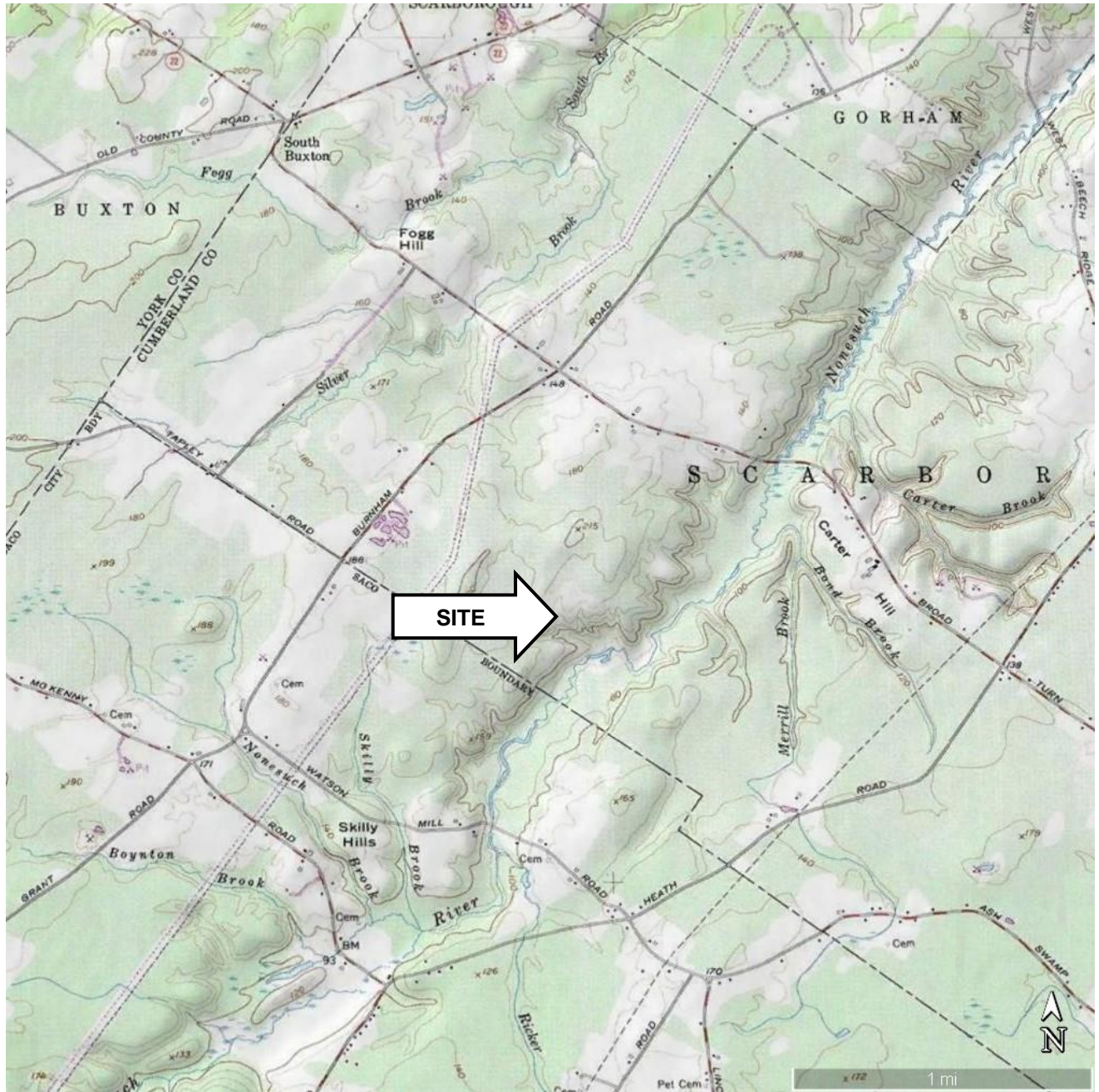
Table 1 Soil Sample Results

Table 2 Groundwater Sample Results

Attachment A Laboratory Report

Attachment B Groundwater Sampling Data Records

FIGURES



SOURCE: USGS TOPOGRAPHIC MAP – OLD ORCHARD BEACH 1983.

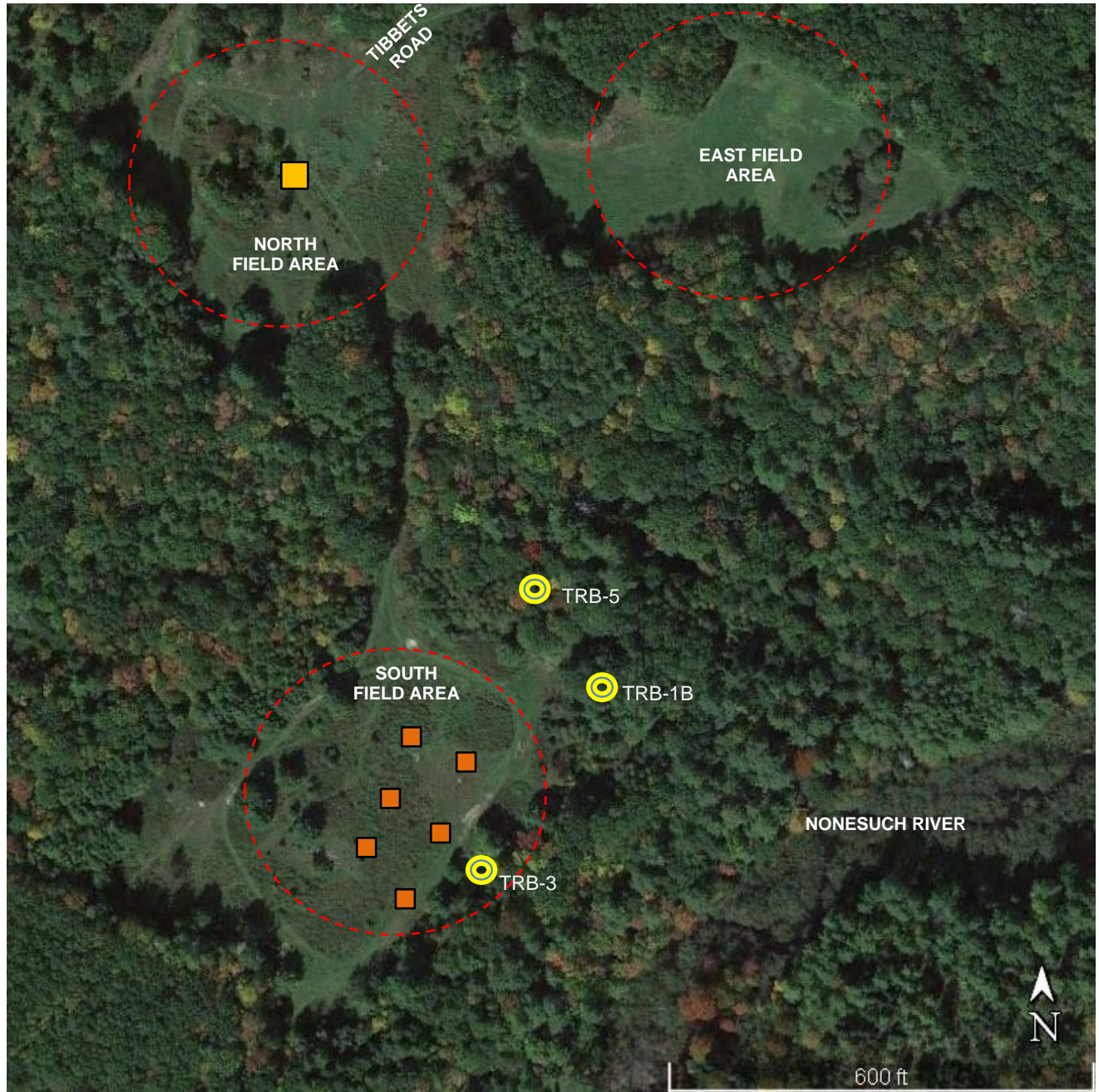
SITE LOCATION MAP

FORMER SLUDGE SPREADING SITE
TIBBETS ROAD
SCARBOROUGH, MAINE

CLIENT:
TOWN OF SCARBOROUGH
20 WASHINGTON AVENUE
SCARBOROUGH, MAINE



**FIGURE
1**



SOURCE: GOOGLE EARTH, 10/21

LEGEND

- TRB-3 EXISTING MONITORING WELL
- DISCRETE SOIL SAMPLE (SS-101)
- GRAB SAMPLES COMBINED AS A SINGLE COMPOSITE SAMPLE (CS-101)

SITE PLAN

FORMER SLUDGE SPREADING SITE
 TIBBETS ROAD
 SCARBOROUGH, MAINE

CLIENT:
 TOWN OF SCARBOROUGH
 20 WASHINGTON AVENUE
 SCARBOROUGH, MAINE



**FIGURE
2**

TABLES

Table 1
Soil Sample Results
Tibbets Road
Scarborough, Maine

| LOCATION | CS-101 (0-1') | | SS-101 (0-0.5') | | MEDEP | |
|---|---------------|---|-----------------|---|-----------|-----|
| SAMPLING DATE | 6/30/2022 | | 6/30/2022 | | 2021 RAGs | |
| SAMPLE TYPE | SOIL | | SOIL | | PARK | LG |
| Perfluorinated Alkyl Acids by Isotope Dilution | | | | | | |
| 11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | 0.00108 | U | 0.00094 | U | NS | NS |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | 0.00054 | U | 0.00047 | U | NS | NS |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | 0.00108 | U | 0.00094 | U | NS | NS |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | 0.00108 | U | 0.00094 | U | NS | NS |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 0.00054 | U | 0.00047 | U | NS | NS |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | 0.01080 | U | 0.00940 | U | NS | NS |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | 0.00108 | U | 0.00094 | U | NS | NS |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | 0.00108 | U | 0.00094 | U | NS | NS |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | 0.00108 | U | 0.00094 | U | NS | NS |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | 0.00216 | U | 0.00188 | U | NS | NS |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 0.00054 | U | 0.00047 | U | NS | NS |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | 0.00108 | U | 0.00094 | U | NS | NS |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | 0.00216 | U | 0.00188 | U | NS | NS |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | 0.00054 | U | 0.00047 | U | NS | NS |
| Perfluorobutanesulfonic Acid (PFBS) | 0.00027 | U | 0.00024 | U | 4900 | 7.1 |
| Perfluorobutanoic Acid (PFBA) | 0.00054 | U | 0.00047 | U | NS | NS |
| Perfluorodecanesulfonic Acid (PFDS) | 0.00054 | U | 0.00357 | | NS | NS |
| Perfluorodecanoic Acid (PFDA) | 0.00027 | U | 0.00186 | | NS | NS |

**Table 1
Soil Sample Results
Tibbets Road
Scarborough, Maine**

| LOCATION | CS-101 (0-1') | | SS-101 (0-0.5') | | MEDEP | |
|--|----------------|---|-----------------|---|-----------|--------|
| SAMPLING DATE | 6/30/2022 | | 6/30/2022 | | 2021 RAGs | |
| SAMPLE TYPE | SOIL | | SOIL | | PARK | LG |
| Perfluorododecane Sulfonic Acid (PFDoDS) | 0.00108 | U | 0.00094 | U | NS | NS |
| Perfluorododecanoic Acid (PFDoA) | 0.00054 | U | 0.000624 | | NS | NS |
| Perfluoroheptanesulfonic Acid (PFHpS) | 0.00054 | U | 0.00047 | U | NS | NS |
| Perfluoroheptanoic Acid (PFHpA) | 0.00027 | U | 0.00024 | U | NS | NS |
| Perfluorohexadecanoic Acid (PFHxDA) | 0.00270 | U | 0.00235 | U | NS | NS |
| Perfluorohexanesulfonic Acid (PFHxS) | 0.00027 | U | 0.00024 | U | NS | NS |
| Perfluorohexanoic Acid (PFHxA) | 0.00054 | U | 0.00047 | U | NS | NS |
| Perfluorononanesulfonic Acid (PFNS) | 0.00108 | U | 0.00094 | U | NS | NS |
| Perfluorononanoic Acid (PFNA) | 0.00027 | U | 0.000308 | F | NS | NS |
| Perfluorooctadecanoic Acid (PFODA) | 0.00270 | U | 0.00235 | U | NS | NS |
| Perfluorooctanesulfonamide (FOSA) | 0.00054 | U | 0.00047 | U | NS | NS |
| Perfluorooctanesulfonic Acid (PFOS) | 0.00848 | | 0.146 | E | 4.9 | 0.0036 |
| Perfluorooctanoic Acid (PFOA) | 0.00027 | U | 0.000799 | | 4.9 | 0.0017 |
| Perfluoropentanesulfonic Acid (PFPeS) | 0.00108 | U | 0.00094 | U | NS | NS |
| Perfluoropentanoic Acid (PFPeA) | 0.00054 | U | 0.00047 | U | NS | NS |
| Perfluorotetradecanoic Acid (PFTA) | 0.00054 | U | 0.00047 | U | NS | NS |
| Perfluorotridecanoic Acid (PFTrDA) | 0.00054 | U | 0.00047 | U | NS | NS |
| Perfluoroundecanoic Acid (PFUnA) | 0.00054 | U | 0.000598 | | NS | NS |

Notes:

Data in mg/kg.

U = not detected above listed limit.

Bold = detected above listed limit.

Highlight = Exceeds one or more RAGs

Park = Park User

LG = Leaching to Groundwater

NS = No Standard

F = The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

E = Estimated concentration due to sample requiring re-extraction outside of holding time.

Table 2
Groundwater Sample Results
Tibbets Road
Scarborough, Maine

| LOCATION | TRB-1B | | TRB-3 | | TRB-5 | | DEP PFAS Screening Levels | DEP | |
|---|----------------|---|-----------|---|----------------|---|---------------------------------|-----------|--------|
| SAMPLING DATE | 6/30/2022 | | 6/30/2022 | | 6/30/2022 | | | 2021 RAGs | |
| SAMPLE TYPE | WATER | | WATER | | WATER | | RES | CONST | |
| Perfluorinated Alkyl Acids by Isotope Dilution | | | | | | | | | |
| 11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | 0.005 | U | 0.0045 | U | 0.00514 | U | NS | NS | NS |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 0.00284 | | 0.0018 | U | 0.00794 | | NS | NS | NS |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | 0.0499 | U | 0.045 | U | 0.0514 | U | NS | NS | NS |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | 0.02 | U | 0.018 | U | 0.0206 | U | NS | NS | NS |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | 0.0499 | U | 0.045 | U | 0.0514 | U | NS | NS | NS |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | 0.02 | U | 0.018 | U | 0.0206 | U | NS | NS | NS |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | 0.0499 | U | 0.045 | U | 0.0514 | U | NS | NS | NS |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorobutanesulfonic Acid (PFBS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | 400 | 100000 |
| Perfluorobutanoic Acid (PFBA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorodecanesulfonic Acid (PFDS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |

Table 2
Groundwater Sample Results
Tibbets Road
Scarborough, Maine

| LOCATION | TRB-1B | | TRB-3 | | TRB-5 | | DEP PFAS Screening Levels | DEP | |
|---|-----------|---|---------------|---|-----------|---|---------------------------------|-----------|-----|
| SAMPLING DATE | 6/30/2022 | | 6/30/2022 | | 6/30/2022 | | | 2021 RAGs | |
| SAMPLE TYPE | WATER | | WATER | | WATER | | RES | CONST | |
| Perfluorinated Alkyl Acids by Isotope Dilution | | | | | | | | | |
| Perfluorodecanoic Acid (PFDA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorododecane Sulfonic Acid (PFDoDS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorododecanoic Acid (PFDoA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluoroheptanesulfonic Acid (PFHpS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluoroheptanoic Acid (PFHpA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorohexadecanoic Acid (PFHxDA) | 0.004 | U | 0.0036 | U | 0.00411 | U | NS | NS | NS |
| Perfluorohexanesulfonic Acid (PFHxS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorohexanoic Acid (PFHxA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorononanesulfonic Acid (PFNS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorononanoic Acid (PFNA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorooctadecanoic Acid (PFODA) | 0.004 | U | 0.0036 | U | 0.00411 | U | NS | NS | NS |
| Perfluorooctanesulfonamide (FOSA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorooctanesulfonic Acid (PFOS) | 0.002 | U | 0.0121 | | 0.00206 | U | NS | NS | 750 |
| Perfluorooctanoic Acid (PFOA) | 0.002 | U | 0.0018 | | 0.00206 | U | NS | NS | 750 |
| Perfluoropentanesulfonic Acid (PFPeS) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluoropentanoic Acid (PFPeA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorotetradecanoic Acid (PFTA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluorotridecanoic Acid (PFTrDA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Perfluoroundecanoic Acid (PFUnA) | 0.002 | U | 0.0018 | U | 0.00206 | U | NS | NS | NS |
| Total PFOS, PFOA, PFHpA, PFNA, PFHxS, PFDA [1] | 0.002 | U | 0.0139 | | 0.00206 | U | 0.02 | NS | NS |

Note:

Data in ug/l

U = not detected above listed limit.

Bold = detected above listed limit.

DEP 2021 RAGs = Remedial Action Guidelines

RES = Resident

CONST - Construction worker

DEP PFAS screening levels for drinking water. Resolved effective June 21, 2021

NS = No Standard

ATTACHMENT A
Laboratory Report



ANALYTICAL REPORT

| | |
|-----------------|--|
| Lab Number: | L2235333 |
| Client: | St. Germain 846 Main Street Westbrook, ME 04092-2847 |
| ATTN: | John Marchewka |
| Phone: | (207) 591-7000 |
| Project Name: | TIBBETS ROAD |
| Project Number: | 4444-0005 |
| Report Date: | 07/26/22 |

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

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



Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

| Alpha Sample ID | Client ID | Matrix | Sample Location | Collection Date/Time | Receive Date |
|----------------------------|------------------|---------------|----------------------------|---------------------------------|---------------------|
| L2235333-01 | TRB-5 | WATER | SCARBOROUGH, ME | 06/30/22 12:45 | 07/01/22 |
| L2235333-02 | TRB-1B | WATER | SCARBOROUGH, ME | 06/30/22 13:52 | 07/01/22 |
| L2235333-03 | TRB-3 | WATER | SCARBOROUGH, ME | 06/30/22 14:35 | 07/01/22 |
| L2235333-04 | CS-101 (0-1') | SOIL | SCARBOROUGH, ME | 06/30/22 11:40 | 07/01/22 |
| L2235333-05 | SS-101 (0-0.5) | SOIL | SCARBOROUGH, ME | 06/30/22 15:00 | 07/01/22 |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Case Narrative

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

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

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

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

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

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

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Case Narrative (continued)

Perfluorinated Alkyl Acids by Isotope Dilution

L2235333-01, -02, -03, -04, and -05: The MeOH fraction of the extraction is reported for the following compounds: Perfluorooctanesulfonamide (FOSA), N-Methyl Perfluorooctane Sulfonamide (NMeFOSA), N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA), N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE), and N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) due to better extraction efficiency of the Surrogates (Extracted Internal Standards).

L2235333-02, -03, -04, -04 MeOH, -04RE, -05, -05 MeOH, -05RE, WG1661500-1 MeOH, WG1662114-1, WG1661500-2, WG1661500-2 MeOH, WG1662114-2 MeOH, and WG1666316-2: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

L2235333-04: The Extracted Internal Standard recoveries are less than 5% for n-deuteriomethylperfluoro-1-octanesulfonamidoacetic acid (d3-nmefosaa) (2%) and n-deuterioethylperfluoro-1-octanesulfonamidoacetic acid (d5-netfosaa) (4%); however, the extraction efficiency was improved upon re-extraction at a lower volume with the method required holding time exceeded. The results of both extractions are reported for the associated target compounds.

L2235333-04RE: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

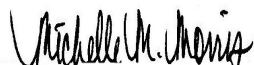
L2235333-05: The sample was re-extracted on dilution outside of method holding time in order to quantify the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-extraction was performed only for the compound(s) that exceeded the calibration range.

The WG1661500-2 LCS recovery, associated with L2235333-04 and -05, is above the acceptance criteria for perfluorohexanesulfonic acid (pfhxs) (135%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

The Extracted Internal Standard recovery for the WG1661500-2 LCS, associated with L2235333-04 and -05, is below the acceptance criteria (less than 5%) for perfluoro[13c8]octanesulfonamide (m8fosa) (2%); however, all associated target analytes are within LCS criteria; therefore, no further action was taken.

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

Authorized Signature:

 Michelle M. Morris

Title: Technical Director/Representative

Date: 07/26/22

ORGANICS

SEMIVOLATILES

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-01
 Client ID: TRB-5
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 12:45
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/22/22 10:31
 Analyst: MP

Extraction Method: ALPHA 23528
 Extraction Date: 07/13/22 05:10

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluoropentanoic Acid (PFPeA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | | ng/l | 2.06 | -- | 1 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorohexanoic Acid (PFHxA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluoroheptanoic Acid (PFHpA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorooctanoic Acid (PFOA) | ND | | ng/l | 2.06 | -- | 1 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 7.94 | | ng/l | 2.06 | -- | 1 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorononanoic Acid (PFNA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorooctanesulfonic Acid (PFOS) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorodecanoic Acid (PFDA) | ND | | ng/l | 2.06 | -- | 1 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluoronanesulfonic Acid (PFNS) | ND | | ng/l | 2.06 | -- | 1 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluoroundecanoic Acid (PFUnA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorodecanesulfonic Acid (PFDS) | ND | | ng/l | 2.06 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorododecanoic Acid (PFDoA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorotridecanoic Acid (PFTrDA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorotetradecanoic Acid (PFTDA) | ND | | ng/l | 2.06 | -- | 1 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | | ng/l | 51.4 | -- | 1 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | | ng/l | 2.06 | -- | 1 |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | | ng/l | 4.11 | -- | 1 |
| Perfluorooctadecanoic Acid (PFODA) | ND | | ng/l | 4.11 | -- | 1 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-01

Date Collected: 06/30/22 12:45

Client ID: TRB-5

Date Received: 07/01/22

Sample Location: SCARBOROUGH, ME

Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorododecane Sulfonic Acid (PFDoDS) | ND | | ng/l | 2.06 | -- | 1 |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | ND | | ng/l | 5.14 | -- | 1 |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | ND | | ng/l | 2.06 | -- | 1 |
| 11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | ND | | ng/l | 2.06 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|--|------------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 85 | | 58-132 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 94 | | 62-163 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 96 | | 70-131 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 104 | | 12-142 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 90 | | 57-129 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 88 | | 60-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 94 | | 71-134 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 93 | | 62-129 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 91 | | 14-147 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 97 | | 59-139 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 96 | | 69-131 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 85 | | 62-124 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 97 | | 10-162 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 57 | | 24-116 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 88 | | 55-137 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 77 | | 27-126 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 77 | | 48-131 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 56 | | 22-136 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 111 | | 10-165 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 80 | | 10-206 |
| 1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS) | 96 | | 50-150 |

Project Name: TIBBETS ROAD**Lab Number:** L2235333**Project Number:** 4444-0005**Report Date:** 07/26/22**SAMPLE RESULTS**

Lab ID: L2235333-01
 Client ID: TRB-5
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 12:45
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/24/22 08:56
 Analyst: SG

Extraction Method: ALPHA 23528
 Extraction Date: 07/13/22 05:10

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | | ng/l | 2.06 | -- | 1 |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | ND | | ng/l | 20.6 | -- | 1 |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | ND | | ng/l | 20.6 | -- | 1 |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | ND | | ng/l | 51.4 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | ND | | ng/l | 51.4 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|---|------------|-----------|---------------------|
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 93 | | 5-112 |
| N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA) | 87 | | 10-161 |
| N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA) | 81 | | 10-160 |
| 2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d7-NMeFOSE) | 83 | | 10-189 |
| 2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d9-NEtFOSE) | 92 | | 10-187 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-02
 Client ID: TRB-1B
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 13:52
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/22/22 10:48
 Analyst: MP

Extraction Method: ALPHA 23528
 Extraction Date: 07/13/22 05:10

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluoropentanoic Acid (PFPeA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | | ng/l | 2.00 | -- | 1 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorohexanoic Acid (PFHxA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluoroheptanoic Acid (PFHpA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorooctanoic Acid (PFOA) | ND | | ng/l | 2.00 | -- | 1 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 2.84 | | ng/l | 2.00 | -- | 1 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorononanoic Acid (PFNA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorooctanesulfonic Acid (PFOS) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorodecanoic Acid (PFDA) | ND | | ng/l | 2.00 | -- | 1 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluoronanesulfonic Acid (PFNS) | ND | | ng/l | 2.00 | -- | 1 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluoroundecanoic Acid (PFUnA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorodecanesulfonic Acid (PFDS) | ND | | ng/l | 2.00 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorododecanoic Acid (PFDoA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorotridecanoic Acid (PFTrDA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorotetradecanoic Acid (PFTDA) | ND | | ng/l | 2.00 | -- | 1 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | | ng/l | 49.9 | -- | 1 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | | ng/l | 2.00 | -- | 1 |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | | ng/l | 3.99 | -- | 1 |
| Perfluorooctadecanoic Acid (PFODA) | ND | | ng/l | 3.99 | -- | 1 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-02
 Client ID: TRB-1B
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 13:52
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorododecane Sulfonic Acid (PFDoDS) | ND | | ng/l | 2.00 | -- | 1 |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | ND | | ng/l | 4.99 | -- | 1 |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | ND | | ng/l | 2.00 | -- | 1 |
| 11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | ND | | ng/l | 2.00 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|--|------------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 95 | | 58-132 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 99 | | 62-163 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 99 | | 70-131 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 143 | Q | 12-142 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 94 | | 57-129 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 95 | | 60-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 100 | | 71-134 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 96 | | 62-129 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 105 | | 14-147 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 97 | | 59-139 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 93 | | 69-131 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 87 | | 62-124 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 91 | | 10-162 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 57 | | 24-116 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 85 | | 55-137 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 64 | | 27-126 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 75 | | 48-131 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 57 | | 22-136 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 119 | | 10-165 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 75 | | 10-206 |
| 1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS) | 86 | | 50-150 |

Project Name: TIBBETS ROAD**Lab Number:** L2235333**Project Number:** 4444-0005**Report Date:** 07/26/22**SAMPLE RESULTS**

Lab ID: L2235333-02
 Client ID: TRB-1B
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 13:52
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/24/22 09:03
 Analyst: SG

Extraction Method: ALPHA 23528
 Extraction Date: 07/13/22 05:10

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | | ng/l | 2.00 | -- | 1 |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | ND | | ng/l | 20.0 | -- | 1 |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | ND | | ng/l | 20.0 | -- | 1 |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | ND | | ng/l | 49.9 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | ND | | ng/l | 49.9 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|---|------------|-----------|---------------------|
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 94 | | 5-112 |
| N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA) | 82 | | 10-161 |
| N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA) | 75 | | 10-160 |
| 2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d7-NMeFOSE) | 71 | | 10-189 |
| 2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d9-NEtFOSE) | 81 | | 10-187 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-03
 Client ID: TRB-3
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 14:35
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/22/22 11:05
 Analyst: MP

Extraction Method: ALPHA 23528
 Extraction Date: 07/13/22 05:10

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluoropentanoic Acid (PFPeA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | | ng/l | 1.80 | -- | 1 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorohexanoic Acid (PFHxA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluoroheptanoic Acid (PFHpA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorooctanoic Acid (PFOA) | 1.80 | | ng/l | 1.80 | -- | 1 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorononanoic Acid (PFNA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorooctanesulfonic Acid (PFOS) | 12.1 | | ng/l | 1.80 | -- | 1 |
| Perfluorodecanoic Acid (PFDA) | ND | | ng/l | 1.80 | -- | 1 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluoronanesulfonic Acid (PFNS) | ND | | ng/l | 1.80 | -- | 1 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluoroundecanoic Acid (PFUnA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorodecanesulfonic Acid (PFDS) | ND | | ng/l | 1.80 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorododecanoic Acid (PFDoA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorotridecanoic Acid (PFTrDA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorotetradecanoic Acid (PFTa) | ND | | ng/l | 1.80 | -- | 1 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | | ng/l | 45.0 | -- | 1 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | | ng/l | 1.80 | -- | 1 |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | | ng/l | 3.60 | -- | 1 |
| Perfluorooctadecanoic Acid (PFODA) | ND | | ng/l | 3.60 | -- | 1 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-03
 Client ID: TRB-3
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 14:35
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorododecane Sulfonic Acid (PFDoDS) | ND | | ng/l | 1.80 | -- | 1 |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | ND | | ng/l | 4.50 | -- | 1 |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | ND | | ng/l | 1.80 | -- | 1 |
| 11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | ND | | ng/l | 1.80 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|--|------------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 86 | | 58-132 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 90 | | 62-163 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 93 | | 70-131 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 160 | Q | 12-142 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 86 | | 57-129 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 87 | | 60-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 92 | | 71-134 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 88 | | 62-129 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 96 | | 14-147 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 98 | | 59-139 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 98 | | 69-131 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 89 | | 62-124 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 99 | | 10-162 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 58 | | 24-116 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 83 | | 55-137 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 82 | | 27-126 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 76 | | 48-131 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 60 | | 22-136 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 115 | | 10-165 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 75 | | 10-206 |
| 1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS) | 98 | | 50-150 |

Project Name: TIBBETS ROAD**Lab Number:** L2235333**Project Number:** 4444-0005**Report Date:** 07/26/22**SAMPLE RESULTS**

Lab ID: L2235333-03
 Client ID: TRB-3
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 14:35
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/24/22 09:11
 Analyst: SG

Extraction Method: ALPHA 23528
 Extraction Date: 07/13/22 05:10

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | | ng/l | 1.80 | -- | 1 |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | ND | | ng/l | 18.0 | -- | 1 |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | ND | | ng/l | 18.0 | -- | 1 |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | ND | | ng/l | 45.0 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | ND | | ng/l | 45.0 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|---|------------|-----------|---------------------|
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 91 | | 5-112 |
| N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA) | 87 | | 10-161 |
| N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA) | 79 | | 10-160 |
| 2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d7-NMeFOSE) | 75 | | 10-189 |
| 2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d9-NEtFOSE) | 85 | | 10-187 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-04
 Client ID: CS-101 (0-1)
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 11:40
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/19/22 14:13
 Analyst: MP
 Percent Solids: 89%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 10:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|-------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluoropentanoic Acid (PFPeA) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | | ng/g | 0.270 | -- | 1 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | | ng/g | 1.08 | -- | 1 |
| Perfluorohexanoic Acid (PFHxA) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | | ng/g | 1.08 | -- | 1 |
| Perfluoroheptanoic Acid (PFHpA) | ND | | ng/g | 0.270 | -- | 1 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | | ng/g | 0.270 | -- | 1 |
| Perfluorooctanoic Acid (PFOA) | ND | | ng/g | 0.270 | -- | 1 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluorononanoic Acid (PFNA) | ND | | ng/g | 0.270 | -- | 1 |
| Perfluorooctanesulfonic Acid (PFOS) | 8.48 | | ng/g | 0.270 | -- | 1 |
| Perfluorodecanoic Acid (PFDA) | ND | | ng/g | 0.270 | -- | 1 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluoronanesulfonic Acid (PFNS) | ND | | ng/g | 1.08 | -- | 1 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluoroundecanoic Acid (PFUnA) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluorodecanesulfonic Acid (PFDS) | ND | | ng/g | 0.540 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluorododecanoic Acid (PFDoA) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluorotridecanoic Acid (PFTrDA) | ND | | ng/g | 0.540 | -- | 1 |
| Perfluorotetradecanoic Acid (PFTA) | ND | | ng/g | 0.540 | -- | 1 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | | ng/g | 10.8 | -- | 1 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | | ng/g | 1.08 | -- | 1 |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | | ng/g | 2.70 | -- | 1 |
| Perfluorooctadecanoic Acid (PFODA) | ND | | ng/g | 2.70 | -- | 1 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-04
 Client ID: CS-101 (0-1)
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 11:40
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorododecane Sulfonic Acid (PFDoDS) | ND | | ng/g | 1.08 | -- | 1 |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | ND | | ng/g | 1.08 | -- | 1 |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | ND | | ng/g | 1.08 | -- | 1 |
| 11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | ND | | ng/g | 1.08 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|--|------------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 13 | Q | 61-135 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 13 | Q | 58-150 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 84 | | 74-139 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 87 | | 14-167 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 23 | Q | 66-128 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 30 | Q | 71-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 88 | | 78-139 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 41 | Q | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 99 | | 20-154 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 47 | Q | 72-140 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 88 | | 79-136 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 58 | Q | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 127 | | 19-175 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 2 | Q | 31-134 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 62 | | 61-155 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 4 | Q | 34-137 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 62 | | 54-150 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 60 | | 24-159 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 20 | | 10-203 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 51 | | 10-145 |
| 1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS) | 120 | | 50-150 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-04
 Client ID: CS-101 (0-1')
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 11:40
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/24/22 09:18
 Analyst: SG
 Percent Solids: 89%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 10:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|-------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | | ng/g | 0.540 | -- | 1 |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | ND | | ng/g | 1.08 | -- | 1 |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | ND | | ng/g | 1.08 | -- | 1 |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | ND | | ng/g | 2.16 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | ND | | ng/g | 2.16 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|---|------------|-----------|---------------------|
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 158 | Q | 5-117 |
| N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA) | 134 | | 10-146 |
| N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA) | 147 | Q | 10-145 |
| 2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d7-NMeFOSE) | 106 | | 10-146 |
| 2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d9-NEtFOSE) | 132 | Q | 10-129 |

Project Name: TIBBETS ROAD**Lab Number:** L2235333**Project Number:** 4444-0005**Report Date:** 07/26/22**SAMPLE RESULTS**

Lab ID: L2235333-04 RE

Date Collected: 06/30/22 11:40

Client ID: CS-101 (0-1')

Date Received: 07/01/22

Sample Location: SCARBOROUGH, ME

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Extraction Method: ALPHA 23528

Analytical Method: 134,LCMSMS-ID

Extraction Date: 07/23/22 13:30

Analytical Date: 07/25/22 18:41

Analyst: SG

Percent Solids: 89%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | | ng/g | 1.54 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | | ng/g | 1.54 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|--|------------|-----------|---------------------|
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 4 | Q | 31-134 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 4 | Q | 34-137 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-05
 Client ID: SS-101 (0-0.5)
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 15:00
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/19/22 14:29
 Analyst: MP
 Percent Solids: 95%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 10:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|-------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | | ng/g | 0.470 | -- | 1 |
| Perfluoropentanoic Acid (PFPeA) | ND | | ng/g | 0.470 | -- | 1 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | | ng/g | 0.235 | -- | 1 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | | ng/g | 0.940 | -- | 1 |
| Perfluorohexanoic Acid (PFHxA) | ND | | ng/g | 0.470 | -- | 1 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | | ng/g | 0.940 | -- | 1 |
| Perfluoroheptanoic Acid (PFHpA) | ND | | ng/g | 0.235 | -- | 1 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | | ng/g | 0.235 | -- | 1 |
| Perfluorooctanoic Acid (PFOA) | 0.799 | | ng/g | 0.235 | -- | 1 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | | ng/g | 0.470 | -- | 1 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | | ng/g | 0.470 | -- | 1 |
| Perfluorononanoic Acid (PFNA) | 0.308 | F | ng/g | 0.235 | -- | 1 |
| Perfluorooctanesulfonic Acid (PFOS) | 146 | E | ng/g | 0.235 | -- | 1 |
| Perfluorodecanoic Acid (PFDA) | 1.86 | | ng/g | 0.235 | -- | 1 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | | ng/g | 0.470 | -- | 1 |
| Perfluoronanesulfonic Acid (PFNS) | ND | | ng/g | 0.940 | -- | 1 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | | ng/g | 0.470 | -- | 1 |
| Perfluoroundecanoic Acid (PFUnA) | 0.598 | | ng/g | 0.470 | -- | 1 |
| Perfluorodecanesulfonic Acid (PFDS) | 3.57 | | ng/g | 0.470 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | | ng/g | 0.470 | -- | 1 |
| Perfluorododecanoic Acid (PFDoA) | 0.624 | | ng/g | 0.470 | -- | 1 |
| Perfluorotridecanoic Acid (PFTrDA) | ND | | ng/g | 0.470 | -- | 1 |
| Perfluorotetradecanoic Acid (PFTDA) | ND | | ng/g | 0.470 | -- | 1 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | | ng/g | 9.40 | -- | 1 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | | ng/g | 0.940 | -- | 1 |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | | ng/g | 2.35 | -- | 1 |
| Perfluorooctadecanoic Acid (PFODA) | ND | | ng/g | 2.35 | -- | 1 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-05
 Client ID: SS-101 (0-0.5)
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 15:00
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|-------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorododecane Sulfonic Acid (PFDoDS) | ND | | ng/g | 0.940 | -- | 1 |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | ND | | ng/g | 0.940 | -- | 1 |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | ND | | ng/g | 0.940 | -- | 1 |
| 11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | ND | | ng/g | 0.940 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|--|------------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 28 | Q | 61-135 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 29 | Q | 58-150 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 77 | | 74-139 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 79 | | 14-167 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 44 | Q | 66-128 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 47 | Q | 71-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 78 | | 78-139 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 47 | Q | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 87 | | 20-154 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 47 | Q | 72-140 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 56 | Q | 79-136 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 44 | Q | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 105 | | 19-175 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 14 | Q | 31-134 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 45 | Q | 61-155 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 19 | Q | 34-137 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 43 | Q | 54-150 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 36 | | 24-159 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 46 | | 10-203 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 27 | | 10-145 |
| 1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS) | 76 | | 50-150 |

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-05
 Client ID: SS-101 (0-0.5)
 Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 15:00
 Date Received: 07/01/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 07/24/22 09:25
 Analyst: SG
 Percent Solids: 95%

Extraction Method: ALPHA 23528
 Extraction Date: 07/12/22 10:25

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|-------|-----|-----------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | | ng/g | 0.470 | -- | 1 |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | ND | | ng/g | 0.940 | -- | 1 |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | ND | | ng/g | 0.940 | -- | 1 |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | ND | | ng/g | 1.88 | -- | 1 |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | ND | | ng/g | 1.88 | -- | 1 |

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|---|------------|-----------|---------------------|
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 152 | Q | 5-117 |
| N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA) | 143 | | 10-146 |
| N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA) | 152 | Q | 10-145 |
| 2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d7-NMeFOSE) | 113 | | 10-146 |
| 2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d9-NEtFOSE) | 140 | Q | 10-129 |

Project Name: TIBBETS ROAD**Lab Number:** L2235333**Project Number:** 4444-0005**Report Date:** 07/26/22**SAMPLE RESULTS**

Lab ID: L2235333-05 RE

Date Collected: 06/30/22 15:00

Client ID: SS-101 (0-0.5)

Date Received: 07/01/22

Sample Location: SCARBOROUGH, ME

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Extraction Method: ALPHA 23528

Analytical Method: 134,LCMSMS-ID

Extraction Date: 07/23/22 13:30

Analytical Date: 07/25/22 18:58

Analyst: SG

Percent Solids: 95%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|-----------|--------|-----------|-------|----|-----|-----------------|
|-----------|--------|-----------|-------|----|-----|-----------------|

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

| | | | | | | |
|-------------------------------------|------|--|------|-------|----|---|
| Perfluorooctanesulfonic Acid (PFOS) | 99.5 | | ng/g | 0.723 | -- | 1 |
|-------------------------------------|------|--|------|-------|----|---|

| Surrogate (Extracted Internal Standard) | % Recovery | Qualifier | Acceptance Criteria |
|---|------------|-----------|---------------------|
|---|------------|-----------|---------------------|

| | | | |
|---|----|---|--------|
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 76 | Q | 79-136 |
|---|----|---|--------|

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/14/22 19:24
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 07/12/22 10:25

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|-------|-----|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04-05 Batch: WG1661500-1 | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | | ng/g | 0.500 | -- |
| Perfluoropentanoic Acid (PFPeA) | ND | | ng/g | 0.500 | -- |
| Perfluorobutanesulfonic Acid (PFBS) | ND | | ng/g | 0.250 | -- |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | | ng/g | 1.00 | -- |
| Perfluorohexanoic Acid (PFHxA) | ND | | ng/g | 0.500 | -- |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | | ng/g | 1.00 | -- |
| Perfluoroheptanoic Acid (PFHpA) | ND | | ng/g | 0.250 | -- |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | | ng/g | 0.250 | -- |
| Perfluorooctanoic Acid (PFOA) | ND | | ng/g | 0.250 | -- |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | | ng/g | 0.500 | -- |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | | ng/g | 0.500 | -- |
| Perfluorononanoic Acid (PFNA) | ND | | ng/g | 0.250 | -- |
| Perfluorooctanesulfonic Acid (PFOS) | ND | | ng/g | 0.250 | -- |
| Perfluorodecanoic Acid (PFDA) | ND | | ng/g | 0.250 | -- |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | | ng/g | 0.500 | -- |
| Perfluorononanesulfonic Acid (PFNS) | ND | | ng/g | 1.00 | -- |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | | ng/g | 0.500 | -- |
| Perfluoroundecanoic Acid (PFUnA) | ND | | ng/g | 0.500 | -- |
| Perfluorodecanesulfonic Acid (PFDS) | ND | | ng/g | 0.500 | -- |
| Perfluorooctanesulfonamide (FOSA) | ND | | ng/g | 0.500 | -- |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | | ng/g | 0.500 | -- |
| Perfluorododecanoic Acid (PFDoA) | ND | | ng/g | 0.500 | -- |
| Perfluorotridecanoic Acid (PFTrDA) | ND | | ng/g | 0.500 | -- |
| Perfluorotetradecanoic Acid (PFTA) | ND | | ng/g | 0.500 | -- |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | | ng/g | 10.0 | -- |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | | ng/g | 1.00 | -- |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/14/22 19:24
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 07/12/22 10:25

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|------|-----|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04-05 Batch: WG1661500-1 | | | | | |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | | ng/g | 2.50 | -- |
| Perfluorooctadecanoic Acid (PFODA) | ND | | ng/g | 2.50 | -- |
| Perfluorododecane Sulfonic Acid (PFDoDS) | ND | | ng/g | 1.00 | -- |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | ND | | ng/g | 1.00 | -- |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | ND | | ng/g | 1.00 | -- |
| 11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | ND | | ng/g | 1.00 | -- |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/14/22 19:24
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 07/12/22 10:25

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|----|-----|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04-05 Batch: WG1661500-1 | | | | | |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | Acceptance Criteria |
|--|-----------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 64 | | 61-135 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 63 | | 58-150 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 90 | | 74-139 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 97 | | 14-167 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 79 | | 66-128 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 84 | | 71-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 92 | | 78-139 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 86 | | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 106 | | 20-154 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 85 | | 72-140 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 90 | | 79-136 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 81 | | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 151 | | 19-175 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 54 | | 31-134 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 80 | | 61-155 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 8 | | 5-117 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 52 | | 34-137 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 78 | | 54-150 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 67 | | 24-159 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 73 | | 10-203 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 49 | | 10-145 |
| 1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS) | 135 | | 50-150 |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/17/22 15:17
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 07/12/22 10:25

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|-------|-----|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04-05 Batch: WG1661500-1 | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | | ng/g | 0.500 | -- |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | ND | | ng/g | 1.00 | -- |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | ND | | ng/g | 1.00 | -- |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | ND | | ng/g | 2.00 | -- |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | ND | | ng/g | 2.00 | -- |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | Acceptance Criteria |
|---|-----------|-----------|---------------------|
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 191 | Q | 5-117 |
| N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA) | 163 | Q | 10-146 |
| N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA) | 166 | Q | 10-145 |
| 2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d7-NMeFOSE) | 122 | | 10-146 |
| 2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d9-NEtFOSE) | 148 | Q | 10-129 |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/13/22 15:57
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 07/13/22 05:10

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|------|-----|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-03 Batch: WG1662114-1 | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | | ng/l | 2.00 | -- |
| Perfluoropentanoic Acid (PFPeA) | ND | | ng/l | 2.00 | -- |
| Perfluorobutanesulfonic Acid (PFBS) | ND | | ng/l | 2.00 | -- |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | | ng/l | 2.00 | -- |
| Perfluorohexanoic Acid (PFHxA) | ND | | ng/l | 2.00 | -- |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | | ng/l | 2.00 | -- |
| Perfluoroheptanoic Acid (PFHpA) | ND | | ng/l | 2.00 | -- |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | | ng/l | 2.00 | -- |
| Perfluorooctanoic Acid (PFOA) | ND | | ng/l | 2.00 | -- |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | | ng/l | 2.00 | -- |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | | ng/l | 2.00 | -- |
| Perfluorononanoic Acid (PFNA) | ND | | ng/l | 2.00 | -- |
| Perfluorooctanesulfonic Acid (PFOS) | ND | | ng/l | 2.00 | -- |
| Perfluorodecanoic Acid (PFDA) | ND | | ng/l | 2.00 | -- |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | | ng/l | 2.00 | -- |
| Perfluorononanesulfonic Acid (PFNS) | ND | | ng/l | 2.00 | -- |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | | ng/l | 2.00 | -- |
| Perfluoroundecanoic Acid (PFUnA) | ND | | ng/l | 2.00 | -- |
| Perfluorodecanesulfonic Acid (PFDS) | ND | | ng/l | 2.00 | -- |
| Perfluorooctanesulfonamide (FOSA) | ND | | ng/l | 2.00 | -- |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | | ng/l | 2.00 | -- |
| Perfluorododecanoic Acid (PFDoA) | ND | | ng/l | 2.00 | -- |
| Perfluorotridecanoic Acid (PFTrDA) | ND | | ng/l | 2.00 | -- |
| Perfluorotetradecanoic Acid (PFTA) | ND | | ng/l | 2.00 | -- |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | | ng/l | 50.0 | -- |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | | ng/l | 2.00 | -- |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/13/22 15:57
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 07/13/22 05:10

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|------|-----|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-03 Batch: WG1662114-1 | | | | | |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | | ng/l | 4.00 | -- |
| Perfluorooctadecanoic Acid (PFODA) | ND | | ng/l | 4.00 | -- |
| Perfluorododecane Sulfonic Acid (PFDoDS) | ND | | ng/l | 2.00 | -- |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | ND | | ng/l | 5.00 | -- |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | ND | | ng/l | 2.00 | -- |
| 11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | ND | | ng/l | 2.00 | -- |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/13/22 15:57
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 07/13/22 05:10

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|----|-----|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-03 Batch: WG1662114-1 | | | | | |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | Acceptance Criteria |
|--|------------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 99 | | 58-132 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 104 | | 62-163 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 105 | | 70-131 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 154 | Q | 12-142 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 106 | | 57-129 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 99 | | 60-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 106 | | 71-134 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 95 | | 62-129 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 116 | | 14-147 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 94 | | 59-139 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 97 | | 69-131 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 93 | | 62-124 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 141 | | 10-162 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 76 | | 24-116 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 95 | | 55-137 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 38 | | 5-112 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 86 | | 27-126 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 89 | | 48-131 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 92 | | 22-136 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 123 | | 10-165 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 81 | | 10-206 |
| 1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS) | 164 | Q | 50-150 |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/15/22 09:45
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 07/13/22 05:10

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|------|-----|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-03 Batch: WG1662114-1 | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | | ng/l | 2.00 | -- |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | ND | | ng/l | 20.0 | -- |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | ND | | ng/l | 20.0 | -- |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | ND | | ng/l | 50.0 | -- |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | ND | | ng/l | 50.0 | -- |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | Acceptance Criteria |
|---|-----------|-----------|---------------------|
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 110 | | 5-112 |
| N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA) | 94 | | 10-161 |
| N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA) | 84 | | 10-160 |
| 2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d7-NMeFOSE) | 109 | | 10-189 |
| 2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d9-NEtFOSE) | 119 | | 10-187 |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/25/22 18:08
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 07/23/22 13:30

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|-------|-----|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04-05 Batch: WG1666316-1 | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | | ng/g | 0.500 | -- |
| Perfluoropentanoic Acid (PFPeA) | ND | | ng/g | 0.500 | -- |
| Perfluorobutanesulfonic Acid (PFBS) | ND | | ng/g | 0.250 | -- |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | | ng/g | 1.00 | -- |
| Perfluorohexanoic Acid (PFHxA) | ND | | ng/g | 0.500 | -- |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | | ng/g | 1.00 | -- |
| Perfluoroheptanoic Acid (PFHpA) | ND | | ng/g | 0.250 | -- |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | | ng/g | 0.250 | -- |
| Perfluorooctanoic Acid (PFOA) | ND | | ng/g | 0.250 | -- |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | | ng/g | 0.500 | -- |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | | ng/g | 0.500 | -- |
| Perfluorononanoic Acid (PFNA) | ND | | ng/g | 0.250 | -- |
| Perfluorooctanesulfonic Acid (PFOS) | ND | | ng/g | 0.250 | -- |
| Perfluorodecanoic Acid (PFDA) | ND | | ng/g | 0.250 | -- |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | | ng/g | 0.500 | -- |
| Perfluorononanesulfonic Acid (PFNS) | ND | | ng/g | 1.00 | -- |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | | ng/g | 0.500 | -- |
| Perfluoroundecanoic Acid (PFUnA) | ND | | ng/g | 0.500 | -- |
| Perfluorodecanesulfonic Acid (PFDS) | ND | | ng/g | 0.500 | -- |
| Perfluorooctanesulfonamide (FOSA) | ND | | ng/g | 0.500 | -- |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | | ng/g | 0.500 | -- |
| Perfluorododecanoic Acid (PFDoA) | ND | | ng/g | 0.500 | -- |
| Perfluorotridecanoic Acid (PFTrDA) | ND | | ng/g | 0.500 | -- |
| Perfluorotetradecanoic Acid (PFTA) | ND | | ng/g | 0.500 | -- |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | | ng/g | 10.0 | -- |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | | ng/g | 1.00 | -- |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 134,LCMSMS-ID
Analytical Date: 07/25/22 18:08
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 07/23/22 13:30

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|------|-----|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04-05 Batch: WG1666316-1 | | | | | |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | | ng/g | 2.50 | -- |
| Perfluorooctadecanoic Acid (PFODA) | ND | | ng/g | 2.50 | -- |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | Acceptance Criteria |
|--|-----------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 66 | | 61-135 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 75 | | 58-150 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 83 | | 74-139 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 65 | | 14-167 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 77 | | 66-128 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 79 | | 71-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 82 | | 78-139 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 81 | | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 62 | | 20-154 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 83 | | 72-140 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 87 | | 79-136 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 80 | | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 65 | | 19-175 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 53 | | 31-134 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 84 | | 61-155 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 23 | | 5-117 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 57 | | 34-137 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 81 | | 54-150 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 72 | | 24-159 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 82 | | 10-203 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 61 | | 10-145 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 Batch: WG1661500-2 | | | | | | | | |
| Perfluorobutanoic Acid (PFBA) | 89 | | - | | 71-135 | - | | 30 |
| Perfluoropentanoic Acid (PFPeA) | 114 | | - | | 69-132 | - | | 30 |
| Perfluorobutanesulfonic Acid (PFBS) | 110 | | - | | 72-128 | - | | 30 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | 126 | | - | | 62-145 | - | | 30 |
| Perfluorohexanoic Acid (PFHxA) | 116 | | - | | 70-132 | - | | 30 |
| Perfluoropentanesulfonic Acid (PFPeS) | 116 | | - | | 73-123 | - | | 30 |
| Perfluoroheptanoic Acid (PFHpA) | 116 | | - | | 71-131 | - | | 30 |
| Perfluorohexanesulfonic Acid (PFHxS) | 135 | Q | - | | 67-130 | - | | 30 |
| Perfluorooctanoic Acid (PFOA) | 112 | | - | | 69-133 | - | | 30 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 123 | | - | | 64-140 | - | | 30 |
| Perfluoroheptanesulfonic Acid (PFHpS) | 116 | | - | | 70-132 | - | | 30 |
| Perfluorononanoic Acid (PFNA) | 112 | | - | | 72-129 | - | | 30 |
| Perfluorooctanesulfonic Acid (PFOS) | 123 | | - | | 68-136 | - | | 30 |
| Perfluorodecanoic Acid (PFDA) | 127 | | - | | 69-133 | - | | 30 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | 108 | | - | | 65-137 | - | | 30 |
| Perfluorononanesulfonic Acid (PFNS) | 110 | | - | | 69-125 | - | | 30 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | 107 | | - | | 63-144 | - | | 30 |
| Perfluoroundecanoic Acid (PFUnA) | 111 | | - | | 64-136 | - | | 30 |
| Perfluorodecanesulfonic Acid (PFDS) | 98 | | - | | 59-134 | - | | 30 |
| Perfluorooctanesulfonamide (FOSA) | 132 | | - | | 67-137 | - | | 30 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 117 | | - | | 61-139 | - | | 30 |
| Perfluorododecanoic Acid (PFDoA) | 120 | | - | | 69-135 | - | | 30 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 Batch: WG1661500-2 | | | | | | | | |
| Perfluorotridecanoic Acid (PFTrDA) | 134 | | - | | 66-139 | - | | 30 |
| Perfluorotetradecanoic Acid (PFTA) | 105 | | - | | 69-133 | - | | 30 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | 108 | | - | | 41-165 | - | | 30 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | 86 | | - | | 61-135 | - | | 30 |
| Perfluorohexadecanoic Acid (PFHxDA) | 117 | | - | | 18-191 | - | | 30 |
| Perfluorooctadecanoic Acid (PFODA) | 38 | | - | | 10-123 | - | | 30 |
| Perfluorododecane Sulfonic Acid (PFDoDS) | 108 | | - | | 50-150 | - | | 30 |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | 116 | | - | | 37-261 | - | | 30 |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | 87 | | - | | 69-139 | - | | 30 |
| 11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | 77 | | - | | 51-155 | - | | 30 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| Parameter | LCS | | LCSD | | %Recovery | | RPD | RPD | |
|---|-----------|------|-----------|------|-----------|------|-----|--------|--|
| | %Recovery | Qual | %Recovery | Qual | Limits | Qual | | Limits | |
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 Batch: WG1661500-2 | | | | | | | | | |

| Surrogate (Extracted Internal Standard) | LCS | | LCSD | | Acceptance Criteria |
|--|-----------|------|-----------|------|------------------------|
| | %Recovery | Qual | %Recovery | Qual | |
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 28 | Q | | | 61-135 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 22 | Q | | | 58-150 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 81 | | | | 74-139 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 91 | | | | 14-167 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 50 | Q | | | 66-128 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 59 | Q | | | 71-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 81 | | | | 78-139 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 68 | Q | | | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 97 | | | | 20-154 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 71 | Q | | | 72-140 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 82 | | | | 79-136 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 64 | Q | | | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 112 | | | | 19-175 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 59 | | | | 31-134 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 72 | | | | 61-155 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 2 | Q | | | 5-117 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 51 | | | | 34-137 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 64 | | | | 54-150 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 64 | | | | 24-159 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 45 | | | | 10-203 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 46 | | | | 10-145 |
| 1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS) | 104 | | | | 50-150 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 Batch: WG1661500-2 | | | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | 128 | | - | | 67-137 | - | | 30 |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | 140 | | - | | 62-149 | - | | 30 |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | 137 | | - | | 71-156 | - | | 30 |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | 180 | | - | | 10-239 | - | | 30 |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | 144 | | - | | 10-275 | - | | 30 |

| Surrogate (Extracted Internal Standard) | LCS %Recovery | Qual | LCSD %Recovery | Qual | Acceptance Criteria |
|---|------------------|------|-------------------|------|------------------------|
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 152 | Q | | | 5-117 |
| N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA) | 135 | | | | 10-146 |
| N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA) | 147 | Q | | | 10-145 |
| 2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d7-NMeFOSE) | 100 | | | | 10-146 |
| 2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d9-NEtFOSE) | 121 | | | | 10-129 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-03 Batch: WG1662114-2 | | | | | | | | |
| Perfluorobutanoic Acid (PFBA) | 104 | | - | | 67-148 | - | | 30 |
| Perfluoropentanoic Acid (PFPeA) | 104 | | - | | 63-161 | - | | 30 |
| Perfluorobutanesulfonic Acid (PFBS) | 101 | | - | | 65-157 | - | | 30 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | 113 | | - | | 37-219 | - | | 30 |
| Perfluorohexanoic Acid (PFHxA) | 106 | | - | | 69-168 | - | | 30 |
| Perfluoropentanesulfonic Acid (PFPeS) | 108 | | - | | 52-156 | - | | 30 |
| Perfluoroheptanoic Acid (PFHpA) | 101 | | - | | 58-159 | - | | 30 |
| Perfluorohexanesulfonic Acid (PFHxS) | 120 | | - | | 69-177 | - | | 30 |
| Perfluorooctanoic Acid (PFOA) | 103 | | - | | 63-159 | - | | 30 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 118 | | - | | 49-187 | - | | 30 |
| Perfluoroheptanesulfonic Acid (PFHpS) | 106 | | - | | 61-179 | - | | 30 |
| Perfluorononanoic Acid (PFNA) | 112 | | - | | 68-171 | - | | 30 |
| Perfluorooctanesulfonic Acid (PFOS) | 115 | | - | | 52-151 | - | | 30 |
| Perfluorodecanoic Acid (PFDA) | 107 | | - | | 63-171 | - | | 30 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | 101 | | - | | 56-173 | - | | 30 |
| Perfluorononanesulfonic Acid (PFNS) | 112 | | - | | 48-150 | - | | 30 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | 97 | | - | | 60-166 | - | | 30 |
| Perfluoroundecanoic Acid (PFUnA) | 106 | | - | | 60-153 | - | | 30 |
| Perfluorodecanesulfonic Acid (PFDS) | 94 | | - | | 38-156 | - | | 30 |
| Perfluorooctanesulfonamide (FOSA) | 108 | | - | | 46-170 | - | | 30 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 106 | | - | | 45-170 | - | | 30 |
| Perfluorododecanoic Acid (PFDoA) | 102 | | - | | 67-153 | - | | 30 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-03 Batch: WG1662114-2 | | | | | | | | |
| Perfluorotridecanoic Acid (PFTrDA) | 118 | | - | | 48-158 | - | | 30 |
| Perfluorotetradecanoic Acid (PFTA) | 106 | | - | | 59-182 | - | | 30 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | 92 | | - | | 57-162 | - | | 30 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | 103 | | - | | 69-143 | - | | 30 |
| Perfluorohexadecanoic Acid (PFHxDA) | 100 | | - | | 40-167 | - | | 30 |
| Perfluorooctadecanoic Acid (PFODA) | 56 | | - | | 10-119 | - | | 30 |
| Perfluorododecane Sulfonic Acid (PFDoDS) | 103 | | - | | 69-141 | - | | 30 |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid (10:2FTS) | 96 | | - | | 81-188 | - | | 30 |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS) | 80 | | - | | 55-158 | - | | 30 |
| 11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS) | 83 | | - | | 52-156 | - | | 30 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| Parameter | LCS | | LCSD | | %Recovery | | RPD | RPD | |
|---|-----------|------|-----------|------|-----------|------|-----|--------|--|
| | %Recovery | Qual | %Recovery | Qual | Limits | Qual | | Limits | |
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-03 Batch: WG1662114-2 | | | | | | | | | |

| Surrogate (Extracted Internal Standard) | LCS | | LCSD | | Acceptance Criteria |
|--|-----------|------|-----------|------|------------------------|
| | %Recovery | Qual | %Recovery | Qual | |
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 87 | | | | 58-132 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 89 | | | | 62-163 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 91 | | | | 70-131 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 93 | | | | 12-142 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 88 | | | | 57-129 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 87 | | | | 60-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 91 | | | | 71-134 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 88 | | | | 62-129 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 95 | | | | 14-147 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 85 | | | | 59-139 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 88 | | | | 69-131 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 82 | | | | 62-124 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 117 | | | | 10-162 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 80 | | | | 24-116 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 82 | | | | 55-137 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 21 | | | | 5-112 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 72 | | | | 27-126 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 82 | | | | 48-131 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 78 | | | | 22-136 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 98 | | | | 10-165 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 78 | | | | 10-206 |
| 1H,1H,2H,2H-Perfluorododecane Sulfonate (M2D4-10:2FTS) | 116 | | | | 50-150 |

Lab Control Sample Analysis Batch Quality Control

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-03 Batch: WG1662114-2 | | | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | 126 | | - | | 46-170 | - | | 30 |
| N-Methyl Perfluorooctane Sulfonamide (NMeFOSA) | 100 | | - | | 10-185 | - | | 30 |
| N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA) | 108 | | - | | 10-202 | - | | 30 |
| N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE) | 140 | | - | | 10-209 | - | | 30 |
| N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE) | 116 | | - | | 66-176 | - | | 30 |

| Surrogate (Extracted Internal Standard) | LCS %Recovery | Qual | LCSD %Recovery | Qual | Acceptance Criteria |
|---|------------------|------|-------------------|------|------------------------|
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 114 | Q | | | 5-112 |
| N-Methyl-d3-Perfluoro-1-Octanesulfonamide (d3-NMeFOSA) | 107 | | | | 10-161 |
| N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (d5-NEtFOSA) | 100 | | | | 10-160 |
| 2-(N-Methyl-d3-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d7-NMeFOSE) | 108 | | | | 10-189 |
| 2-(N-Ethyl-d5-Perfluoro-1-Octanesulfonamido)ethan-d4-ol (d9-NEtFOSE) | 121 | | | | 10-187 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 Batch: WG1666316-2 | | | | | | | | |
| Perfluorobutanoic Acid (PFBA) | 94 | | - | | 71-135 | - | | 30 |
| Perfluoropentanoic Acid (PFPeA) | 95 | | - | | 69-132 | - | | 30 |
| Perfluorobutanesulfonic Acid (PFBS) | 97 | | - | | 72-128 | - | | 30 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | 101 | | - | | 62-145 | - | | 30 |
| Perfluorohexanoic Acid (PFHxA) | 95 | | - | | 70-132 | - | | 30 |
| Perfluoropentanesulfonic Acid (PFPeS) | 103 | | - | | 73-123 | - | | 30 |
| Perfluoroheptanoic Acid (PFHpA) | 99 | | - | | 71-131 | - | | 30 |
| Perfluorohexanesulfonic Acid (PFHxS) | 110 | | - | | 67-130 | - | | 30 |
| Perfluorooctanoic Acid (PFOA) | 96 | | - | | 69-133 | - | | 30 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 101 | | - | | 64-140 | - | | 30 |
| Perfluoroheptanesulfonic Acid (PFHpS) | 93 | | - | | 70-132 | - | | 30 |
| Perfluorononanoic Acid (PFNA) | 97 | | - | | 72-129 | - | | 30 |
| Perfluorooctanesulfonic Acid (PFOS) | 96 | | - | | 68-136 | - | | 30 |
| Perfluorodecanoic Acid (PFDA) | 96 | | - | | 69-133 | - | | 30 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | 96 | | - | | 65-137 | - | | 30 |
| Perfluorononanesulfonic Acid (PFNS) | 95 | | - | | 69-125 | - | | 30 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | 116 | | - | | 63-144 | - | | 30 |
| Perfluoroundecanoic Acid (PFUnA) | 100 | | - | | 64-136 | - | | 30 |
| Perfluorodecanesulfonic Acid (PFDS) | 89 | | - | | 59-134 | - | | 30 |
| Perfluorooctanesulfonamide (FOSA) | 100 | | - | | 67-137 | - | | 30 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 90 | | - | | 61-139 | - | | 30 |
| Perfluorododecanoic Acid (PFDoA) | 95 | | - | | 69-135 | - | | 30 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | LCS %Recovery | Qual | LCSD %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|------------------|------|-------------------|------|---------------------|-----|------|---------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 Batch: WG1666316-2 | | | | | | | | |
| Perfluorotridecanoic Acid (PFTrDA) | 97 | | - | | 66-139 | - | | 30 |
| Perfluorotetradecanoic Acid (PFTA) | 92 | | - | | 69-133 | - | | 30 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | 88 | | - | | 41-165 | - | | 30 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | 84 | | - | | 61-135 | - | | 30 |
| Perfluorohexadecanoic Acid (PFHxDA) | 95 | | - | | 18-191 | - | | 30 |
| Perfluorooctadecanoic Acid (PFODA) | 17 | | - | | 10-123 | - | | 30 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| Parameter | LCS %Recovery | Qual | LCS %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|---|------------------|------|------------------|------|---------------------|-----|------|---------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 Batch: WG1666316-2 | | | | | | | | |

| Surrogate (Extracted Internal Standard) | LCS %Recovery | Qual | LCS %Recovery | Qual | Acceptance Criteria |
|--|------------------|------|------------------|------|------------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 46 | Q | | | 61-135 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 56 | Q | | | 58-150 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 85 | | | | 74-139 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 65 | | | | 14-167 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 66 | | | | 66-128 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 68 | Q | | | 71-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 83 | | | | 78-139 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 73 | Q | | | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 68 | | | | 20-154 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 77 | | | | 72-140 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 89 | | | | 79-136 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 81 | | | | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 68 | | | | 19-175 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 37 | | | | 31-134 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 84 | | | | 61-155 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 37 | | | | 5-117 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 46 | | | | 34-137 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 81 | | | | 54-150 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 75 | | | | 24-159 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 65 | | | | 10-203 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 54 | | | | 10-145 |

Matrix Spike Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| Parameter | Native Sample | MS Added | MS Found | MS %Recovery | Qual | MSD Found | MSD %Recovery | Qual | Recovery Limits | RPD | Qual | RPD Limits |
|---|---------------|----------|----------|--------------|------|-----------|---------------|------|-----------------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1661500-3 QC Sample: L2235022-01 Client ID: MS Sample | | | | | | | | | | | | |
| Perfluorobutanoic Acid (PFBA) | 39.2 | 11.2 | 43.9 | 42 | Q | - | - | | 71-135 | - | | 30 |
| Perfluoropentanoic Acid (PFPeA) | 125 | 11.2 | 117 | 0 | Q | - | - | | 69-132 | - | | 30 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | 9.98 | 9.88 | 99 | | - | - | | 72-128 | - | | 30 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | 10.5 | 10.9 | 103 | | - | - | | 62-145 | - | | 30 |
| Perfluorohexanoic Acid (PFHxA) | 278 | 11.2 | 236 | 0 | Q | - | - | | 70-132 | - | | 30 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | 10.6 | 11.0 | 104 | | - | - | | 73-123 | - | | 30 |
| Perfluoroheptanoic Acid (PFHpA) | 45.4 | 11.2 | 47.5 | 19 | Q | - | - | | 71-131 | - | | 30 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | 10.3 | 12.1 | 118 | | - | - | | 67-130 | - | | 30 |
| Perfluorooctanoic Acid (PFOA) | 8.23 | 11.2 | 18.2 | 89 | | - | - | | 69-133 | - | | 30 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | 10.7 | 11.4 | 106 | | - | - | | 64-140 | - | | 30 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | 10.7 | 11.2 | 104 | | - | - | | 70-132 | - | | 30 |
| Perfluorononanoic Acid (PFNA) | 10.3 | 11.2 | 21.0 | 95 | | - | - | | 72-129 | - | | 30 |
| Perfluorooctanesulfonic Acid (PFOS) | 2.41 | 10.4 | 13.6 | 107 | | - | - | | 68-136 | - | | 30 |
| Perfluorodecanoic Acid (PFDA) | 10.5 | 11.2 | 17.7 | 64 | Q | - | - | | 69-133 | - | | 30 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | 10.8 | 10.6 | 98 | | - | - | | 65-137 | - | | 30 |
| Perfluorononanesulfonic Acid (PFNS) | ND | 10.8 | 11.4 | 105 | | - | - | | 69-125 | - | | 30 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | 11.2 | 16.5 | 147 | Q | - | - | | 63-144 | - | | 30 |
| Perfluoroundecanoic Acid (PFUnA) | 8.60 | 11.2 | 15.5 | 61 | Q | - | - | | 64-136 | - | | 30 |
| Perfluorodecanesulfonic Acid (PFDS) | ND | 10.9 | 9.24 | 85 | | - | - | | 59-134 | - | | 30 |
| Perfluorooctanesulfonamide (FOSA) | ND | 11.2 | 11.1 | 96 | | - | - | | 67-137 | - | | 30 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 3.52 | 11.2 | 13.0 | 84 | | - | - | | 61-139 | - | | 30 |
| Perfluorododecanoic Acid (PFDoA) | 4.27 | 11.2 | 13.0 | 78 | | - | - | | 69-135 | - | | 30 |

Matrix Spike Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| <i>Parameter</i> | <i>Native Sample</i> | <i>MS Added</i> | <i>MS Found</i> | <i>MS %Recovery</i> | <i>Qual</i> | <i>MSD Found</i> | <i>MSD %Recovery</i> | <i>Qual</i> | <i>Recovery Limits</i> | <i>RPD</i> | <i>Qual</i> | <i>RPD Limits</i> |
|---|----------------------|-----------------|-----------------|---------------------|-------------|------------------|----------------------|-------------|------------------------|------------|-------------|-------------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1661500-3 QC Sample: L2235022-01 Client ID: MS Sample | | | | | | | | | | | | |
| Perfluorotridecanoic Acid (PFTTrDA) | 2.12 | 11.2 | 12.2 | 90 | | - | - | | 66-139 | - | | 30 |
| Perfluorotetradecanoic Acid (PFTTA) | ND | 11.2 | 11.0 | 88 | | - | - | | 69-133 | - | | 30 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | 110 | 88.4 | 81 | | - | - | | 41-165 | - | | 30 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | 10.6 | 11.1 | 104 | | - | - | | 61-135 | - | | 30 |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | 11.2 | 11.6 | 100 | | - | - | | 18-191 | - | | 30 |
| Perfluorooctadecanoic Acid (PFODA) | ND | 11.2 | ND | 46 | | - | - | | 10-123 | - | | 30 |

| <i>Surrogate (Extracted Internal Standard)</i> | <i>MS % Recovery</i> | <i>Qualifier</i> | <i>MSD % Recovery</i> | <i>Qualifier</i> | <i>Acceptance Criteria</i> |
|--|----------------------|------------------|-----------------------|------------------|----------------------------|
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 106 | | | | 19-175 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 97 | | | | 14-167 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 110 | | | | 20-154 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 98 | | | | 10-203 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 77 | | | | 34-137 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 36 | | | | 31-134 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUODA) | 76 | | | | 61-155 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 71 | Q | | | 75-130 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 63 | Q | | | 66-128 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 77 | | | | 71-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 81 | | | | 78-139 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 79 | | | | 54-150 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 61 | | | | 24-159 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 28 | | | | 10-145 |

Matrix Spike Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| <i>Parameter</i> | <i>Native Sample</i> | <i>MS Added</i> | <i>MS Found</i> | <i>MS %Recovery</i> | <i>Qual</i> | <i>MSD Found</i> | <i>MSD %Recovery</i> | <i>Qual</i> | <i>Recovery Limits</i> | <i>RPD</i> | <i>Qual</i> | <i>RPD Limits</i> |
|---|----------------------|-----------------|-----------------|---------------------|-------------|------------------|----------------------|-------------|------------------------|------------|-------------|-------------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1661500-3 QC Sample: L2235022-01 Client ID: MS Sample | | | | | | | | | | | | |

| <i>Surrogate (Extracted Internal Standard)</i> | <i>MS</i> | | <i>MSD</i> | | <i>Acceptance Criteria</i> |
|---|-------------------|------------------|-------------------|------------------|----------------------------|
| | <i>% Recovery</i> | <i>Qualifier</i> | <i>% Recovery</i> | <i>Qualifier</i> | |
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 79 | | | | 61-135 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 61 | | | | 58-150 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 63 | | | | 5-117 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 78 | Q | | | 79-136 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 76 | | | | 75-130 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 69 | Q | | | 72-140 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 79 | | | | 74-139 |

Matrix Spike Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| <i>Parameter</i> | <i>Native Sample</i> | <i>MS Added</i> | <i>MS Found</i> | <i>MS %Recovery</i> | <i>Qual</i> | <i>MSD Found</i> | <i>MSD %Recovery</i> | <i>Qual</i> | <i>Recovery Limits</i> | <i>RPD</i> | <i>Qual</i> | <i>RPD Limits</i> |
|---|----------------------|-----------------|-----------------|---------------------|-------------|------------------|----------------------|-------------|------------------------|------------|-------------|-------------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1662114-3 QC Sample: L2235936-04 Client ID: MS Sample | | | | | | | | | | | | |
| Perfluorobutanoic Acid (PFBA) | 18.5 | 38.5 | 57.7 | 102 | | - | - | | 67-148 | - | | 30 |
| Perfluoropentanoic Acid (PFPeA) | 36.3 | 38.5 | 74.9 | 100 | | - | - | | 63-161 | - | | 30 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | 34.2 | 36.7 | 106 | | - | - | | 65-157 | - | | 30 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | 36.1 | 40.9 | 113 | | - | - | | 37-219 | - | | 30 |
| Perfluorohexanoic Acid (PFHxA) | 9.51 | 38.5 | 50.3 | 106 | | - | - | | 69-168 | - | | 30 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | 36.2 | 39.4 | 108 | | - | - | | 52-156 | - | | 30 |
| Perfluoroheptanoic Acid (PFHpA) | 3.82 | 38.5 | 43.1 | 102 | | - | - | | 58-159 | - | | 30 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | 35.2 | 43.6 | 120 | | - | - | | 69-177 | - | | 30 |
| Perfluorooctanoic Acid (PFOA) | 6.43 | 38.5 | 51.1 | 116 | | - | - | | 63-159 | - | | 30 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | 36.6 | 40.4 | 106 | | - | - | | 49-187 | - | | 30 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | 36.7 | 37.6 | 102 | | - | - | | 61-179 | - | | 30 |
| Perfluorononanoic Acid (PFNA) | 10.9 | 38.5 | 55.3 | 115 | | - | - | | 68-171 | - | | 30 |
| Perfluorooctanesulfonic Acid (PFOS) | ND | 35.7 | 40.9 | 110 | | - | - | | 52-151 | - | | 30 |
| Perfluorodecanoic Acid (PFDA) | ND | 38.5 | 44.4 | 112 | | - | - | | 63-171 | - | | 30 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | 36.9 | 36.9 | 100 | | - | - | | 56-173 | - | | 30 |
| Perfluorononanesulfonic Acid (PFNS) | ND | 37 | 38.8 | 105 | | - | - | | 48-150 | - | | 30 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | 38.5 | 43.4 | 113 | | - | - | | 60-166 | - | | 30 |
| Perfluoroundecanoic Acid (PFUnA) | 116 | 38.5 | 150 | 88 | | - | - | | 60-153 | - | | 30 |
| Perfluorodecanesulfonic Acid (PFDS) | ND | 37.2 | 30.1 | 81 | | - | - | | 38-156 | - | | 30 |
| Perfluorooctanesulfonamide (FOSA) | ND | 38.5 | 29.3F | 76 | | - | - | | 46-170 | - | | 30 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | 38.5 | 37.9 | 98 | | - | - | | 45-170 | - | | 30 |
| Perfluorododecanoic Acid (PFDoA) | 2.86 | 38.5 | 41.8 | 101 | | - | - | | 67-153 | - | | 30 |

Matrix Spike Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| <i>Parameter</i> | <i>Native Sample</i> | <i>MS Added</i> | <i>MS Found</i> | <i>MS %Recovery</i> | <i>Qual</i> | <i>MSD Found</i> | <i>MSD %Recovery</i> | <i>Qual</i> | <i>Recovery Limits</i> | <i>RPD</i> | <i>Qual</i> | <i>RPD Limits</i> |
|---|----------------------|-----------------|-----------------|---------------------|-------------|------------------|----------------------|-------------|------------------------|------------|-------------|-------------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1662114-3 QC Sample: L2235936-04 Client ID: MS Sample | | | | | | | | | | | | |
| Perfluorotridecanoic Acid (PFTTrDA) | 172 | 38.5 | 206 | 88 | | - | - | | 48-158 | - | | 30 |
| Perfluorotetradecanoic Acid (PFTTA) | ND | 38.5 | 39.9 | 102 | | - | - | | 59-182 | - | | 30 |

| <i>Surrogate (Extracted Internal Standard)</i> | <i>MS % Recovery</i> | <i>Qualifier</i> | <i>MSD % Recovery</i> | <i>Qualifier</i> | <i>Acceptance Criteria</i> |
|--|----------------------|------------------|-----------------------|------------------|----------------------------|
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 82 | | | | 10-162 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 90 | | | | 12-142 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 82 | | | | 14-147 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 61 | | | | 27-126 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 55 | | | | 24-116 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 72 | | | | 55-137 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 76 | | | | 62-124 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 87 | | | | 57-129 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 86 | | | | 60-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 97 | | | | 71-134 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 78 | | | | 48-131 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 69 | | | | 22-136 |
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 85 | | | | 58-132 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 89 | | | | 62-163 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 4 | Q | | | 5-112 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 95 | | | | 69-131 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 77 | | | | 62-129 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 76 | | | | 59-139 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 94 | | | | 70-131 |

Matrix Spike Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| Parameter | Native Sample | MS Added | MS Found | MS %Recovery | Qual | MSD Found | MSD %Recovery | Qual | Recovery Limits | RPD | Qual | RPD Limits |
|---|---------------|----------|----------|--------------|------|-----------|---------------|------|-----------------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1666316-3 QC Sample: L2237565-01 Client ID: MS Sample | | | | | | | | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | 7.62 | 7.17 | 93 | | - | - | | 71-135 | - | | 30 |
| Perfluoropentanoic Acid (PFPeA) | ND | 7.62 | 7.20 | 93 | | - | - | | 69-132 | - | | 30 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | 6.76 | 6.42 | 95 | | - | - | | 72-128 | - | | 30 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | 7.15 | 6.86 | 96 | | - | - | | 62-145 | - | | 30 |
| Perfluorohexanoic Acid (PFHxA) | ND | 7.62 | 7.38 | 95 | | - | - | | 70-132 | - | | 30 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | 7.18 | 6.97 | 97 | | - | - | | 73-123 | - | | 30 |
| Perfluoroheptanoic Acid (PFHpA) | ND | 7.62 | 7.17 | 93 | | - | - | | 71-131 | - | | 30 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | 6.96 | 7.39 | 106 | | - | - | | 67-130 | - | | 30 |
| Perfluorooctanoic Acid (PFOA) | ND | 7.62 | 7.39 | 93 | | - | - | | 69-133 | - | | 30 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | 7.25 | 7.92 | 109 | | - | - | | 64-140 | - | | 30 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | 7.27 | 6.29 | 87 | | - | - | | 70-132 | - | | 30 |
| Perfluorononanoic Acid (PFNA) | ND | 7.62 | 6.84 | 88 | | - | - | | 72-129 | - | | 30 |
| Perfluorooctanesulfonic Acid (PFOS) | 1.65 | 7.07 | 8.03 | 90 | | - | - | | 68-136 | - | | 30 |
| Perfluorodecanoic Acid (PFDA) | ND | 7.62 | 7.38 | 93 | | - | - | | 69-133 | - | | 30 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | 7.31 | 7.94F | 109 | | - | - | | 65-137 | - | | 30 |
| Perfluorononanesulfonic Acid (PFNS) | ND | 7.33 | 6.49 | 89 | | - | - | | 69-125 | - | | 30 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | 7.62 | 6.82 | 90 | | - | - | | 63-144 | - | | 30 |
| Perfluoroundecanoic Acid (PFUnA) | ND | 7.62 | 7.94 | 102 | | - | - | | 64-136 | - | | 30 |
| Perfluorodecanesulfonic Acid (PFDS) | ND | 7.36 | 6.50 | 88 | | - | - | | 59-134 | - | | 30 |
| Perfluorooctanesulfonamide (FOSA) | ND | 7.62 | 7.18 | 94 | | - | - | | 67-137 | - | | 30 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | 7.62 | 7.47 | 98 | | - | - | | 61-139 | - | | 30 |
| Perfluorododecanoic Acid (PFDoA) | ND | 7.62 | 7.10 | 92 | | - | - | | 69-135 | - | | 30 |

Matrix Spike Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| <i>Parameter</i> | <i>Native Sample</i> | <i>MS Added</i> | <i>MS Found</i> | <i>MS %Recovery</i> | <i>Qual</i> | <i>MSD Found</i> | <i>MSD %Recovery</i> | <i>Qual</i> | <i>Recovery Limits</i> | <i>RPD</i> | <i>Qual</i> | <i>RPD Limits</i> |
|---|----------------------|-----------------|-----------------|---------------------|-------------|------------------|----------------------|-------------|------------------------|------------|-------------|-------------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1666316-3 QC Sample: L2237565-01 Client ID: MS Sample | | | | | | | | | | | | |
| Perfluorotridecanoic Acid (PFTTrDA) | ND | 7.62 | 7.45 | 98 | | - | - | | 66-139 | - | | 30 |
| Perfluorotetradecanoic Acid (PFTTA) | ND | 7.62 | 6.23 | 82 | | - | - | | 69-133 | - | | 30 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | 74.3 | 76.1 | 102 | | - | - | | 41-165 | - | | 30 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | 7.21 | 6.54 | 91 | | - | - | | 61-135 | - | | 30 |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | 7.62 | 7.28 | 96 | | - | - | | 18-191 | - | | 30 |
| Perfluorooctadecanoic Acid (PFODA) | ND | 7.62 | 5.59 | 73 | | - | - | | 10-123 | - | | 30 |

| <i>Surrogate (Extracted Internal Standard)</i> | <i>MS % Recovery</i> | <i>Qualifier</i> | <i>MSD % Recovery</i> | <i>Qualifier</i> | <i>Acceptance Criteria</i> |
|--|----------------------|------------------|-----------------------|------------------|----------------------------|
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 96 | | | | 19-175 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 83 | | | | 14-167 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 88 | | | | 20-154 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 85 | | | | 10-203 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 76 | | | | 34-137 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 75 | | | | 31-134 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 89 | | | | 61-155 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 87 | | | | 75-130 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 87 | | | | 66-128 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 87 | | | | 71-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 83 | | | | 78-139 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 90 | | | | 54-150 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 98 | | | | 24-159 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 91 | | | | 10-145 |

Matrix Spike Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

| Parameter | Native Sample | MS Added | MS Found | MS %Recovery | Qual | MSD Found | MSD %Recovery | Qual | Recovery Limits | RPD | Qual | RPD Limits |
|---|----------------------|-----------------|-----------------|---------------------|-------------|------------------|----------------------|-------------|------------------------|------------|-------------|-------------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1666316-3 QC Sample: L2237565-01 Client ID: MS Sample | | | | | | | | | | | | |

| Surrogate (Extracted Internal Standard) | MS | | MSD | | Acceptance Criteria |
|---|-------------------|------------------|-------------------|------------------|----------------------------|
| | % Recovery | Qualifier | % Recovery | Qualifier | |
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 88 | | | | 61-135 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 91 | | | | 58-150 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 7 | | | | 5-117 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 93 | | | | 79-136 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 89 | | | | 75-130 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 94 | | | | 72-140 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 84 | | | | 74-139 |

Lab Duplicate Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|--|---------------|------------------|-------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1661500-4 QC Sample: L2235022-02 Client ID: DUP Sample | | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | ND | ng/g | NC | | 30 |
| Perfluoropentanoic Acid (PFPeA) | 2.13 | 2.20 | ng/g | 3 | | 30 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | ND | ng/g | NC | | 30 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | ND | ng/g | NC | | 30 |
| Perfluorohexanoic Acid (PFHxA) | 8.90 | 8.94 | ng/g | 0 | | 30 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | ND | ng/g | NC | | 30 |
| Perfluoroheptanoic Acid (PFHpA) | 4.97 | 4.96 | ng/g | 0 | | 30 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | ND | ng/g | NC | | 30 |
| Perfluorooctanoic Acid (PFOA) | 22.7 | 22.8 | ng/g | 0 | | 30 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | ND | ng/g | NC | | 30 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | ND | ng/g | NC | | 30 |
| Perfluorononanoic Acid (PFNA) | 26.6 | 26.8 | ng/g | 1 | | 30 |
| Perfluorooctanesulfonic Acid (PFOS) | 2.78 | 2.46 | ng/g | 12 | | 30 |
| Perfluorodecanoic Acid (PFDA) | 16.5 | 14.0 | ng/g | 16 | | 30 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | ND | ng/g | NC | | 30 |
| Perfluorononanesulfonic Acid (PFNS) | ND | ND | ng/g | NC | | 30 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | ND | ng/g | NC | | 30 |
| Perfluoroundecanoic Acid (PFUnA) | 13.3 | 11.7 | ng/g | 13 | | 30 |
| Perfluorodecanesulfonic Acid (PFDS) | ND | ND | ng/g | NC | | 30 |
| Perfluorooctanesulfonamide (FOSA) | ND | ND | ng/g | NC | | 30 |

Lab Duplicate Analysis

Batch Quality Control

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|--|---------------|------------------|-------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1661500-4 QC Sample: L2235022-02 Client ID: DUP Sample | | | | | | |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 16.6 | 19.8 | ng/g | 18 | | 30 |
| Perfluorododecanoic Acid (PFDoA) | 5.54 | 4.35 | ng/g | 24 | | 30 |
| Perfluorotridecanoic Acid (PFTTrDA) | 6.60 | 3.94 | ng/g | 50 | Q | 30 |
| Perfluorotetradecanoic Acid (PFTA) | ND | ND | ng/g | NC | | 30 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | ND | ng/g | NC | | 30 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | ND | ng/g | NC | | 30 |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | ND | ng/g | NC | | 30 |
| Perfluorooctadecanoic Acid (PFODA) | ND | ND | ng/g | NC | | 30 |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | %Recovery | Qualifier | Acceptance Criteria |
|--|-----------|-----------|-----------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 64 | | 63 | | 61-135 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 54 | Q | 52 | Q | 58-150 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 78 | | 77 | | 74-139 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 99 | | 99 | | 14-167 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 70 | | 66 | | 66-128 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 72 | | 68 | Q | 71-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 78 | | 75 | Q | 78-139 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 70 | Q | 68 | Q | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 114 | | 106 | | 20-154 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 75 | | 69 | Q | 72-140 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 77 | Q | 75 | Q | 79-136 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 67 | Q | 68 | Q | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 123 | | 126 | | 19-175 |

Lab Duplicate Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|--|---------------|------------------|-------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1661500-4 QC Sample: L2235022-02 Client ID: DUP Sample | | | | | | |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | %Recovery | Qualifier | Acceptance Criteria |
|--|-----------|-----------|-----------|-----------|---------------------|
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 48 | | 48 | | 31-134 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 72 | | 69 | | 61-155 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 25 | | 30 | | 5-117 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 64 | | 53 | | 34-137 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 47 | Q | 55 | | 54-150 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 47 | | 51 | | 24-159 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 81 | | 75 | | 10-203 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 34 | | 31 | | 10-145 |

Lab Duplicate Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|--|---------------|------------------|-------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1662114-4 QC Sample: L2235936-03 Client ID: DUP Sample | | | | | | |
| Perfluorobutanoic Acid (PFBA) | 20.4 | 20.4 | ng/l | 0 | | 30 |
| Perfluoropentanoic Acid (PFPeA) | 47.7 | 46.7 | ng/l | 2 | | 30 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | ND | ng/l | NC | | 30 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | ND | ng/l | NC | | 30 |
| Perfluorohexanoic Acid (PFHxA) | 11.8 | 11.9 | ng/l | 1 | | 30 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | ND | ng/l | NC | | 30 |
| Perfluoroheptanoic Acid (PFHpA) | 4.98 | 4.96 | ng/l | 0 | | 30 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | ND | ng/l | NC | | 30 |
| Perfluorooctanoic Acid (PFOA) | 5.89 | 5.95F | ng/l | 1 | | 30 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | 2.52 | 2.99 | ng/l | 17 | | 30 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | ND | ng/l | NC | | 30 |
| Perfluorononanoic Acid (PFNA) | ND | ND | ng/l | NC | | 30 |
| Perfluorooctanesulfonic Acid (PFOS) | ND | ND | ng/l | NC | | 30 |
| Perfluorodecanoic Acid (PFDA) | ND | ND | ng/l | NC | | 30 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | ND | ng/l | NC | | 30 |
| Perfluorononanesulfonic Acid (PFNS) | ND | ND | ng/l | NC | | 30 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | ND | ND | ng/l | NC | | 30 |
| Perfluoroundecanoic Acid (PFUnA) | ND | ND | ng/l | NC | | 30 |
| Perfluorodecanesulfonic Acid (PFDS) | ND | ND | ng/l | NC | | 30 |
| Perfluorooctanesulfonamide (FOSA) | ND | ND | ng/l | NC | | 30 |

Lab Duplicate Analysis

Batch Quality Control

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|--|---------------|------------------|-------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1662114-4 QC Sample: L2235936-03 Client ID: DUP Sample | | | | | | |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | ND | ND | ng/l | NC | | 30 |
| Perfluorododecanoic Acid (PFDoA) | ND | ND | ng/l | NC | | 30 |
| Perfluorotridecanoic Acid (PFTTrDA) | ND | ND | ng/l | NC | | 30 |
| Perfluorotetradecanoic Acid (PFTA) | ND | ND | ng/l | NC | | 30 |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | %Recovery | Qualifier | Acceptance Criteria |
|--|-----------|-----------|-----------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 75 | | 87 | | 58-132 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 78 | | 89 | | 62-163 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 77 | | 88 | | 70-131 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 68 | | 81 | | 12-142 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 76 | | 87 | | 57-129 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 79 | | 88 | | 60-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 77 | | 91 | | 71-134 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 77 | | 87 | | 62-129 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 60 | | 69 | | 14-147 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 75 | | 83 | | 59-139 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 74 | | 81 | | 69-131 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 70 | | 75 | | 62-124 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 61 | | 79 | | 10-162 |
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 51 | | 45 | | 24-116 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 67 | | 74 | | 55-137 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 6 | | 11 | | 5-112 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 47 | | 55 | | 27-126 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 65 | | 76 | | 48-131 |

Lab Duplicate Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|--|---------------|------------------|-------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1662114-4 QC Sample: L2235936-03 Client ID: DUP Sample | | | | | | |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | %Recovery | Qualifier | Acceptance Criteria |
|--|-----------|-----------|-----------|-----------|---------------------|
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 58 | | 76 | | 22-136 |

Lab Duplicate Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|--|---------------|------------------|-------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1666316-4 QC Sample: L2237679-01 Client ID: DUP Sample | | | | | | |
| Perfluorobutanoic Acid (PFBA) | ND | ND | ng/g | NC | | 30 |
| Perfluoropentanoic Acid (PFPeA) | ND | ND | ng/g | NC | | 30 |
| Perfluorobutanesulfonic Acid (PFBS) | ND | ND | ng/g | NC | | 30 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS) | ND | ND | ng/g | NC | | 30 |
| Perfluorohexanoic Acid (PFHxA) | ND | ND | ng/g | NC | | 30 |
| Perfluoropentanesulfonic Acid (PFPeS) | ND | ND | ng/g | NC | | 30 |
| Perfluoroheptanoic Acid (PFHpA) | ND | ND | ng/g | NC | | 30 |
| Perfluorohexanesulfonic Acid (PFHxS) | ND | ND | ng/g | NC | | 30 |
| Perfluorooctanoic Acid (PFOA) | 2.22 | 2.28 | ng/g | 3 | | 30 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) | ND | ND | ng/g | NC | | 30 |
| Perfluoroheptanesulfonic Acid (PFHpS) | ND | ND | ng/g | NC | | 30 |
| Perfluorononanoic Acid (PFNA) | 0.752 | 0.769 | ng/g | 2 | | 30 |
| Perfluorooctanesulfonic Acid (PFOS) | 69.5 | 75.1 | ng/g | 8 | | 30 |
| Perfluorodecanoic Acid (PFDA) | 1.02 | 1.02 | ng/g | 0 | | 30 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS) | ND | ND | ng/g | NC | | 30 |
| Perfluorononanesulfonic Acid (PFNS) | ND | ND | ng/g | NC | | 30 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA) | 0.945 | 1.24 | ng/g | 27 | | 30 |
| Perfluoroundecanoic Acid (PFUnA) | 1.49 | 1.51 | ng/g | 1 | | 30 |
| Perfluorodecanesulfonic Acid (PFDS) | ND | ND | ng/g | NC | | 30 |
| Perfluorooctanesulfonamide (FOSA) | 2.85F | 3.07 | ng/g | 7 | | 30 |

Lab Duplicate Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|--|---------------|------------------|-------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1666316-4 QC Sample: L2237679-01 Client ID: DUP Sample | | | | | | |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA) | 13.1 | 15.9F | ng/g | 19 | | 30 |
| Perfluorododecanoic Acid (PFDoA) | 0.627 | 0.687 | ng/g | 9 | | 30 |
| Perfluorotridecanoic Acid (PFTTrDA) | ND | ND | ng/g | NC | | 30 |
| Perfluorotetradecanoic Acid (PFTA) | ND | ND | ng/g | NC | | 30 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA) | ND | ND | ng/g | NC | | 30 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA) | ND | ND | ng/g | NC | | 30 |
| Perfluorohexadecanoic Acid (PFHxDA) | ND | ND | ng/g | NC | | 30 |
| Perfluorooctadecanoic Acid (PFODA) | ND | ND | ng/g | NC | | 30 |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | %Recovery | Qualifier | Acceptance Criteria |
|--|-----------|-----------|-----------|-----------|---------------------|
| Perfluoro[13C4]Butanoic Acid (MPFBA) | 72 | | 74 | | 61-135 |
| Perfluoro[13C5]Pentanoic Acid (M5PFPEA) | 78 | | 78 | | 58-150 |
| Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS) | 107 | | 97 | | 74-139 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS) | 92 | | 81 | | 14-167 |
| Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA) | 77 | | 77 | | 66-128 |
| Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA) | 76 | | 77 | | 71-129 |
| Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS) | 106 | | 95 | | 78-139 |
| Perfluoro[13C8]Octanoic Acid (M8PFOA) | 82 | | 79 | | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS) | 88 | | 81 | | 20-154 |
| Perfluoro[13C9]Nonanoic Acid (M9PFNA) | 82 | | 78 | | 72-140 |
| Perfluoro[13C8]Octanesulfonic Acid (M8PFOS) | 96 | | 88 | | 79-136 |
| Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA) | 86 | | 84 | | 75-130 |
| 1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS) | 101 | | 91 | | 19-175 |

Lab Duplicate Analysis

Batch Quality Control

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|--|---------------|------------------|-------|-----|------|------------|
| Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04-05 QC Batch ID: WG1666316-4 QC Sample: L2237679-01 Client ID: DUP Sample | | | | | | |

| Surrogate (Extracted Internal Standard) | %Recovery | Qualifier | %Recovery | Qualifier | Acceptance Criteria |
|--|-----------|-----------|-----------|-----------|---------------------|
| N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA) | 60 | | 54 | | 31-134 |
| Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA) | 94 | | 89 | | 61-155 |
| Perfluoro[13C8]Octanesulfonamide (M8FOSA) | 9 | | 53 | | 5-117 |
| N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA) | 62 | | 66 | | 34-137 |
| Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA) | 86 | | 90 | | 54-150 |
| Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) | 96 | | 89 | | 24-159 |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA) | 93 | | 87 | | 10-203 |
| Perfluoro[13C2]Hexadecanoic Acid (M2PFHxDA) | 83 | | 78 | | 10-145 |

INORGANICS & MISCELLANEOUS

Project Name: TIBBETS ROAD

Project Number: 4444-0005

Lab Number: L2235333

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-04

Client ID: CS-101 (0-1')

Sample Location: SCARBOROUGH, ME

Date Collected: 06/30/22 11:40

Date Received: 07/01/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|--|--------|-----------|-------|-------|-----|--------------------|------------------|------------------|----------------------|---------|
| General Chemistry - Mansfield Lab | | | | | | | | | | |
| Solids, Total | 88.9 | | % | 0.100 | -- | 1 | - | 07/08/22 10:56 | 121,2540G | NG |



Project Name: TIBBETS ROAD

Lab Number: L2235333

Project Number: 4444-0005

Report Date: 07/26/22

SAMPLE RESULTS

Lab ID: L2235333-05

Date Collected: 06/30/22 15:00

Client ID: SS-101 (0-0.5)

Date Received: 07/01/22

Sample Location: SCARBOROUGH, ME

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|--|--------|-----------|-------|-------|-----|--------------------|------------------|------------------|----------------------|---------|
| General Chemistry - Mansfield Lab | | | | | | | | | | |
| Solids, Total | 95.4 | | % | 0.100 | -- | 1 | - | 07/08/22 10:56 | 121,2540G | NG |



Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Method Blank Analysis
Batch Quality Control

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|---|--------|-----------|-------|-------|-----|--------------------|------------------|------------------|----------------------|---------|
| General Chemistry - Mansfield Lab for sample(s): 04-05 Batch: WG1660222-1 | | | | | | | | | | |
| Solids, Total | 100 | | % | 0.100 | -- | 1 | - | 07/08/22 10:56 | 121,2540G | NG |

Project Name: TIBBETS ROAD**Lab Number:** L2235333**Project Number:** 4444-0005**Report Date:** 07/26/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

| Cooler | Custody Seal |
|---------------|---------------------|
| A | Absent |

Container Information

| Container ID | Container Type | Cooler | Initial pH | Final pH | Temp deg C | Pres | Seal | Frozen Date/Time | Analysis(*) |
|---------------------|--------------------------------|---------------|-------------------|-----------------|-------------------|-------------|-------------|-------------------------|-----------------------|
| L2235333-01A | Plastic 250ml unpreserved | A | NA | | 2.6 | Y | Absent | | A2-537-ISOTOPE-36(14) |
| L2235333-01B | Plastic 250ml unpreserved | A | NA | | 2.6 | Y | Absent | | A2-537-ISOTOPE-36(14) |
| L2235333-02A | Plastic 250ml unpreserved | A | NA | | 2.6 | Y | Absent | | A2-537-ISOTOPE-36(14) |
| L2235333-02B | Plastic 250ml unpreserved | A | NA | | 2.6 | Y | Absent | | A2-537-ISOTOPE-36(14) |
| L2235333-03A | Plastic 250ml unpreserved | A | NA | | 2.6 | Y | Absent | | A2-537-ISOTOPE-36(14) |
| L2235333-03B | Plastic 250ml unpreserved | A | NA | | 2.6 | Y | Absent | | A2-537-ISOTOPE-36(14) |
| L2235333-04A | Plastic 8oz unpreserved | A | NA | | 2.6 | Y | Absent | | A2-537-ISOTOPE-36(14) |
| L2235333-04B | Plastic 2oz unpreserved for TS | A | NA | | 2.6 | Y | Absent | | A2-ME-TS(7) |
| L2235333-05A | Plastic 8oz unpreserved | A | NA | | 2.6 | Y | Absent | | A2-537-ISOTOPE-36(14) |
| L2235333-05B | Plastic 2oz unpreserved for TS | A | NA | | 2.6 | Y | Absent | | A2-ME-TS(7) |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Serial_No:07262213:25
Lab Number: L2235333
Report Date: 07/26/22

PFAS PARAMETER SUMMARY

| Parameter | Acronym | CAS Number |
|---|--------------|-------------|
| PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs) | | |
| Perfluorooctadecanoic Acid | PFODA | 16517-11-6 |
| Perfluorohexadecanoic Acid | PFHxDA | 67905-19-5 |
| Perfluorotetradecanoic Acid | PFTA | 376-06-7 |
| Perfluorotridecanoic Acid | PFTrDA | 72629-94-8 |
| Perfluorododecanoic Acid | PFDoA | 307-55-1 |
| Perfluoroundecanoic Acid | PFUnA | 2058-94-8 |
| Perfluorodecanoic Acid | PFDA | 335-76-2 |
| Perfluorononanoic Acid | PFNA | 375-95-1 |
| Perfluorooctanoic Acid | PFOA | 335-67-1 |
| Perfluoroheptanoic Acid | PFHpA | 375-85-9 |
| Perfluorohexanoic Acid | PFHxA | 307-24-4 |
| Perfluoropentanoic Acid | PFPeA | 2706-90-3 |
| Perfluorobutanoic Acid | PFBA | 375-22-4 |
| PERFLUOROALKYL SULFONIC ACIDS (PFSAs) | | |
| Perfluorododecanesulfonic Acid | PFDoDS | 79780-39-5 |
| Perfluorodecanesulfonic Acid | PFDS | 335-77-3 |
| Perfluoronanesulfonic Acid | PFNS | 68259-12-1 |
| Perfluorooctanesulfonic Acid | PFOS | 1763-23-1 |
| Perfluoroheptanesulfonic Acid | PFHpS | 375-92-8 |
| Perfluorohexanesulfonic Acid | PFHxS | 355-46-4 |
| Perfluoropentanesulfonic Acid | PFPeS | 2706-91-4 |
| Perfluorobutanesulfonic Acid | PFBS | 375-73-5 |
| FLUOROTELOMERS | | |
| 1H,1H,2H,2H-Perfluorododecanesulfonic Acid | 10:2FTS | 120226-60-0 |
| 1H,1H,2H,2H-Perfluorodecanesulfonic Acid | 8:2FTS | 39108-34-4 |
| 1H,1H,2H,2H-Perfluorooctanesulfonic Acid | 6:2FTS | 27619-97-2 |
| 1H,1H,2H,2H-Perfluorohexanesulfonic Acid | 4:2FTS | 757124-72-4 |
| PERFLUOROALKANE SULFONAMIDES (FASAs) | | |
| Perfluorooctanesulfonamide | FOSA | 754-91-6 |
| N-Ethyl Perfluorooctane Sulfonamide | NEtFOSA | 4151-50-2 |
| N-Methyl Perfluorooctane Sulfonamide | NMeFOSA | 31506-32-8 |
| PERFLUOROALKANE SULFONYL SUBSTANCES | | |
| N-Ethyl Perfluorooctanesulfonamido Ethanol | NEtFOSE | 1691-99-2 |
| N-Methyl Perfluorooctanesulfonamido Ethanol | NMeFOSE | 24448-09-7 |
| N-Ethyl Perfluorooctanesulfonamidoacetic Acid | NEtFOSAA | 2991-50-6 |
| N-Methyl Perfluorooctanesulfonamidoacetic Acid | NMeFOSAA | 2355-31-9 |
| PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS | | |
| 2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid | HFPO-DA | 13252-13-6 |
| 4,8-Dioxa-3h-Perfluorononanoic Acid | ADONA | 919005-14-4 |
| CHLORO-PERFLUOROALKYL SULFONIC ACIDS | | |
| 11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid | 11Cl-PF3OUdS | 763051-92-9 |
| 9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid | 9Cl-PF3ONS | 756426-58-1 |
| PERFLUOROETHER SULFONIC ACIDS (PFESAs) | | |
| Perfluoro(2-Ethoxyethane)Sulfonic Acid | PFEEESA | 113507-82-7 |
| PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs) | | |
| Perfluoro-3-Methoxypropanoic Acid | PFMPA | 377-73-1 |
| Perfluoro-4-Methoxybutanoic Acid | PFMBA | 863090-89-5 |
| Nonafluoro-3,6-Dioxaheptanoic Acid | NFDHA | 151772-58-6 |

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

GLOSSARY

Acronyms

| | |
|----------|--|
| DL | - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) |
| EDL | - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME). |
| EMPC | - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration. |
| EPA | - Environmental Protection Agency. |
| LCS | - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. |
| LCSD | - Laboratory Control Sample Duplicate: Refer to LCS. |
| LFB | - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. |
| LOD | - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) |
| LOQ | - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) |
| MDL | - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. |
| MS | - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values. |
| MSD | - Matrix Spike Sample Duplicate: Refer to MS. |
| NA | - Not Applicable. |
| NC | - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit. |
| NDPA/DPA | - N-Nitrosodiphenylamine/Diphenylamine. |
| NI | - Not Ignitable. |
| NP | - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil. |
| NR | - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests. |
| RL | - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable. |
| RPD | - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report. |
| SRM | - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples. |
| STLP | - Semi-dynamic Tank Leaching Procedure per EPA Method 1315. |
| TEF | - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD. |
| TEQ | - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values. |
| TIC | - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations. |

Report Format: Data Usability Report



Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Footnotes

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

Terms

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

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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

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

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

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

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report



Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

Data Qualifiers

- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: TIBBETS ROAD
Project Number: 4444-0005

Lab Number: L2235333
Report Date: 07/26/22

REFERENCES

- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

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

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

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

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

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



CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 7/1/22 ALPHA Job #: L2235333

8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Project Information **Report Information - Data Deliverables** **Billing Information**

Project Name: Tibbets Road ADEx EMAIL Same as Client Info PO # See Notes (GM)

Client Information

Client: St. Germain
Address: 846 Main Street
Westbrock, ME
Phone: 207 591 7000
Email: johnm@stgermain.com

Regulatory Requirements & Project Information Requirements

Project Location: Scarborough, ME
Project #: 4444-0005
Project Manager: John Marchewka
ALPHA Quote #:
 Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
 Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
 Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
 Yes No NPDES RGP
 Other State /Fed Program _____ Criteria _____

Turn-Around Time

Standard RUSH (only confirmed if pre-approved!)
Date Due:

Additional Project Information:

PFAS: 36 Target Compounds by isotope dilution

| | | |
|---|--|------------------------|
| ANALYSIS | SAMPLE INFO | TOTAL # BOTTLES |
| VOC: <input type="checkbox"/> 8280 <input type="checkbox"/> 624 <input type="checkbox"/> 524.2 SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15 METALS: <input type="checkbox"/> RCRA5 <input type="checkbox"/> RCRA8 <input type="checkbox"/> PPI3 EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only PCB <input type="checkbox"/> PEST TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint PFAS (see notes) | Filtration <input type="checkbox"/> Field <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do | |
| Sample Comments | | |

| ALPHA Lab ID (Lab Use Only) | Sample ID | Collection | | Sample Matrix | Sampler Initials |
|--------------------------------|-----------------|------------|-------|---------------|------------------|
| | | Date | Time | | |
| 35333-01 | TRB-5 | 6/30/22 | 12:45 | GW | GM |
| -02 | TRB-1B | | 13:52 | GW | |
| -03 | TRB-3 | | 14:35 | GW | |
| -04 | CS-101 (0-1') | | 11:40 | Soil | |
| -05 | SS-101 (0-0.5') | 6/30/22 | 15:00 | Soil | GM |

Det. by [Signature] 7-1-22 21:40
 Pre. Det. [Signature] 7/1/22 21:40

- Container Type**
 P= Plastic
 A= Amber glass
 V= Vial
 G= Glass
 B= Bacteria cup
 C= Cube
 O= Other
 E= Encore
 D= BOD Bottle
- Preservative**
 A= None
 B= HCl
 C= HNO₃
 D= H₂SO₄
 E= NaOH
 F= MeOH
 G= NaHSO₄
 H= Na₂S₂O₃
 I= Ascorbic Acid
 J= NH₄Cl
 K= Zn Acetate
 O= Other

| | |
|----------------|---|
| Container Type | P |
| Preservative | A |

| Relinquished By: | Date/Time | Received By: | Date/Time |
|------------------|---------------|--------------|---------------|
| [Signature] | 6/30/22 11:00 | [Signature] | 6/30/22 17:00 |
| [Signature] | 7/1/22 10:29 | [Signature] | 7/1/22 12:29 |
| [Signature] | 7/1/22 19:25 | [Signature] | 7/1/22 19:25 |

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
 FORM NO: 01-01 (rev. 12-Mar-2012)

ATTACHMENT B
Groundwater Sampling Data Records

FIELD INFORMATION FORM

Site Name: Tibbets Road

Site No.: 4444 Sample Point: KRB-3
0005 Sample ID

This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID: _____

PURGE INFO
 PURGE DATE (MM DD YY): 063022
 PURGE TIME (2400 Hr Clock): 11
 ELAPSED HRS (hrs:min): 09
 WATER VOL IN CASING (Gallons): 09
 ACTUAL VOL PURGED (Gallons): 09
 WELL VOLS PURGED: 11

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT
 Purging and Sampling Equipment ... Dedicated: Y or N
 Purging Device: B A-Submersible Pump D-Bailer
 Sampling Device: B B-Peristaltic Pump E-Piston Pump
 X-Other: _____ C-QED Bladder Pump F-Dipper/Bottle
 Filter Device: Y or N 0.45 μ or _____ μ (circle or fill in)
 Filter Type: UA A-In-line Disposable C-Vacuum
 B-Pressure X-Other _____
 Sample Tube Type: D A-Teflon C-PVC X-Other: _____
 B-Stainless Steel D-Polypropylenec

WELL DATA
 Well Elevation (at TOC) _____ (ft/msl) Depth to Water (DTW) (from TOC) 1064 (ft)
 Groundwater Elevation (site datum, from TOC) _____ (ft/msl)
 Total Well Depth (from TOC) 1163 (ft) Stick Up (from ground elevation) 391 (ft)
 Casing ID 02 (in) Casing Material PVC
Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

| Sample Time (2400 Hr Clock) | Rate/Mnit ml/min | pH (std) | Specific Conductivity mS/cm | Temp. (°C) | Turbidity (ntu) | D.O. (mg/L - ppm) | eH/ORP (mV) | DTW (ft) |
|-----------------------------|------------------|----------|-----------------------------|------------|-----------------|-------------------|-------------|----------|
| 14:25 | 100 | 6.59 | 0.199 | 16.5 | 85 | 2.3 | 232 | 10.8 |
| 14:28 | 100 | 6.68 | 0.199 | 16.4 | 78 | 1.4 | 236 | 10.8 |
| 14:31 | 100 | 6.69 | 0.198 | 16.3 | 77 | 1.3 | 237 | 10.8 |
| 14:34 | 100 | 6.70 | 0.193 | 16.2 | 78 | 1.4 | 239 | 10.8 |
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Suggested range for 3 consec. readings or note Permit/State requirements: pH +/- 0.2, Specific Conductivity +/- 3%, Temp. --, Turbidity --, D.O. +/- 10%, eH/ORP +/- 25 mV, Stabilize

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by the Site, or State). These fields can be used where four (4) field measurements are required by State Permit Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA
 SAMPLE DATE (MM DD YY): 063022
 pH (std): _____ Specific Conductivity (mS/cm): _____ TEMP. (°C): _____
 TURBIDITY (ntu): _____ DO (mg/L-ppm): _____ eH/ORP (mV): _____ Other: DTW
 Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State Permit Site): 10.8

Sample Appearance: _____ Odor: _____ Color: _____ Other: _____
 Weather Conditions (required daily, or as conditions change): _____ Direction/Speed: _____ Outlook: Sunny, 70's or 80's Precipitation: Y or N

FIELD COMMENTS
 Specific Comments (including purge/well volume calculations if required):
11:00 start purging @ 100 ml/min to gently evacuate 1x well
Volume 10.9g)
11:35 Done purging 1x well volume
14:10 start purging to fill flow through cell, variable flow rate to determine recharge
14:35 Collect sample

I certify that sampling procedures were in accordance with applicable EPA, and State protocols (if more than one sampler, all should sign):
063022 Gabriel Nibin [Signature] Stiberman

Date: _____ Name: _____ Signature: _____ Company: _____

FIELD INFORMATION FORM

Site Name: Tibbets Road
 Site No.: 4444
 Sample Point: TRB-1B
 Sample ID: 0005

This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/ Lab ID: _____

PURGE INFO
 PURGE DATE (MM DD YY): 063022
 PURGE TIME (2400 Hr Clock): 11
 ELAPSED HRS (hrs:min): 068
 WATER VOL IN CASING (Gallons): 068
 ACTUAL VOL PURGED (Gallons): 068
 WELL VOLS PURGED: 1

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT
 Purging and Sampling Equipment ... Dedicated: Y or N
 Purging Device: B A-Submersible Pump D-Bailer
 Sampling Device: B B-Peristaltic Pump E-Piston Pump
 X-Other: _____ C-QED Bladder Pump F-Dipper/Bottle
 Filter Device: Y or N 0.45 μ or _____ μ (circle or fill in)
 Filter Type: NA A-In-line Disposable C-Vacuum
 B-Pressure X-Other _____
 Sample Tube Type: D A-Teflon C-PVC X-Other: _____
 B-Stainless Steel D-Polypropylene

WELL DATA
 Well Elevation (at TOC) _____ (ft/mls) Depth to Water (DTW) (from TOC) 3060 (ft)
 Groundwater Elevation (site datum, from TOC) _____ (ft/mls)
 Total Well Depth (from TOC) 3485 (ft) Stick Up (from ground elevation) 118 (ft)
 Casing ID 02 (in) Casing Material PVC

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site-Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

| Sample Time (2400 Hr Clock) | Rate/Unit (m/min) | pH (std) | Specific Conductivity (mS/cm) | Temp. (°C) | Turbidity (ntu) | D.O. (mg/L - ppm) | eH/ORP (mV) | DTW (ft) |
|-----------------------------|-------------------|----------|-------------------------------|------------|-----------------|-------------------|-------------|----------|
| 13:45 | 100 | 590 | 0.1067 | 12.1 | 0.4 | 1.3 | 158 | 30.7 |
| 13:48 | 100 | 585 | 0.1066 | 12.0 | 0.1 | 1.3 | 158 | 30.7 |
| 13:51 | 100 | 584 | 0.1065 | 12.0 | 0.1 | 1.4 | 160 | 30.7 |
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Suggested range for 3 consec. readings or note Permit/State requirements: pH +/- 0.2, Specific Conductivity +/- 3%, D.O. +/- 10%, eH/ORP +/- 25 mV, Stabilize

FIELD DATA
 SAMPLE DATE (MM DD YY): 063022 pH (std): 584 Specific Conductivity (mS/cm): 0.1065 TEMP. (°C): 12.0 TURBIDITY (ntu): 0.1 DO (mg/L-ppm): 1.4 eH/ORP (mV): 160 Other: DTW
 Units: ft
 Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State Permit/State).

Sample Appearance: _____ Odor: _____ Color: _____ Other: _____
 Weather Conditions (required daily, or as conditions change): _____ Direction/Speed: _____ Outlook: Sunny, 70's °F Precipitation: Y or N

FIELD COMMENTS
 Specific Comments (including purge/well volume calculations if required):
10:25 Start purging @ 100 m/min to gently evacuate 1x well
Volume (0.68g)
10:50 Done purging 1x well volume
13:30 start purging to fill flow through well, variable flow rate to determine recharge
13:52 collect sample

I certify that sampling procedures were in accordance with applicable EPA, and State protocols (if more than one sampler, all should sign):
6.30.22 Gabriel McGinn St. Germain
 Date Name Signature Company

FIELD INFORMATION FORM

Site Name: T. bbets Road

Site No.: 4444 Sample Point: TRB-5
0005 Sample ID

This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID: _____

PURGE INFO
 PURGE DATE (MM DD YY): 063022 PURGE TIME (2400 Hr Clock): 11:44 ELAPSED HRS (hrs:min): 1:44 WELL VOLs PURGED: 1
 WATER VOL IN CASING (Gallons): 144 ACTUAL VOL PURGED (Gallons): 144

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT
 Purging and Sampling Equipment ... Dedicated: Y N
 Purging Device: B A- Submersible Pump D- Bailor
 Sampling Device: B B- Peristaltic Pump E- Piston Pump
 C- QED Bladder Pump F- Dipper/Bottle
 Filter Device: Y or N 0.45 μ or _____ μ (circle or fill in)
 Filter Type: NA A- In-line Disposable C- Vacuum
 B- Pressure X- Other _____
 Sample Tube Type: D A- Teflon C- PVC X- Other: _____
 B- Stainless Steel D- Polypropylene

WELL DATA
 Well Elevation (at TOC): _____ (ft/msl) Depth to Water (DTW) (from TOC): 11390 (ft) Groundwater Elevation (site datum, from TOC): _____ (ft/msl)
 Total Well Depth (from TOC): 229 (ft) Stick Up (from ground elevation): 31 (ft) Casing ID: 02 (in) Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

| Sample Time (2400 Hr Clock) | Rate/Unit ml/min | pH (std) | Specific Conductivity mS/cm | Temp. (°C) | Turbidity (ntu) | D.O. (mg/L - ppm) | eH/ORP (mV) | DTW (ft) |
|-----------------------------|------------------|----------|-----------------------------|------------|-----------------|-------------------|-------------|----------|
| 12:35 | 50 | 5.63 | 0.073 | 17.9 | 14.3 | 2.3 | 366 | 19.0 |
| 12:38 | 50 | 5.67 | 0.1070 | 17.9 | 110.0 | 2.4 | 370 | 19.1 |
| 12:41 | 50 | 5.68 | 0.069 | 17.9 | 9.6 | 2.3 | 373 | 19.1 |
| 12:44 | 50 | 5.70 | 0.1070 | 17.9 | 8.2 | 2.4 | 374 | 19.1 |
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Suggested range for 3 consec. readings or note Permit/State requirements: pH +/- 0.2, Specific Conductivity +/- 3%, D.O. +/- 10%, eH/ORP +/- 25 mV, Stabilize

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by the Site, or State). These fields can be used where four (4) field measurements are required by State/Permit-Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA
 SAMPLE DATE (MM DD YY): 063022 pH (std): 5.70 Specific Conductivity (mS/cm): 0.070 TEMP. (°C): 17.9 TURBIDITY (ntu): 8.2 DO (mg/L-ppm): 2.4 eH/ORP (mV): 374 Other: View
 Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit-Site).

Sample Appearance: Clear Odor: None Color: Clear Other: _____
 Weather Conditions (required daily, or as conditions change): _____ Direction/Speed: _____ Outlook: Sunny, 70's °F Precipitation: Y or N

FIELD COMMENTS
 Specific Comments (including purge/well volume calculations if required):
9:20 Start purging @ 100ml/min to gently evacuate 1x well volume (1.44g)
10:15 Done purging 1x well volume
12:20 Start purging to fill flow through cell, variable flow rate to determine redox*
12:45 Collect sample

I certify that sampling procedures were in accordance with applicable EPA, and State protocols (if more than one sampler, all should sign):
6.30.22 Gabriel McGinn [Signature] St Germain
 Date Name Signature Company

* Note draw down of ~ 5' between purges. DTW was stable for sampling.