SUPPLEMENTAL SITE INVESTIGATION REPORT PER- AND POLYFLUOROALKYL SUBSTANCES EMERGING CONTAMINANT GROUNDWATER INVESTIGATION

MONTANA AIR NATIONAL GUARD, GREAT FALLS

GREAT FALLS, MONTANA

AIR NATIONAL GUARD

RESTORATION BRANCH

APRIL 2021

This page intentionally left blank

SUPPLEMENTAL SITE INVESTIGATION REPORT PER- AND POLYFLUOROALKYL SUBSTANCES EMERGING CONTAMINANT GROUNDWATER INVESTIGATION

MONTANA AIR NATIONAL GUARD, GREAT FALLS GREAT FALLS, MONTANA

Prepared for

Air National Guard
Environmental Division Restoration Branch
NGB/A4VR
3501 Fetchet Avenue
Joint Base Andrews, Maryland 20762

Prepared by

EA Engineering, Science, and Technology, Inc., PBC
1311 Continental Drive Suite K
Abingdon, Maryland 21009

Contract No.: W9133L-14-D-0004
ANG Delivery Order: 0006
EA Project No.: 6280606

APRIL 2021

This page intentionally left blank

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

µg/L	Micrograms per liter
AFFF	Aqueous film forming foam
ANG	Air National Guard
ANGB	Air National Guard Base
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EA	EA Engineering, Science, and Technology, Inc., PBC
ERP	Environmental Restoration Program
ERPIMS	Environmental Resources Program Information Management System
ft	Feet/foot
fbgs	Feet below ground surface
FTA	Fire training area
MTDEQ	Montana Department of Environmental Quality
MTANG	Montana Air National Guard
ng/L	Nanograms per liter
ng/g	Nanograms per gram
NGB/A4VR	National Guard Bureau's, Environmental Division, Restoration Branch
PFAS	Per- and polyfluoroalkyl substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
USEPA	United States Environmental Protection Agency

This page intentionally left blank

EXECUTIVE SUMMARY

The objective of the emerging contaminant assessment conducted at the Montana Air National Guard, Great Falls, Montana, was to install and sample soil borings and monitoring wells to determine if there are per- and polyfluoroalkyl substances (PFAS) impacts to soil and groundwater from historical activities. EA was contracted to collect soil samples from four locations, to install seven groundwater monitoring wells, and to conduct a one-time groundwater sampling event. Work was completed in July 2020.

The analytes of greatest interest are perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). Summed groundwater concentrations of PFOS and PFOA were greater than the screening level of 70 nanograms per liter in two wells, MW-3 and MW-6. The summed concentration in MW-3 was approximately 3 times higher than the summed concentration in MW-6. Concentrations of PFOS and PFOA were greater than the soil screening level of 126 nanograms per gram in all soil samples except the deepest interval from SB-4. Concentrations in the deepest intervals from SB-2 and SB-3 were notably higher than other soil samples.

This page intentionally left blank

1. INTRODUCTION

EA Engineering, Science, and Technology, Inc., PBC (EA) has been contracted by the National Guard Bureau's Environmental Division Restoration Branch (NGB/A4VR) to perform Emerging Contaminant Assessments for the presence of per- and polyfluoroalkyl substances (PFAS) in soil and groundwater at the Montana Air National Guard Base (MTANGB) Great Falls, in Great Falls, Montana (Project Number ANGH20157008). The base location is presented in **Figure 1**.

Consistent with Department of Defense Instruction 4715.18 *Emerging Contaminants*, PFAS are considered to be emerging contaminants. Although these compounds are not yet listed as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous substances, the Air National Guard (ANG) has decided to assess potential releases of these compounds to the environment. Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) in groundwater are regulated by the Montana Department of Environmental Quality (MTDEQ), which has adopted the U.S. Environmental Protection Agency (USEPA) Lifetime Health Advisory levels for PFOS and PFOA as MTDEQ-7 groundwater standards for the protection of human health.

EA has prepared this Supplemental Site Inspection Report to summarize the project objectives, scope of work, relevant background information, field sampling methodologies, and analytical results of the sampling activities.

1.1 PROJECT OBJECTIVES

The objective of this Supplemental Site Inspection Report is to review the soil and groundwater data collected during a one-time sampling event to determine if PFAS contaminants associated with both on- and off-base potential release locations may have migrated to potential downgradient receptors. Review of analytical results will facilitate ANG decisions on a path forward for the Base, which would include no further action or a recommendation of further action.

Activities performed in the development of this Supplemental Site Inspection Report included:

- Review of available information and completion of a site-specific work plan (EA 2020)
- Evaluation of the data obtained from groundwater and soil samples.

1.2 SCOPE OF WORK

The scope of work for this project consisted of the collection of eight soil samples from four soil borings within Environmental Restoration Program (ERP) Site 1 and the landfarm to evaluate any potential sources of contamination. In addition, the scope included the installation and development of seven new monitoring wells, with subsequent collection of groundwater samples during a one-time sampling event conducted in July 2020. Soil and groundwater samples were analyzed for PFAS. The seven monitoring wells were used to evaluate if any potential sources of PFAS contamination impact groundwater migrating toward potential receptor wells.

1.3 REPORT ORGANIZATION

This report is organized as follows:

- ***Chapter 1*** provides the purpose and scope of the emerging contaminant assessment.
- ***Chapter 2*** details background information for the installation and the site.
- ***Chapter 3*** details the investigation approach including soil sampling, monitoring well installation, monitoring well development, groundwater sampling, laboratory analysis, equipment decontamination and waste management, and data validation.
- ***Chapter 4*** details the investigation results.
- ***Chapter 5*** presents a summary of the investigation and the conclusions.

2. BACKGROUND

2.1 INSTALLATION BACKGROUND

Great Falls International Airport opened in the late 1920s as a municipal airport. The airport housed the 186th Fighter Squadron starting in 1947 when the area was leased to the United States government to support the war effort. In 1948, the airport was released back to the city of Great Falls for commercial air travel, but the ANG retained a lease on some space to accommodate the military's presence. The 186th played an active part in national defense missions until 2014 when the Base was converted to the 120th Airlift Wing of the Montana ANG. The Great Falls International Airport currently is an active joint municipality, supporting airfreight, civilian passengers, and the ANG (Leidos 2019).

2.2 SITE BACKGROUND

In July 2018, a Site Inspection was conducted at MTANG, Great Falls, by Leidos to identify potential sites of historical environmental releases of PFAS; specifically, from aqueous film forming foams (AFFF) that were used and stored at the Base. During the Preliminary Assessment, ten potential release locations were identified, eight of which were recommended for further action to monitor and characterize potential soil, surface water, sediment, and groundwater contamination (Leidos 2019).

Detectable levels of PFAS were observed in all groundwater, surface water, sediment, and soil samples collected. Detectable levels of PFAS were present in all samples collected from the boundary wells indicating that off-base migration is possible. It was recommended in the Site Inspection Report that monitoring wells be installed and sampled to better define the impacts of PFAS that could potentially migrate off-base or potentially migrate on-base from an off-base source.

There are also two off-base fire training areas (FTAs), ERP Site 1 and ERP Site 3, that were not investigated during the 2018 Site Inspection due to their off-base location. ERP Site 3 was previously determined to not pose a risk to human health or the environment. MTDEQ approved the site for closure in 2000 as it was determined that an industrial use of Site 3 as an airport facility is protective of the existing and proposed uses and would not pose an imminent and substantial endangerment to public health, safety, welfare, or the environment. Site 3 was not and has not been investigated for PFAS. ERP Site 1 was investigated, remediated in 1994, and approved for closure in 1995. However, the previous investigation did not include PFOS/PFOA analysis. Therefore, ERP Site 1 was also recommended for further evaluation in the 2018 Site Inspection.

This page intentionally left blank

3. INVESTIGATION APPROACH AND METHODOLOGY

This report summarizes the results of the soil sampling and one-time groundwater sampling event of the seven newly installed monitoring wells at MTANG, Great Falls. Field activities included the collection of eight soil samples from four soil borings, the installation of seven monitoring wells, and subsequent groundwater sampling. Soil and groundwater samples were analyzed for PFAS. All field activities were conducted in accordance with the ANG-approved work plan (EA 2020), health and safety plan, (EA 2016), and relevant ANG protocols (ANG 2009).

3.1 MONITORING WELL INSTALLATION

EA and the Montana-licensed subcontractor, Boland Drilling, installed seven permanent flush-mounted monitoring wells to depths that varied from 48 to 101 feet (ft) below ground surface (bgs). Wells were installed 13-15 July 2020. Well locations were selectively planned in an arc downgradient of ERP Site 1 and the landfarm, and upgradient of potential receptor wells according to the assumed northwesterly groundwater flow direction from the 2018 Site Investigation. The monitoring well locations are shown in **Figure 2**. The seven new monitoring wells (MW-1 through MW-7) were drilled in order of anticipated PFAS concentrations (lowest anticipated concentration drilled first). A complete description of the well installations (including boring logs, well completion diagrams and well development logs) is in the Well Completion Report provided as Appendix A.

Each monitoring well was developed following standard development procedures as described in the Well Completion Report (Appendix A). Monitoring well development was conducted at least 24 hours after monitoring well completion to allow sufficient time for the grout mixture to cure.

Following well installation, the monitoring wells were surveyed by a state-registered surveyor to determine the geographical coordinates and elevation. The wells were surveyed to a vertical accuracy of 0.010 U.S. survey feet using the 1988 North American Vertical Datum and a horizontal accuracy to within 0.10 ft tied to the site datum. The elevations for the natural ground surface (not the top of the grout collar), the highest point on the riser casing rim of the uncapped well casing, and the protective casing for each well were surveyed. A survey mark was drawn on the well riser casing.

Each newly installed monitoring well was registered with the Montana Bureau of Mines and Geology Ground Water Information Center in accordance with Montana Department of Natural Resources and Conservation Board of Water Well Contractors requirements (Administrative Rules of Montana 36.21.639).

3.2 GROUNDWATER SAMPLING

Groundwater samples were collected from MW-1 through MW-7 at MTANG, Great Falls on 20 July 2020. Monitoring wells were purged before sample collection using a submersible Proactive 12-volt stainless steel Monsoon pump and low-flow purging techniques in accordance with the approved work plan (EA 2020), health and safety plan (EA 2016), *Field Sampling Protocol for Perfluorooctanoic Acid (PFOA), Perfluorooctane Sulfonate (PFOS) and*

Perfluorobutane Sulfonate (PFBS) (U.S. Air Force 2019), and relevant ANG protocols (ANG 2009).

During groundwater purging, water level drawdown and groundwater parameters (including pH, temperature, specific conductance, dissolved oxygen, oxidation-reduction potential, and turbidity) were measured using an inline water quality meter and recorded every 5 minutes until purging was complete. Data were recorded on low-flow purge data sheets, which are included in Appendix B.

Purging was considered complete when the monitored water quality parameters stabilized. Following purging, groundwater samples were collected using the same submersible pump and following low-flow-sampling protocols. Sampling equipment was decontaminated between wells; one field duplicate and one rinse blank were collected in addition to the seven parent samples.

3.3 SOIL BORINGS AND SOIL SAMPLING

EA was contracted to install four soil borings in addition to the seven monitoring wells. The soil boring locations were intended to be within the footprint of the former off-base FTA (ERP Site 1) and associated former landfarm as these are areas most likely to have been impacted by historical use of AFFF. Soil boring locations are depicted on **Figure 2**. The borings were drilled using hand augers to depth of refusal. Equipment was decontaminated onsite in accordance with sampling procedures.

All soil borings were logged for soil lithology using the Unified Soil Classification System. Descriptions of cores include color, moisture content, unified soil classification, secondary components, density, consistency, and any other observations of note. Soil boring logs are provided in Appendix C. Eight parent samples were collected on 21 July 2020, one from 0 to 6 inches in each boring and one from the bottom of each boring. One field duplicate, one rinse blank, one matrix spike, and one matrix spike duplicate were also collected. Following collection of soil samples, boreholes were abandoned by backfilling with the remaining native soil.

3.4 LABORATORY ANALYSES

Groundwater and soil samples were submitted under strict chain-of-custody procedures to Eurofins Lancaster Laboratories Environmental, LLC of Lancaster, Pennsylvania for analysis. Samples were analyzed for PFAS using USEPA Method 537 Rev. 1.1. Quality control samples were collected in the form of one duplicate sample per media, one rinse blank sample per media, and one matrix spike/matrix spike duplicate sample set per media.

3.5 MANAGEMENT OF INVESTIGATION-DERIVED WASTE

Investigation-derived waste, including drill cuttings, purge water and decontamination fluids generated during drilling, development and sampling were handled in accordance with Section 2 of Air Force Guidance Memorandum 1908-32-71, *AFFF-Related Waste Management Implementation Guidance*. Investigation-derived waste was containerized in Department of Transportation approved 55-gallon drums and properly labeled for temporary onsite storage as

coordinated with the Base Environmental Manager. Twenty drums of soil, five drums of liquid and one drum of activated carbon was generated during this investigation. Following containerization, the waste was sampled and characterized as non-hazardous based on the sampling results. All waste was transported offsite on 30 September 2020 and disposed of at the U.S. Ecology Subtitle C landfill in Grand View, Idaho on 01 October 2020 in accordance with all applicable local, state, and federal requirements. The non-hazardous waste manifest is included as Appendix D.

Personal protective equipment (such as nitrile gloves) and disposable sampling materials such as tubing was bagged and disposed of as general refuse.

3.6 DATA VALIDATION

Data validation was completed in accordance with the USEPA National Functional Guidelines for Superfund Organic Data Review (USEPA 2014) and per the ANG protocols (ANG 2009). The data validation report is provided in Appendix E

The validated analytical data was uploaded to the Air Force Environmental Resources Program Information Management System (ERPIMS) in accordance with the NGB/A7OR Memorandum dated 21 September 2010.

This page intentionally left blank

4. RESULTS

The analytical laboratory report containing soil and groundwater data is provided in Appendix F.

4.1 SOIL RESULTS

Soil sample results are presented in **Table 1**. All soil samples contained detectable levels of PFAS, although PFOS is the only specific analyte found at concentrations greater than the screening level. PFOS was detected in all samples, and concentrations ranged from 29 to 1,500 nanograms per gram (ng/g). All concentrations except the minimum were greater than the screening level of 126 ng/g. The highest concentrations of PFOS were reported in the deepest samples from SB-2 and SB-3 (1,500 ng/g reported in both samples). These concentrations were approximately twice as high as the next highest concentration (830 ng/g found in the surface sample collected at SB-1). Analytical results are displayed on **Figure 3**.

4.2 GROUNDWATER RESULTS

Groundwater was generally encountered between the upper sandstone layer and underlying shale of the Flood Member Group, between 28 and 81 feet below ground surface (fbgs). Recharge was slow leading some wells to be drilled and screened deeper than the ultimate depths to groundwater, following well development, of approximately 20 to 48 fbgs. Groundwater flow, based upon the newly installed wells, generally flows to the north to northeast. This change in assumed groundwater flow caused MW-1, MW-2, MW-3 and MW-4 to be upgradient, MW-7 to be cross-gradient, and MW-5 and MW-6 to be downgradient of former Site 1 FTA AFFF release area.

Although flow is still directed toward the Missouri River, this variance from the groundwater depth and flow direction based upon wells closer to the administrative portion of Great Falls International Airport could be due to a smaller subset of wells for this study or slight variances in groundwater flow at different times of the year.

Review of the groundwater field parameters (Appendix B) denotes relatively consistent pH and conductivity, although dissolved oxygen (DO) concentrations did drop significantly in MW-3, MW-4, and MW-5. There were no observable signs of groundwater contamination, either visual or olfactory, nor was any light non-aqueous phase liquid present in the purge water or samples. These wells are located along the airport boundary, downgradient of an agricultural area where fertilizers could be responsible for anaerobic portions of the aquifer.

Groundwater sample results are presented in **Table 2**. All groundwater samples contained detectable levels of PFAS, although PFOS and PFOA are the only specific analytes found at concentrations greater than screening levels. USEPA has established a tapwater regional screening level of 0.04 micrograms per liter (µg/L) (equal to 40 ng/L). However, MTDEQ follows the USEPA Lifetime Health Advisory of 0.07 µg/L (or 70 ng/L). Therefore, the action level used in this report is 70 ng/L.

PFOS was detected in samples from 5 of the 7 wells; it was not detected in samples from MW-2 and MW-5. Detected concentrations of PFOS ranged from 0.69 to 130 ng/L. Only the concentrations in the parent sample and field duplicate collected at MW-3 were greater than the

screening level of 70 ng/L. The concentrations detected in MW-3 were approximately 4 times higher than the next highest concentration (33 ng/L found in MW-6).

PFOA was detected in all samples except MW-5. Detected concentrations ranged from 1.4 to 86 ng/L. Only the concentrations in the parent sample and field duplicated collected at MW-3 were greater than the screening level of 70 ng/L. The concentrations detected in MW-3 were approximately 2 times higher than the next highest concentration (48 ng/L found in MW-6).

EPA indicates that when both PFOA and PFOS are found in drinking water, the combined concentrations of PFOA and PFOS should be compared with the 70 ng/L health advisory level. When concentrations of PFOA and PFOS are summed, concentrations reported in MW-3 (216 ng/L) and MW-6 (81 ng/L) are greater than the health advisory level (**Table 2**). Analytical results are displayed on **Figure 4**.

4.3 DATA QUALITY

Samples (including quality assurance/quality control samples) were collected, stored, and shipped in accordance with standard operating procedures and the work plan (EA 2019). Samples were analyzed by Eurofins Lancaster Laboratories Environmental, LLC of Lancaster, Pennsylvania. The samples were received within the preservation guidelines for the associated method. The laboratory case narrative noted no major deficiencies. Data validation determined that the data are acceptable for use as qualified.

For the soil samples, the achieved detection limits for analytes reported as not detected ranged from 0.2 to 0.67 ng/g. Results greater than these values would have been reported as a detected with a J-qualifier. These detection limits are below the screening level of 126 ng/g. Therefore, the analyses were sufficiently sensitive for the project goals.

For the groundwater samples, the achieved detection limits for analytes reported as not detected ranged from 0.41 to 1.8 ng/L. Results greater than these values would have been reported as a detected with a J-qualifier. These detection limits are below the screening level of 70 ng/L. Therefore, the analyses were sufficiently sensitive for the project goals.

No PFAS were detected in either of the rinse blank samples, indicating that sampling equipment was properly cleaned between sample locations.

Some soil borings and well locations were modified based upon existing utilities or ground conditions; but otherwise, there were no deviations from the Work Plan.

5. SUMMARY

The objective of the emerging contaminant assessment conducted at the MTANG, Great Falls, was to install and sample seven monitoring wells, to collect soil at four locations, and to determine if there are PFAS impacts to soil and groundwater from historical activities. PFAS was detected in all monitoring wells and soil samples. The analytes of greatest interest are PFOS and PFOA. Summed groundwater concentrations of PFOS and PFOA were greater than the screening level of 70 ng/L in two wells, MW-3 and MW-6. The summed concentration in MW-3 was approximately 3 times higher than the summed concentration in MW-6. Concentrations of PFOS and PFOA were greater than the soil screening level of 126 ng/g in all soil samples except the deepest interval from SB-4. Concentrations in the deepest intervals from SB-2 and SB-3 were notably higher than other soil samples.

Additional groundwater monitoring is recommended to further evaluate seasonal groundwater conditions, including PFAS concentrations and groundwater flow direction.

This page intentionally left blank

6. REFERENCES

Air National Guard (ANG). 2009. *Air National Guard Environmental Restoration Program Investigation Guidance*. September.

EA Engineering, Science, and Technology, Inc., PBC (EA). 2020. *Final Work Plan/Sampling and Analysis Plan Per- and Polyfluoroalkyl Substances Emerging Contaminant Groundwater Investigation, Montana Air National Guard – Montana Air National Guard Base, Great Falls, Montana.* May.

_____. 2019. *EA Standard Operating Procedure 073 Sampling for Per- and Polyfluorinated Alkyl Substances.* June.

_____. 2016. *General Health and Safety Plan for Contaminant Assessments at Multiple Air National Guard Installations*. January.

Leidos. 2019. *Site Inspection Report for Perfluorooctane Sulfonate and Perfluorooctanoic Acid at Great Falls Air National Guard Base Great Falls, Montana*. February.

Montana Department of Environmental Quality (MT DEQ). 2019. *Circular DEQ-7 Montana Numeric Water Quality Standards.* June

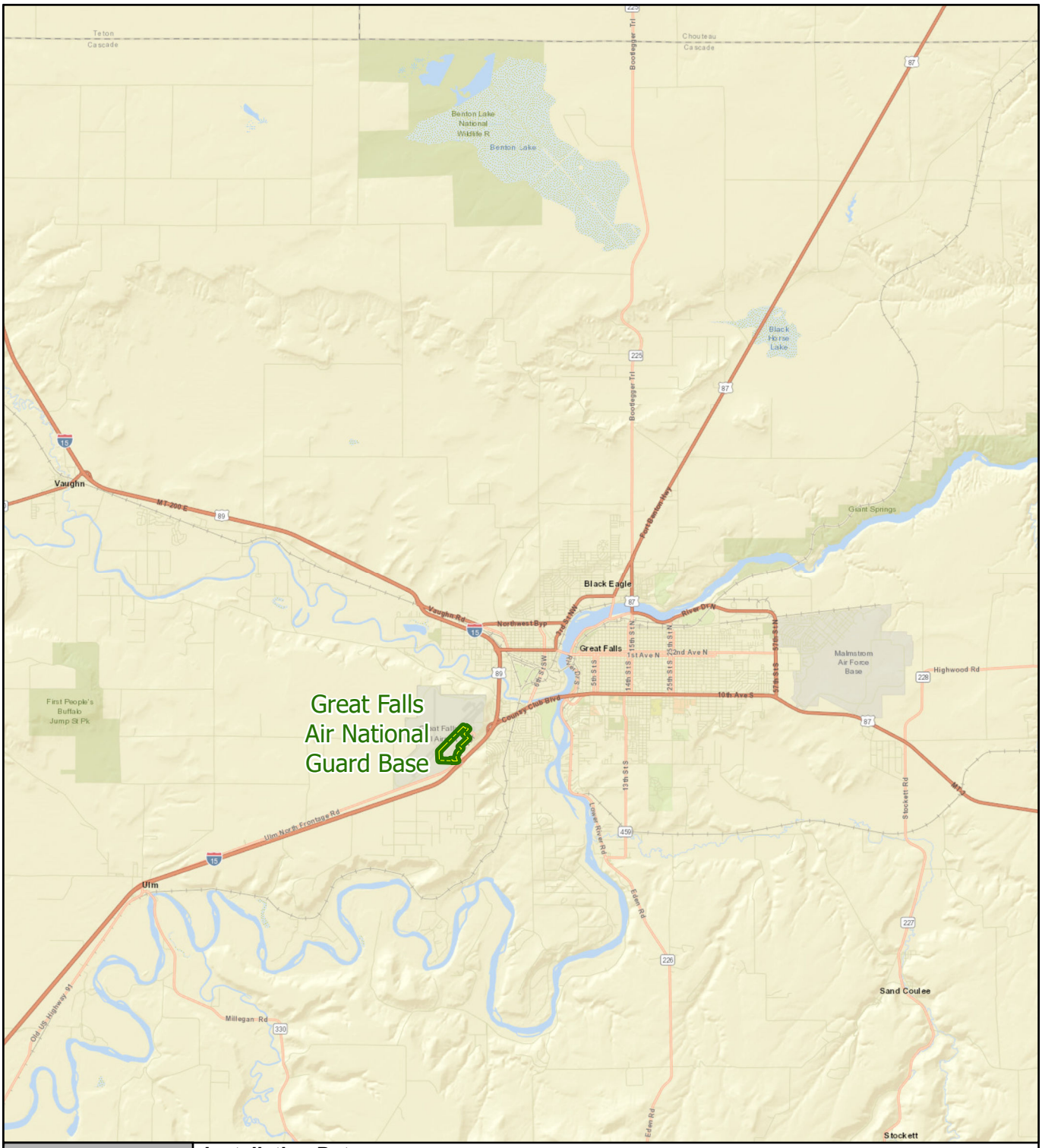
United States Air Force. 2019. *Field Sampling Protocol for Perfluorooctanoic Acid (PFOA), Perfluorooctane Sulfonate (PFOS) and Perfluorobutane Sulfonate (PFBS).* June.

United States Environmental Protection Agency (USEPA). 2014. *National Functional Guidelines for Superfund Organic Methods Data Review*. August.

This page intentionally left blank

Figures

This page intentionally left blank



CANADA

WA MT ND SD OR ID WY NE

Installation Data

Installation Boundary

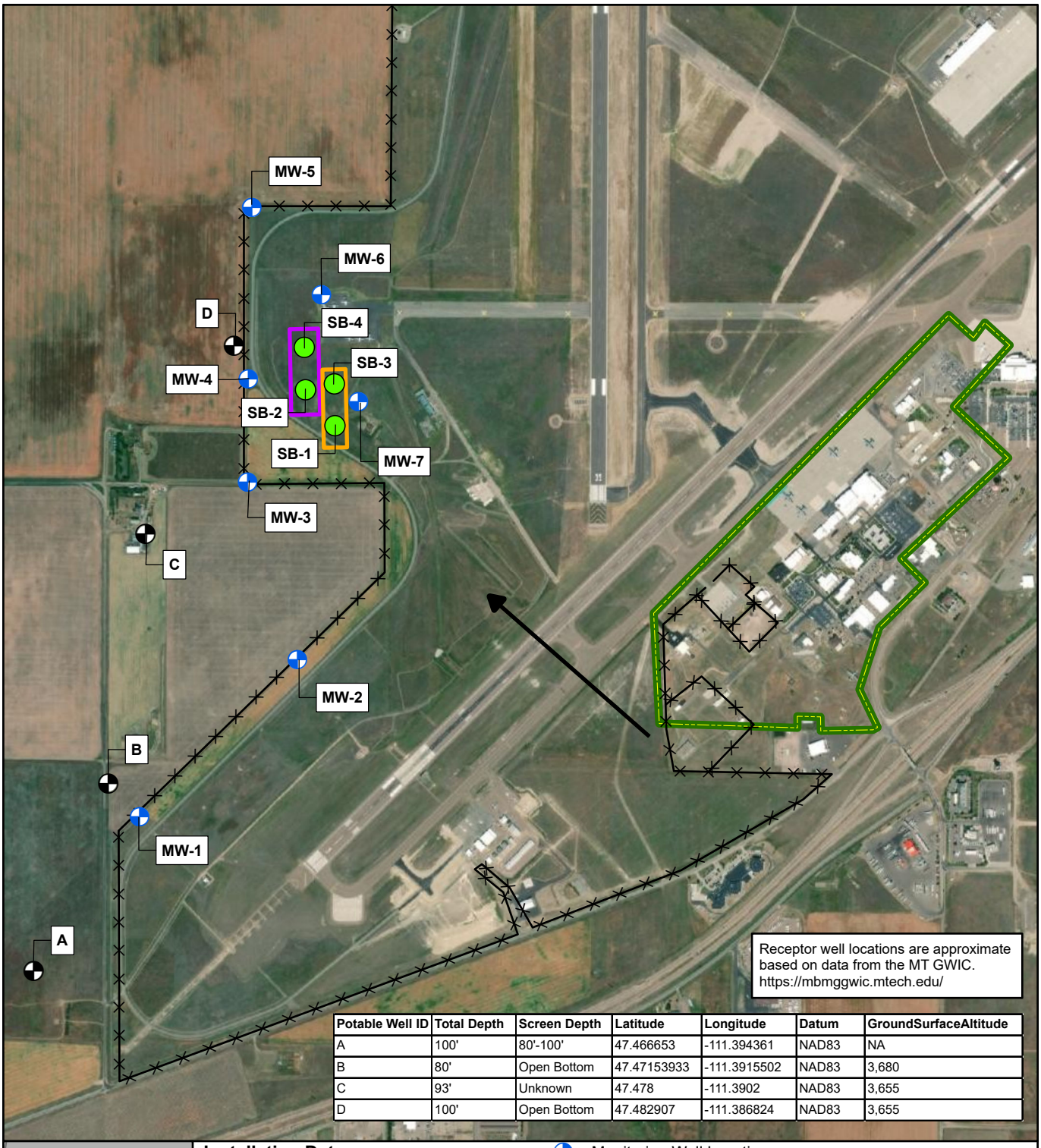
N W E S

Miles

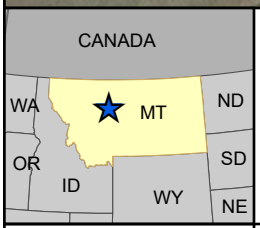
0 1 2 4

GREAT FALLS AIR NATIONAL GUARD BASE
SITE-SPECIFIC WORK PLAN
GREAT FALLS, MONTANA

Figure 1
Site Location



Potable Well ID	Total Depth	Screen Depth	Latitude	Longitude	Datum	GroundSurfaceAltitude
A	100'	80'-100'	47.466653	-111.394361	NAD83	NA
B	80'	Open Bottom	47.47153933	-111.3915502	NAD83	3,680
C	93'	Unknown	47.478	-111.3902	NAD83	3,655
D	100'	Open Bottom	47.482907	-111.386824	NAD83	3,655



Installation Data

- Installation Boundary
- ERP Site 1
- Landfarm
- Fenceline
- Assumed Groundwater Flow Direction
- Monitoring Well Location
- Existing Potable Well Location
- Soil Boring Location

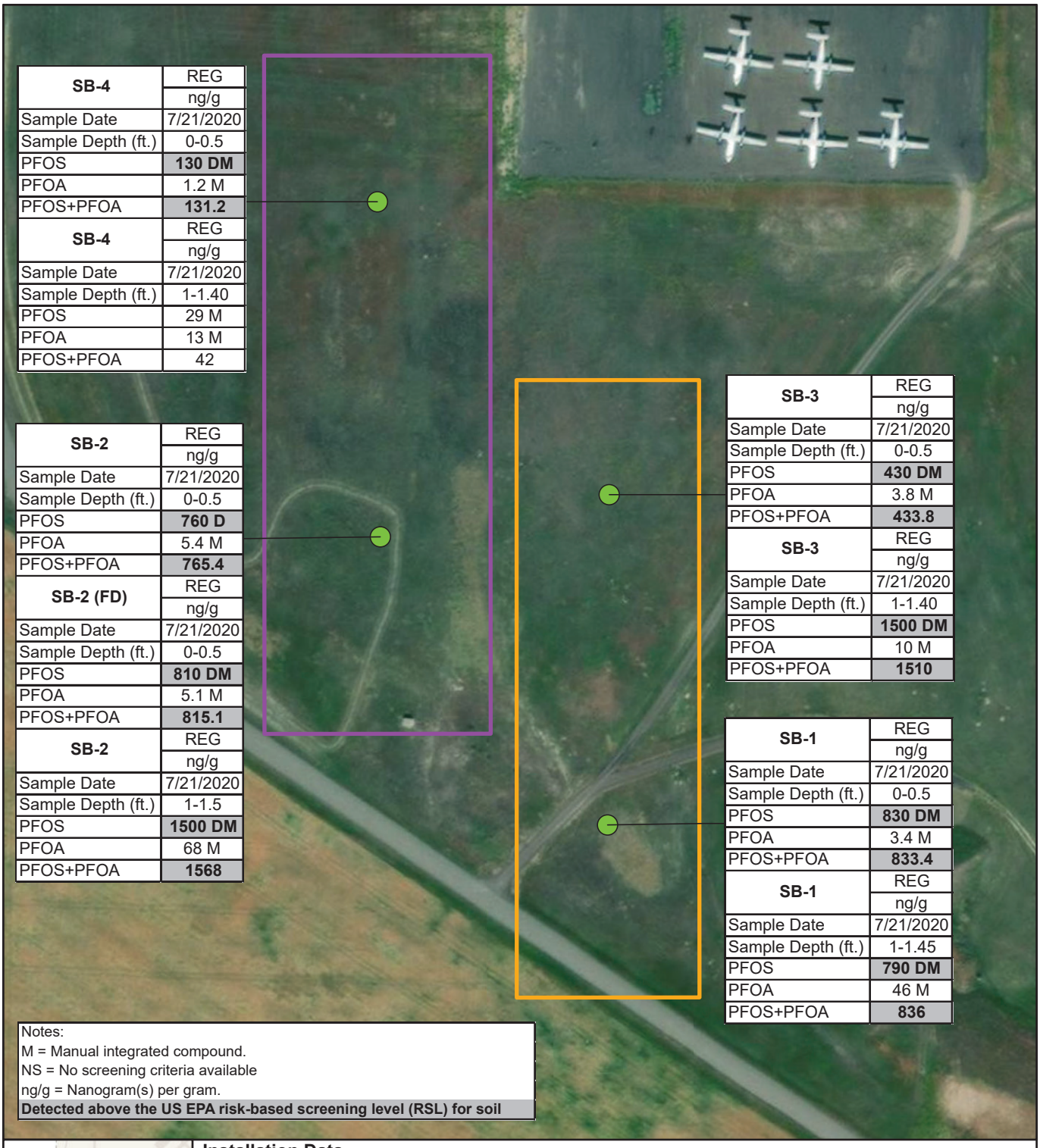
N
W E
S

Feet

0 300 600 1,200

MONTANA AIR NATIONAL GUARD, GREAT FALLS
SUPPLEMENTAL SITE INVESTIGATION REPORT
GREAT FALLS, MONTANA

Figure 2
New Monitoring Well
and Soil Boring Locations



SB-4	REG
	ng/g
Sample Date	7/21/2020
Sample Depth (ft.)	0-0.5
PFOS	**130 DM**
PFOA	1.2 M
PFOS+PFOA	**131.2**

SB-4	REG
	ng/g
Sample Date	7/21/2020
Sample Depth (ft.)	1-1.40
PFOS	29 M
PFOA	13 M
PFOS+PFOA	42

SB-2	REG
	ng/g
Sample Date	7/21/2020
Sample Depth (ft.)	0-0.5
PFOS	**760 D**
PFOA	5.4 M
PFOS+PFOA	**765.4**

SB-2 (FD)	REG
	ng/g
Sample Date	7/21/2020
Sample Depth (ft.)	0-0.5
PFOS	**810 DM**
PFOA	5.1 M
PFOS+PFOA	**815.1**

SB-2	REG
	ng/g
Sample Date	7/21/2020
Sample Depth (ft.)	1-1.5
PFOS	**1500 DM**
PFOA	68 M
PFOS+PFOA	**1568**

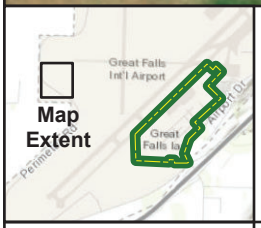
SB-3	REG
	ng/g
Sample Date	7/21/2020
Sample Depth (ft.)	0-0.5
PFOS	**430 DM**
PFOA	3.8 M
PFOS+PFOA	**433.8**

SB-3	REG
	ng/g
Sample Date	7/21/2020
Sample Depth (ft.)	1-1.40
PFOS	**1500 DM**
PFOA	10 M
PFOS+PFOA	**1510**

SB-1	REG
	ng/g
Sample Date	7/21/2020
Sample Depth (ft.)	0-0.5
PFOS	**830 DM**
PFOA	3.4 M
PFOS+PFOA	**833.4**

SB-1	REG
	ng/g
Sample Date	7/21/2020
Sample Depth (ft.)	1-1.45
PFOS	**790 DM**
PFOA	46 M
PFOS+PFOA	**836**

Notes:
M = Manual integrated compound.
NS = No screening criteria available
ng/g = Nanogram(s) per gram.
Detected above the US EPA risk-based screening level (RSL) for soil



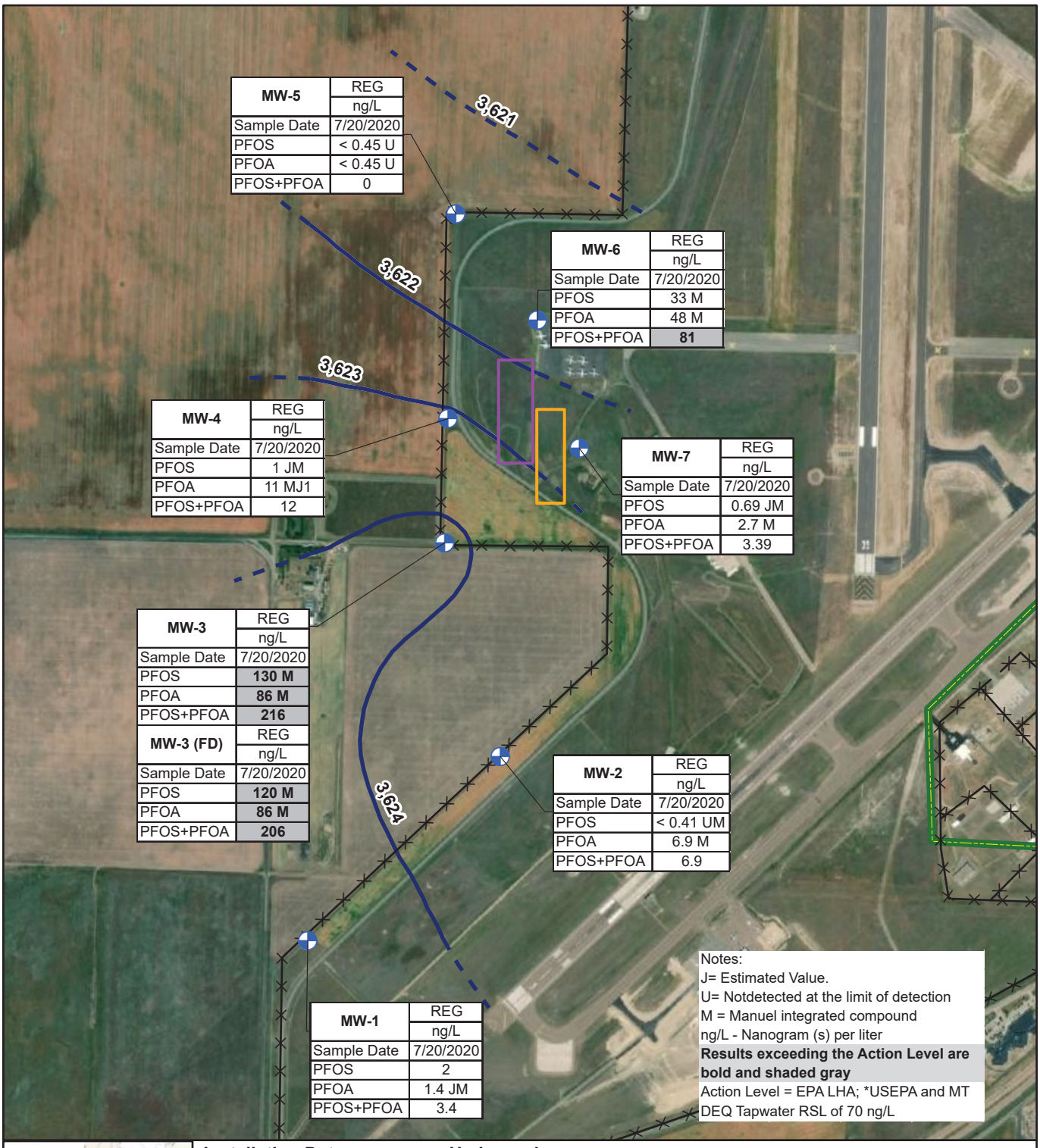
Installation Data

- Installation Boundary
- ERP Site 1
- Landfarm
- Soil Boring Location

N
W E
S
Feet
0 50 100 200

MONTANA AIR NATIONAL GUARD, GREAT FALLS
SUPPLEMENTAL SITE INVESTIGATION REPORT
GREAT FALLS, MONTANA

Figure 3
Soil Sampling Results



MONTANA AIR NATIONAL GUARD, GREAT FALLS
SUPPLEMENTAL SITE INVESTIGATION REPORT
GREAT FALLS, MONTANA

Figure 4
Groundwater
Sampling Results

Tables

This page intentionally left blank

Table 1 July 2020

Soil Data

VALIDATED

Great Falls ANG

				Sample Name	SB-1-0-0.5	SB-1-1-1.45	SB-2-0-0.5	FD-07212020	SB-2-1-1.5	SB-3-0-0.5	SB-3-1-1.4	SB-4-0-0.5	SB-4-1-1.4
				Parent Sample ID				SB-2-0-0.5					
				Sample Date	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020	7/21/2020
Analyte	**Cas rn**	**Action Level***	**Unit**										
PFAS (EPA 537.1 MOD)													
4:2 Fluorotelomer sulfonate	757124-72-4	NS	ng/g		< 0.64 U	< 0.67 U	< 0.6 U	< 0.59 U	< 0.64 U	< 0.63 U	< 0.66 U	< 0.63 U	< 0.67 U
6:2 Fluorotelomer sulfonate	27619-97-2	NS	ng/g		< 0.64 U	1.6 J	1.6 J	1.7 J	29	5.8	11	< 0.63 U	< 0.67 U
8:2 Fluorotelomer sulfonate	39108-34-4	NS	ng/g		1.7 J	2.3 J	140	130	280	36	180	< 0.63 U	< 0.67 U
N-ethyl perfluorooctanesulfonamidoacetic acid	2991-50-6	NS	ng/g		< 0.21 U	< 0.22 U	< 0.2 U	0.28 J	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U
N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9	NS	ng/g		< 0.21 U	< 0.22 UJ	< 0.2 U	< 0.2 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 UJ	< 0.22 U
Perfluorobutanesulfonic acid	375-73-5	NS	ng/g		< 0.42 U	< 0.45 U	< 0.4 U	< 0.39 U	0.71 J	< 0.42 U	< 0.44 U	< 0.42 U	< 0.44 U
Perfluorobutanoic acid	375-22-4	NS	ng/g		0.99 J	1.4 J	0.87 J	0.81 J	1.2 J	0.91 J	1 J	0.68 J	< 0.67 U
Perfluorodecanesulfonic acid	335-77-3	NS	ng/g		3.2	0.31 J	2.4	2.2	0.71	2.7	0.48 J	0.25 J	< 0.22 U
Perfluorodecanoic acid	335-76-2	NS	ng/g		4.3	0.67	3.5	3.7	1.7	2.7	0.93	0.76	< 0.22 U
Perfluorododecanoic acid	307-55-1	NS	ng/g		0.48 J	< 0.22 U	0.46 J	0.48 J	< 0.21 U	0.3 J	< 0.22 U	< 0.21 U	< 0.22 U
Perfluoroheptanesulfonic acid	375-92-8	NS	ng/g		3	28	1.1	1.1	25	0.75	3.5	0.53 J	1.3
Perfluoroheptanoic acid	375-85-9	NS	ng/g		0.5 J	1.4	0.61	0.61	2.6	1.1	2	0.4 J	0.61 J
Perfluorohexanesulfonic acid	355-46-4	NS	ng/g		35	220	22	23	150	11	17	3	37
Perfluorohexanoic acid	307-24-4	NS	ng/g		2.4	4.2	1.7	1.8	5.6	2	1.8	0.69	0.84
Perfluorononanesulfonic acid	68259-12-1	NS	ng/g		3.2 J	< 0.22 U	2.5	2.6	0.93	1.9	0.51 J	0.24 J	< 0.22 U
Perfluorononanoic acid	375-95-1	NS	ng/g		11	17	3.9	3.8	11	1.7	8.1	5.2	2.2
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	ng/g		11	3.7	9.9	10	9.6	25	6.1	0.32 J	< 0.22 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	126	ng/g		**830**	**790**	**760**	**810**	**1500**	**430**	**1500**	**130**	29
Perfluorooctanoic acid (PFOA)	335-67-1	126	ng/g		3.4	46	5.4	5.1	68	3.8	10	1.2	13
Sum PFOS + PFOA		126	ng/g		**833.4**	**836**	**765.4**	**815.1**	**1568**	**433.8**	**1510**	**131.2**	42
Perfluoropentanesulfonic acid	2706-91-4	NS	ng/g		0.3 J	1.2 J	0.42 J	0.46 J	1.1 J	0.26 J	< 0.22 U	< 0.21 U	< 0.22 U
Perfluoropentanoic acid	2706-90-3	NS	ng/g		1.2	2.1	1	1	3.2	1.5	2.4	0.67	1
Perfluorotetradecanoic acid	376-06-7	NS	ng/g		< 0.21 U	< 0.22 U	< 0.2 U	< 0.2 U	< 0.21 U	< 0.21 U	< 0.22 U	< 0.21 U	< 0.22 U
Perfluorotridecanoic acid	72629-94-8	NS	ng/g		2	< 0.22 U	3.9	3.8	0.47 J	0.67	< 0.22 U	< 0.21 U	< 0.22 U
Perfluoroundecanoic acid	2058-94-8	NS	ng/g		1.6	< 0.22 U	1.1	0.97	< 0.21 U	0.65	< 0.22 U	0.31 J	< 0.22 U

Notes:
J = Estimated value.
U = Not detected at the limit of detection.
NS = No screening criteria available
ng/g = Nanogram(s) per gram.
***Detected above the US EPA risk-based screening level (RSL) for soil**

Table 2 July 2020
VALIDATED DATA
Great Falls ANG

			Sample Name	MW-1	MW-2	MW-3	FD-07202020
			Parent Sample ID				MW-3
			Sample Date	7/20/2020	7/20/2020	7/20/2020	7/20/2020
Analyte	**Cas rn**	**Action Level**	**Unit**				
PFAS (EPA 537.1 MOD)							
4:2 Fluorotelomer sulfonate	757124-72-4	NS	ng/L	< 0.43 U	< 0.41 U	< 0.45 U	< 0.41 U
6:2 Fluorotelomer sulfonate	27619-97-2	NS	ng/L	< 1.7 U	< 1.7 U	< 1.8 U	< 1.7 U
8:2 Fluorotelomer sulfonate	39108-34-4	NS	ng/L	< 0.86 U	< 0.83 U	< 0.89 U	< 0.83 U
N-ethyl perfluorooctanesulfonamidoacetic acid	2991-50-6	NS	ng/L	< 0.43 U	< 0.41 U	< 0.45 U	< 0.41 U
N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9	NS	ng/L	< 0.51 U	< 0.5 U	< 0.54 U	< 0.5 U
Perfluorobutanesulfonic acid	375-73-5	400000*	ng/L	0.61 J	2.7	9.2	9.6
Perfluorobutanoic acid	375-22-4	NS	ng/L	< 1.7 U	7.8	18	18
Perfluorodecanesulfonic acid	335-77-3	NS	ng/L	< 0.43 U	< 0.41 U	< 0.45 U	< 0.41 U
Perfluorodecanoic acid	335-76-2	NS	ng/L	< 0.43 U	< 0.41 U	< 0.45 U	< 0.41 U
Perfluorododecanoic acid	307-55-1	NS	ng/L	< 0.43 U	< 0.41 U	< 0.45 U	< 0.41 U
Perfluoroheptanesulfonic acid	375-92-8	NS	ng/L	< 0.43 U	< 0.41 U	3.5	3.4
Perfluoroheptanoic acid	375-85-9	NS	ng/L	< 0.43 U	9.1	18	18
Perfluorohexanesulfonic acid	355-46-4	NS	ng/L	2.2	29	210	210
Perfluorohexanoic acid	307-24-4	NS	ng/L	1.4 J	19	65	66
Perfluorononanesulfonic acid	68259-12-1	NS	ng/L	< 0.43 U	< 0.41 U	< 0.45 U	< 0.41 U
Perfluorononanoic acid	375-95-1	NS	ng/L	< 0.43 U	< 0.41 U	1.5 J	< 0.41 U
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	ng/L	< 0.43 UJ	< 0.41 U	< 0.45 UJ	< 0.41 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	70	ng/L	2	< 0.41 U	**130**	**120**
Perfluorooctanoic acid (PFOA)	335-67-1	70	ng/L	1.4 J	6.9	**86**	**86**
Sum PFOS + PFOA		70	ng/L	3.4	6.9	**216**	**206**
Perfluoropentanesulfonic acid	2706-91-4	NS	ng/L	< 0.43 U	2.6	10	11
Perfluoropentanoic acid	2706-90-3	NS	ng/L	1.6 J	20	69	67
Perfluorotetradecanoic acid	376-06-7	NS	ng/L	< 0.43 U	< 0.41 U	< 0.45 U	< 0.41 U
Perfluorotridecanoic acid	72629-94-8	NS	ng/L	< 0.43 U	< 0.41 U	< 0.45 U	< 0.41 U
Perfluoroundecanoic acid	2058-94-8	NS	ng/L	< 0.43 U	< 0.41 U	< 0.45 U	< 0.41 U

Notes:
J = Estimated value.
U = Not detected at the limit of detection.
NS = No screening criteria available
ng/L = Nanogram(s) per liter.
Results exceeding the Action Level are bolded and shaded gray
Action Level = EPA LHA; *USEPA and DEQ Tapwater RSL of 70 ng/L

Table 2 July 2020
VALIDATED DATA
Great Falls ANG

				Sample Name	MW-4	MW-5	MW-6	MW-7
				Parent Sample ID				
				Sample Date	7/20/2020	7/20/2020	7/20/2020	7/20/2020
Analyte	**Cas rn**	**Action Level**	**Unit**					
PFAS (EPA 537.1 MOD)								
4:2 Fluorotelomer sulfonate	757124-72-4	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U
6:2 Fluorotelomer sulfonate	27619-97-2	NS	ng/L		3.6 J	< 1.8 U	< 1.7 U	< 1.7 U
8:2 Fluorotelomer sulfonate	39108-34-4	NS	ng/L		< 0.9 U	< 0.9 U	< 0.85 U	< 0.87 U
N-ethyl perfluorooctanesulfonamidoacetic acid	2991-50-6	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U
N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9	NS	ng/L		< 0.54 U	< 0.54 U	< 0.51 U	< 0.52 U
Perfluorobutanesulfonic acid	375-73-5	400000*	ng/L		2.3	< 0.45 U	6.8	3.2
Perfluorobutanoic acid	375-22-4	NS	ng/L		6	< 1.8 U	9.9	9.6
Perfluorodecanesulfonic acid	335-77-3	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U
Perfluorodecanoic acid	335-76-2	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U
Perfluorododecanoic acid	307-55-1	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U
Perfluoroheptanesulfonic acid	375-92-8	NS	ng/L		< 0.45 U	< 0.45 U	1.7	< 0.43 U
Perfluoroheptanoic acid	375-85-9	NS	ng/L		1.4 J	< 0.45 U	6.4	2.7
Perfluorohexanesulfonic acid	355-46-4	NS	ng/L		19	0.55 J	110	7.6
Perfluorohexanoic acid	307-24-4	NS	ng/L		8.9	< 0.45 U	37	23
Perfluorononanesulfonic acid	68259-12-1	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U
Perfluorononanoic acid	375-95-1	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U
Perfluorooctanesulfonamide (PFOSA)	754-91-6	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	70	ng/L		1 J	< 0.45 U	33	0.69 J
Perfluorooctanoic acid (PFOA)	335-67-1	70	ng/L		11 J	< 0.45 U	48	2.7
Sum PFOS + PFOA		70	ng/L		12	0	**81**	3.39
Perfluoropentanesulfonic acid	2706-91-4	NS	ng/L		2.4	< 0.45 U	6.6	2.1
Perfluoropentanoic acid	2706-90-3	NS	ng/L		6.2	< 0.45 U	26	20
Perfluorotetradecanoic acid	376-06-7	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U
Perfluorotridecanoic acid	72629-94-8	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U
Perfluoroundecanoic acid	2058-94-8	NS	ng/L		< 0.45 U	< 0.45 U	< 0.43 U	< 0.43 U

Notes:
J = Estimated value.
U = Not detected at the limit of detection.
NS = No screening criteria available
ng/L = Nanogram(s) per liter.
Results exceeding the Action Level are bolded and shaded gray
Action Level = EPA LHA; *USEPA and DEQ Tapwater RSL of 70 ng/L

Appendix A

Well Completion Report

This page intentionally left blank

WELL COMPLETION REPORT
GROUNDWATER INVESTIGATION

MONTANA AIR NATIONAL GUARD, GREAT FALLS
GREAT FALLS INTERNATIONAL AIRPORT
GREAT FALLS, MONTANA

AIR NATIONAL GUARD

ENVIRONMENTAL RESTORATION BRANCH

JULY 2020

This page intentionally left blank

WELL COMPLETION REPORT
GROUNDWATER INVESTIGATION

MONTANA AIR NATIONAL GUARD, GREAT FALLS
GREAT FALLS INTERNATIONAL AIRPORT
GREAT FALLS, MONTANA

Prepared for:

Air National Guard Environmental Restoration Branch (NGB/A4VR)
3501 Fetchet Avenue
Joint Base Andrews, Maryland 20762

Prepared by:

EA Engineering, Science, and Technology, Inc., PBC
1311 Continental Drive Suite K
Abingdon, Maryland 21009

Contract No.: W9133L-14-D-0004

ANG Delivery Order: 0006

EA Project No.: 6280606

JULY 2020

This page intentionally left blank

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF ACRONYMS

ANG	Air National Guard
bgs	Below ground surface
EA	EA Engineering, Science, and Technology, Inc., PBC
ft	Foot (feet)
in.	Inch(es)
MTANGB	Montana Air National Guard Base
NGB/A4VR	National Guard Bureau's, Environmental Division, Restoration Branch
PFAS	Per- and polyfluoroalkyl substances
PFOA	Perfluorooctanoic acid

1. INTRODUCTION

EA Engineering, Science, and Technology, Inc., PBC (EA) has been contracted by the National Guard Bureau's Environmental Division Restoration Branch (NGB/A4VR) to perform Emerging Contaminant Assessments for the presence of per- and polyfluoroalkyl substances (PFAS) in soil and groundwater at the Montana Air National Guard Base (MTANGB), Great Falls in Great Falls, Montana (Project Number ANGH20157008). The base location is presented in **Figure 1**.

Consistent with Department of Defense Instruction 4715.18 *Emerging Contaminants*, PFAS are considered to be emerging contaminants. Although these compounds are not yet listed as Comprehensive Environmental Response, Compensation, and Liability Act hazardous substances, the Air National Guard (ANG) has decided to assess potential releases of these compounds to the environment. Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) in groundwater are regulated by the Montana Department of Environmental Quality, which has adopted the U.S. Environmental Protection Agency Lifetime Health Advisory levels for PFOS and PFOA as MDEQ-7 groundwater standards for the protection of human health.

EA prepared an abbreviated work plan/sampling and analysis plan to supplement the PFAS Site Inspection completed by Leidos in 2019.

1.1 PROJECT OBJECTIVES

The objective of the supplemental Site Inspection is to determine if PFAS contaminants associated with both on- and off-base potential release locations may have migrated to potential downgradient receptors. Review of analytical results will then facilitate ANG decisions on a path forward for the base, which would include no further action or recommendation of further actions. EA will perform a one-time sampling event of the seven newly installed monitoring wells at locations pre-selected by the ANG at the installation.

1.2 SCOPE OF WORK

The scope of work for this project consists of installing four soil borings within Environmental Restoration Program Site 1 and the landfarm. The soil borings were sampled for PFAS to evaluate any potential sources of contamination on-base. Seven monitoring wells were also installed, developed, and sampled for PFAS. These monitoring wells were installed upgradient, within, and downgradient of potential source areas to determine potential impacts to groundwater migrating on- or off-base. This scope of work does not include sampling existing potable wells. Monitoring well installation, development, and sampling were completed over a 2-week period, from 13 – 20 July 2020.

1.3 PROJECT DELIVERABLES

Deliverables for this investigation include development of a Well Completion Report and a supplemental Site Inspection. This Well Completion Report details the field activities including monitoring well installation (including well construction information and well development data). The supplemental Site Inspection will be a comprehensive report summarizing the results of the

July 2020 sampling of the soil borings and monitoring wells and will include analytical (both tabulated and graphically depicted) data compared against the screening criteria.

Draft and Final supplemental Site Inspections will be prepared for review with formal response to comments provided to address all comments received.

2. FIELD ACTIVITIES

2.1 MONITORING WELL INSTALLATION

EA, and our Montana-licensed subcontractor Boland Drilling, installed seven permanent flush-mounted monitoring wells into the surficial aquifer to depths ranging from approximately 50-100 ft bgs. The monitoring well locations and order of installation are presented in **Figure 2.** The 2-inch (in.) monitoring wells were installed using an air rotary drill. The drill rods were advanced to a depth of approximately 20–25 ft into the aquifer. As the drill rods advanced through the soil, the geologist logged (according to Unified Soil Classification System descriptions) the soil every 5 ft until the desired depth was achieved. Boring logs are presented in Appendix A.

Once the desired depth had been achieved, the riser pipe and well screen (polyvinyl chloride [PVC] Schedule 40, flush-threaded, and 0.010-in. factory slotted) was installed in 20-ft sections, including the well screen. The annular space surrounding the riser pipe and well screen was filled with an artificial sand pack from the base of the borehole to at least 2 ft above the screen. Additionally, at least 1 ft of sand pack was used to fill the space between the bottom of the borehole and the PVC bottom cap. The artificial sand pack consisted of commercially purchased 20/40 sized silica sand. The annular space above the sand pack was sealed with bentonite chips. The bentonite seal extended at least 2 ft above the screen and was hydrated with potable water passed through a GAC filter to avoid potential PFAS contamination. The remaining annular space was filled to surface grade with a Type I/II Portland cement grout. The PVC riser pipe was extended from the top of the screen to approximately 6 in. bgs where the monitoring wells were completed flush with the ground surface. Concrete was utilized for constructing the well pad that surrounds the surface casing. A permanent well identification tag was installed on the inside well cap and the well cap was secured with a lock. Well completion diagrams are presented as Appendix B.

In order to ensure the new monitoring wells were not contaminated during installation, all drill augers and other tooling were decontaminated between well locations with potable water passed through a GAC filter to avoid potential PFAS contamination.

The monitoring wells will be surveyed by Big Sky Civil & Environmental, Inc. Survey results, as well as disposal information will be provided in the Groundwater Monitoring Report.

2.2 MONITORING WELL DEVELOPMENT

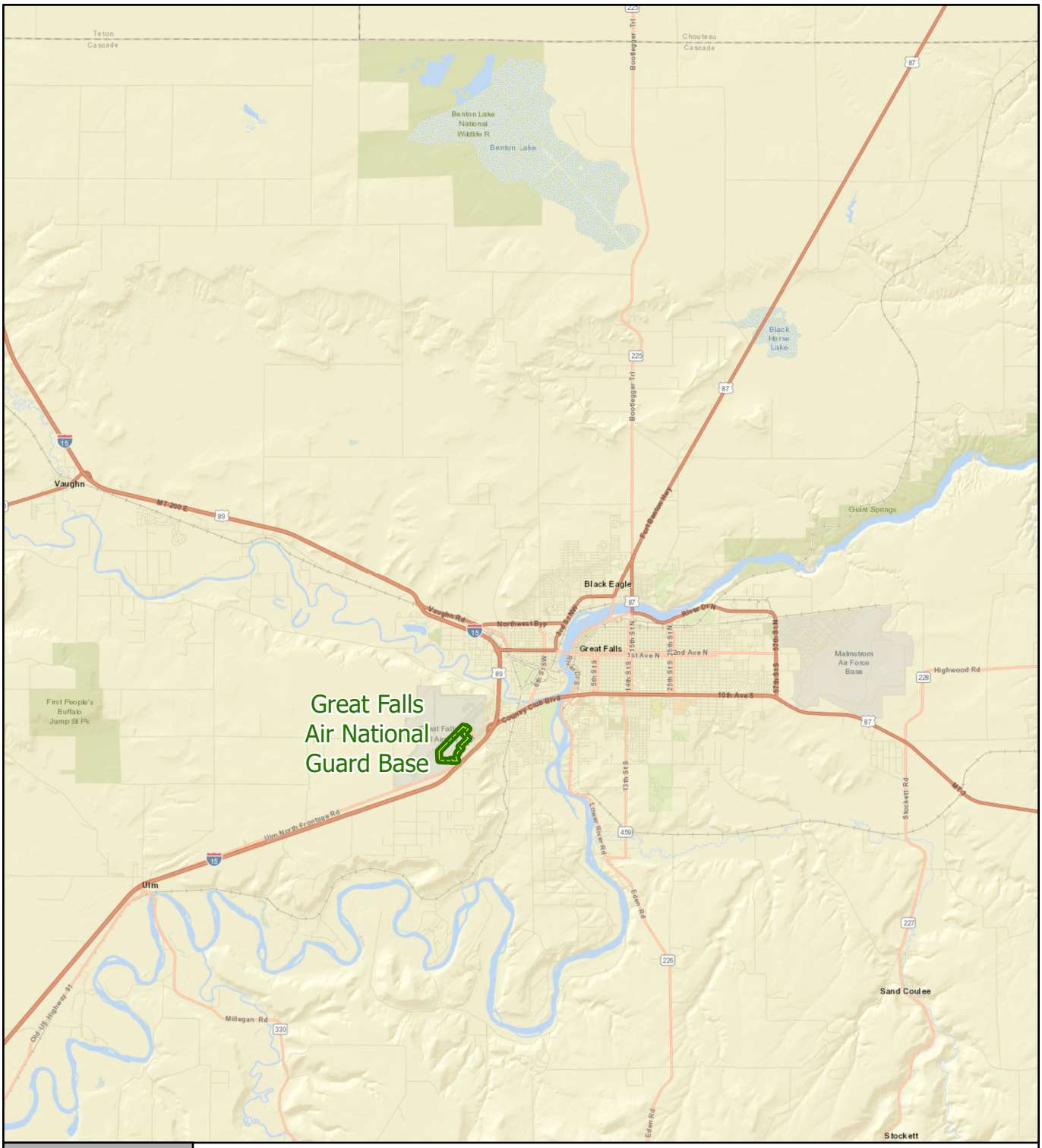
Each monitoring well was developed using a surge block and submersible pump combination following standard development procedures. Monitoring well development was conducted at least 24 hours after monitoring well completion in order to allow sufficient time for the grout mixture to cure. Development consisted of repeated surging and groundwater removal until the water quality parameters stabilized. Stabilization parameters were measured and recorded every 5 minutes. Field personnel completed a well development form for each of the monitoring wells. The well development forms are presented as Appendix C

3. MANAGEMENT OF INVESTIGATION-DERIVED WASTE

Investigation-derived waste, including drill cuttings, purge water and decontamination fluids generated during drilling, development, and groundwater sampling activities, were handled in accordance with Section 2 of Air Force Guidance Memorandum 1908-32-71, AFFF-Related Waste Management Implementation Guidance. Investigation-derived waste was containerized in Department of Transportation approved 55-gallon drums and properly labeled for temporary onsite storage as coordinated with the Base Environmental Manager. The waste is currently being characterized and will be properly disposed offsite by EA in accordance with all applicable local, state, and federal requirements. Personal protective equipment (such as nitrile gloves) and disposable sampling materials such as sampling tubing was bagged and disposed as general refuse.

Figures

This page intentionally left blank



Installation Data

Installation Boundary

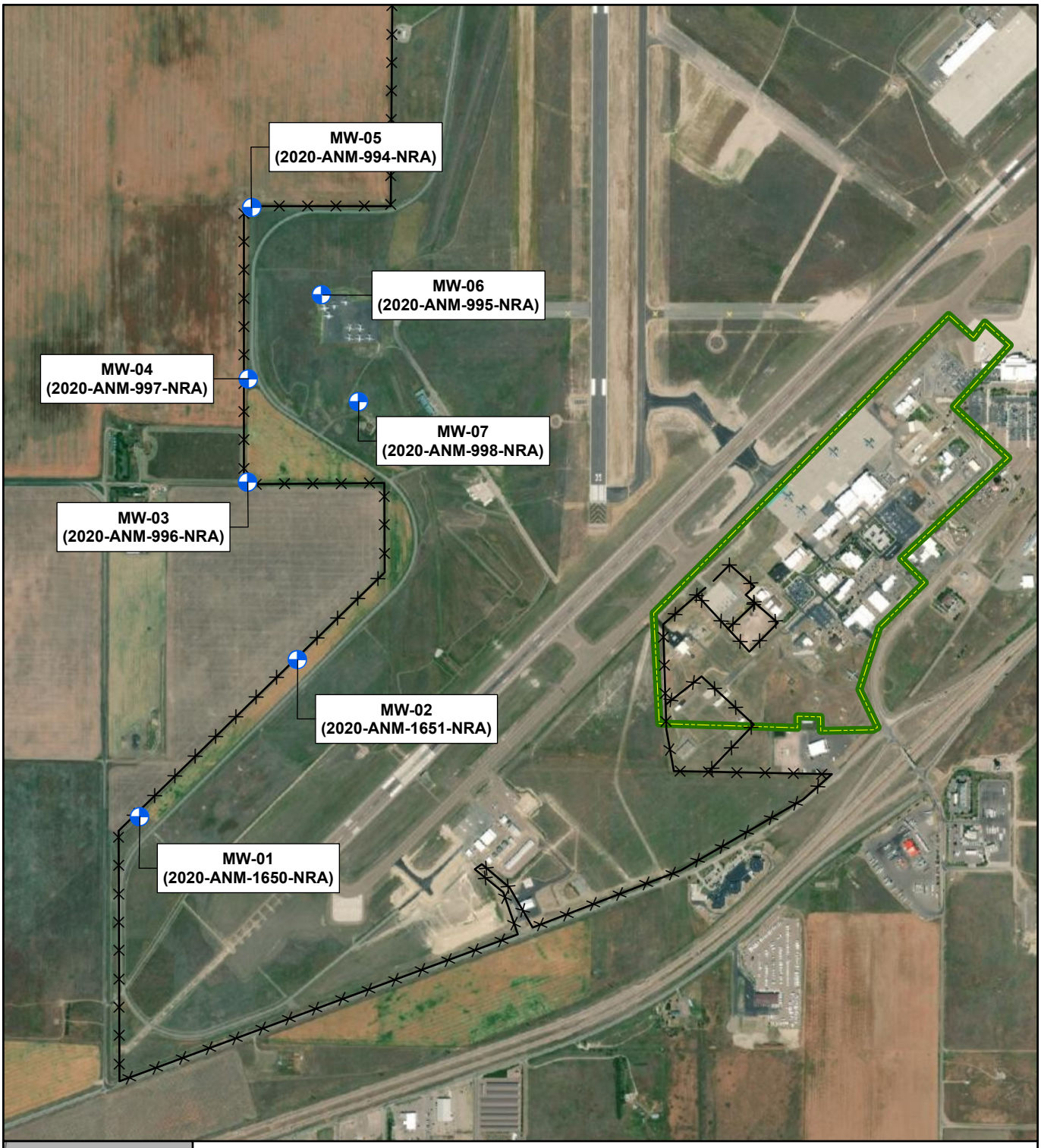
N
W E
S

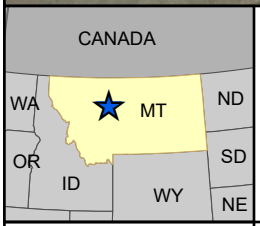
Miles

0 0.5 1 2

GREAT FALLS AIR NATIONAL GUARD BASE
SITE-SPECIFIC WORK PLAN
GREAT FALLS, MONTANA

Figure 1
Base Location





Installation Data

- Installation Boundary
- Fenceline
- Monitoring Well Location

N
W E
S

Feet

0 300 600 1,200

GREAT FALLS AIR NATIONAL GUARD BASE
WELL COMPLETION REPORT
GREAT FALLS, MONTANA

Figure 2
New Monitoring
Well Locations

APPENDIX A

Boring Logs

EA Engineering, P.C.
EA Science and Technology

LOG OF SOIL BORING FOR WELL INSTALLATION

Coordinates: Northing _____ Easting: _____
Surface Elevation:
Casing Below Surface:
Reference Elevation:
Reference Description:

Job. No.	**Client:**	Air National Guard	**Location:**
6280606	**Project:**	Montana ANG	Great Falls MT
Drilling Method: Air Rotary			**Well ID:** MW-1
Sampling Method: NONE			**Sheet 1 of 1**

					Drilling	
Water Level:					**Start**	**Finish**
Time:					DATE: 7/14/20	DATE: 7/14/20
Date:					TIME: 0740	TIME: 0947

Surface Conditions: Grassy
Weather: Sunny
Temperature: 60 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	
						Light brown-orange very fine grain sandstone, little silt sized grains
				5		
						Light brown-orange very fine grain sandstone, little silt sized grains
				10		
						Light brown-orange very fine grain sandstone, little silt sized grains
				15		
						Light brown-orange very fine grain sandstone, little silt sized grains, gray bentonitic siltstone
				20		
						Light brown-orange very fine grain sandstone, little silt sized grains
				25		
						Light brown-orange very fine grain sandstone, little silt sized grains
				30		
						Light brown-orange very fine grain sandstone, little silt sized grains
				35		
						Light brown-orange very fine grain sandstone, little silt sized grains
				40		
						Light brown-orange very fine grain sandstone, little silt sized grains
				45		
						Light brown-orange very fine grain sandstone, little silt sized grains
				50		
						Light brown-orange very fine grain sandstone, little silt sized grains
				55		
						Medium to dark gray siltstone with dark gray to black shale
				60		
						Medium to dark gray siltstone with dark gray to black shale
				65		
						Medium to dark gray siltstone with dark gray to black shale
				70		
						Medium to dark gray siltstone with dark gray to black shale
				75		
				80		
				85		
				90		
				95		
				100		

Monitoring Well Construction Information

Monitoring Well Diameter:	2			in
Bottom of Monitoring Well:	75			ft bgs
Stick Up or Flush Mount:	Flush			
Screen Interval:	55	To	75	ft bgs
Riser Interval:	55	To	0.5	ft bgs
Sand Pack Interval:	51	To	77	ft bgs
Bentonite Seal:	47	To	51	ft bgs
Grout Interval:	1	To	47	ft bgs

Additional Information

Logged by: M. Wright Date: 7/14/20
Drilling Contractor: Boland Drilling Driller: Trevor

EA Engineering, P.C.
EA Science and Technology

Job. No.	Client: Air National Guard	Location:
6280606	Project: Montana ANG	Great Falls MT

Drilling Method: Air Rotary

Well ID: MW-2

LOG OF SOIL BORING FOR WELL INSTALLATION

Coordinates: Northing ______ Easting: ______
Surface Elevation: ______
Casing Below Surface: ______
Reference Elevation: ______
Reference Description: ______

Sampling Method: NONE

Sheet 1 of 1

Drilling	Start	Finish
	DATE: 7/13/20	DATE: 7/13/20
	TIME: 1130	TIME: 1330

Water Level:				
Time:				
Date:				

Surface Conditions: Grassy
Weather: Sunny
Temperature: 70 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	Description
				5		Light brown-orange very fine grain sandstone, little silt sized grains
				10		Light brown-orange very fine grain sandstone, little silt sized grains
				15		Light brown-orange very fine grain sandstone, little silt sized grains
				20		Light brown-orange very fine grain sandstone, little silt sized grains
				25		Light brown-orange very fine grain sandstone, little silt sized grains
				30		Light brown-orange very fine grain sandstone, little silt sized grains
				35		Light brown-orange very fine grain sandstone, little silt sized grains
				40		Light brown-orange very fine grain sandstone, little silt sized grains
				45		Light brown-orange very fine grain sandstone, little silt sized grains
				50		Light brown-orange very fine grain sandstone, little silt sized grains
				55		
				60		
				65		
				70		
				75		
				80		
				85		
				90		
				95		
				100		

Monitoring Well Construction Information

Monitoring Well Diameter: 2 in
Bottom of Monitoring Well: 48 ft bgs
Stick Up or Flush Mount: Flush
Screen Interval: 28 To 48 ft bgs
Riser Interval: 0.5 To 28.0 ft bgs
Sand Pack Interval: 26 To 50 ft bgs
Bentonite Seal: 22 To 26 ft bgs
Grout Interval: 1 To 22 ft bgs

Additional Information

Logged by: M. Wright
Date: 7/13/20
Drilling Contractor: Boland Drilling
Driller: Trevor

EA Engineering, P.C.
EA Science and Technology

LOG OF SOIL BORING FOR WELL INSTALLATION

Job. No. 6280606	**Client:** Air National Guard	**Project:** Montana ANG	**Location:** Great Falls MT
Drilling Method: Air Rotary			**Well ID:** MW-3
Sampling Method: NONE			**Sheet 1 of 1**

Coordinates: Northing ______ Easting: ______
Surface Elevation:
Casing Below Surface:
Reference Elevation:
Reference Description:

					Drilling Start	Drilling Finish
Water Level:					DATE: 7/14/20	DATE: 7/14/20
Time:					TIME: 1120	TIME: 1334
Date:						

Surface Conditions: Grassy
Weather: Sunny
Temperature: 70 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	Description
				5		Light brown-orange very fine grain sandstone, little silt sized grains
				10		Light brown-orange very fine grain sandstone, little silt sized grains
				15		Light brown-orange very fine grain sandstone, little silt sized grains
				20		Light brown-orange very fine grain sandstone, little silt sized grains
				25		Light brown-orange very fine grain sandstone, little silt sized grains
				30		Light brown-orange very fine grain sandstone, little silt sized grains
				35		Light brown-orange very fine grain sandstone, little silt sized grains
				40		Light brown-orange very fine grain sandstone, little silt sized grains
				45		Light brown-orange very fine grain sandstone, little silt sized grains
				50		Light brown-orange very fine grain sandstone, little silt sized grains
				55		Medium brown-gray very fine grain sandstone, little silt sized grains
				60		Medium-dark gray very fine sandstone, little silt sized grains
				65		
				70		
				75		
				80		
				85		
				90		
				95		
				100		

Monitoring Well Construction Information

Monitoring Well Diameter:	2	in		
Bottom of Monitoring Well:	60	ft bgs		
Stick Up or Flush Mount:	Flush			
Screen Interval:	40	To	60	ft bgs
Riser Interval:	0.5	To	40.0	ft bgs
Sand Pack Interval:	38	To	62	ft bgs
Bentonite Seal:	33	To	38	ft bgs
Grout Interval:	1	To	33	ft bgs

Additional Information

Logged by: M. Wright Date: 7/14/20
Drilling Contractor: Boland Drilling Driller: Trevor

EA Engineering, P.C.
EA Science and Technology

LOG OF SOIL BORING FOR WELL INSTALLATION

Coordinates: Northing _____ Easting: _____
Surface Elevation:
Casing Below Surface:
Reference Elevation:
Reference Description:

Job. No.	**Client:**	Air National Guard	**Location:**
6280606	**Project:**	Montana ANG	Great Falls MT
Drilling Method: Air Rotary			**Well ID:** MW-4
Sampling Method: NONE			**Sheet 1 of 1**

					Drilling	
Water Level:					**Start**	**Finish**
Time:					DATE: 7/15/20	DATE: 7/15/20
Date:					TIME: 0730	TIME: 0945

Surface Conditions: Grassy
Weather: Sunny
Temperature: 70 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	
						Light brown-orange very fine grain sandstone, little silt sized grains
				5		
						Light brown-orange very fine grain sandstone, little silt sized grains
				10		
						Light brown-orange very fine grain sandstone, little silt sized grains
				15		
						Light brown-orange very fine grain sandstone, little silt sized grains
				20		
						Light brown-orange very fine grain sandstone, little silt sized grains
				25		
						Light brown-orange very fine grain sandstone, little silt sized grains
				30		
						Light brown-orange very fine grain sandstone, little silt sized grains
				35		
						Light brown-orange very fine grain sandstone, little silt sized grains
				40		
						Light brown-orange very fine grain sandstone, little silt sized grains
				45		
						Light brown-orange very fine grain sandstone, little silt sized grains
				50		
						Light brown-gray very fine grain sandstone, little silt sized grains
				55		
						Medium-dark gray very fine sandstone, little silt sized grains
				60		
						Medium-dark gray very fine sandstone, little silt sized grains
				65		
						Medium-dark gray very fine sandstone, little silt sized grains
				70		
						Medium-dark gray very fine sandstone, little silt sized grains
				75		
						Medium-dark gray very fine sandstone, little silt sized grains
				80		
						Medium-dark gray very fine sandstone, little silt sized grains
				85		
				90		
				95		
				100		

Monitoring Well Construction Information

Monitoring Well Diameter:	2	in		
Bottom of Monitoring Well:	85	ft bgs		
Stick Up or Flush Mount:	Flush			
Screen Interval:	65	To	85	ft bgs
Riser Interval:	0.5	To	65	ft bgs
Sand Pack Interval:	62	To	87	ft bgs
Bentonite Seal:	57	To	62	ft bgs
Grout Interval:	1	To	57	ft bgs

Additional Information

Logged by: M. Wright Date: 7/15/20
Drilling Contractor: Boland Drilling Driller: Trevor

EA Engineering, P.C.
EA Science and Technology

LOG OF SOIL BORING FOR WELL INSTALLATION

Coordinates: Northing _____ Easting: _____
Surface Elevation:
Casing Below Surface:
Reference Elevation:
Reference Description:

Job. No.	**Client:**	Air National Guard	**Location:**
6280606	**Project:**	Montana ANG	Great Falls MT
Drilling Method: Air Rotary			**Well ID:** MW-5
Sampling Method: NONE			**Sheet 1 of 1**

					Drilling	
Water Level:					**Start**	**Finish**
Time:					DATE: 7/15/20	DATE: 7/15/20
Date:					TIME: 1010	TIME: 1230

Surface Conditions: Grassy
Weather: Sunny
Temperature: 70 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	
						Light brown-orange very fine grain sandstone, little silt sized grains
				5		
						Light brown-orange very fine grain sandstone, little silt sized grains
				10		
						Light brown-orange very fine grain sandstone, little silt sized grains
				15		
						Light brown-orange very fine grain sandstone, little silt sized grains
				20		
						Light brown-orange very fine grain sandstone, little silt sized grains
				25		
						Light brown-orange very fine grain sandstone, little silt sized grains
				30		
						Light brown-orange very fine grain sandstone, little silt sized grains
				35		
						Light brown-orange very fine grain sandstone, little silt sized grains
				40		
						Light brown-orange very fine grain sandstone, little silt sized grains
				45		
						Light brown-orange very fine grain sandstone, little silt sized grains
				50		
						Light brown-orange very fine grain sandstone, little silt sized grains
				55		
						Medium-dark gray very fine sandstone, little silt sized grains
				60		
						Medium-dark gray very fine sandstone, little silt sized grains
				65		
						Medium-dark gray very fine sandstone, little silt sized grains
				70		
						Medium-dark gray very fine sandstone, little silt sized grains
				75		
						Medium-dark gray very fine sandstone, little silt sized grains
				80		
				85		
				90		
				95		
				100		

Monitoring Well Construction Information

Monitoring Well Diameter:	2	in		
Bottom of Monitoring Well:	81	ft bgs		
Stick Up or Flush Mount:	Flush			
Screen Interval:	71	To	81	ft bgs
Riser Interval:	0.5	To	71	ft bgs
Sand Pack Interval:	68	To	82	ft bgs
Bentonite Seal:	63	To	68	ft bgs
Grout Interval:	1	To	63	ft bgs

Additional Information

Logged by: M. Wright Date: 7/15/20
Drilling Contractor: Boland Drilling Driller: Trevor

EA Engineering, P.C.
EA Science and Technology

LOG OF SOIL BORING FOR WELL INSTALLATION

Coordinates: Northing _____ Easting: _____
Surface Elevation:
Casing Below Surface:
Reference Elevation:
Reference Description:

Job. No.	**Client:**	Air National Guard	**Location:**
6280606	**Project:**	Montana ANG	Great Falls MT
Drilling Method: Air Rotary			**Well ID:** MW-6
Sampling Method: NONE			**Sheet 1 of 1**

					Drilling	
Water Level:					**Start**	**Finish**
Time:					DATE: 7/15/20	DATE: 7/15/20
Date:					TIME: 1300	TIME: 1440

Surface Conditions: Grassy
Weather: Sunny
Temperature: 70 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	
						Light brown-orange very fine grain sandstone, little silt sized grains
				5		
						Light brown-orange very fine grain sandstone, little silt sized grains
				10		
						Light brown-orange very fine grain sandstone, little silt sized grains
				15		
						Light brown-orange very fine grain sandstone, little silt sized grains
				20		
						Light brown-orange very fine grain sandstone, little silt sized grains
				25		
						Light brown-orange very fine grain sandstone, little silt sized grains
				30		
						Light brown-orange very fine grain sandstone, little silt sized grains
				35		
						Light brown-orange very fine grain sandstone, little silt sized grains
				40		
						Light brown-orange very fine grain sandstone, little silt sized grains
				45		
						Light brown-orange very fine grain sandstone, little silt sized grains
				50		
						Light brown-orange very fine grain sandstone, little silt sized grains
				55		
						Medium-dark gray very fine sandstone, little silt sized grains
				60		
				65		
				70		
				75		
				80		
				85		
				90		
				95		
				100		

Monitoring Well Construction Information

Monitoring Well Diameter:	2	in		
Bottom of Monitoring Well:	60	ft bgs		
Stick Up or Flush Mount:	Flush			
Screen Interval:	40	To	60	ft bgs
Riser Interval:	0.5	To	40	ft bgs
Sand Pack Interval:	38	To	62	ft bgs
Bentonite Seal:	33	To	38	ft bgs
Grout Interval:	1	To	33	ft bgs

Additional Information

Logged by: M. Wright Date: 7/15/20
Drilling Contractor: Boland Drilling Driller: Trevor

EA Engineering, P.C.
EA Science and Technology

LOG OF SOIL BORING FOR WELL INSTALLATION

Coordinates: Northing _____ Easting: _____
Surface Elevation:
Casing Below Surface:
Reference Elevation:
Reference Description:

Job. No.	**Client:**	Air National Guard	**Location:**
6280606	**Project:**	Montana ANG	Great Falls MT
Drilling Method: Air Rotary			**Well ID:** MW-7
Sampling Method: NONE			**Sheet 1 of 1**

					Drilling	
Water Level:					**Start**	**Finish**
Time:					DATE: 7/15/20	DATE: 7/15/20
Date:					TIME: 1450	TIME: 1640

Surface Conditions: Grassy
Weather: Sunny
Temperature: 70 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	
						Light brown-orange very fine grain sandstone, little silt sized grains
				5		
						Light brown-orange very fine grain sandstone, little silt sized grains
				10		
						Light brown-orange very fine grain sandstone, little silt sized grains
				15		
						Light- medium gray very fine grain sandstone, little silt sized grains
				20		
						Light brown-orange very fine grain sandstone, little silt sized grains
				25		
						Light brown-orange very fine grain sandstone, little silt sized grains
				30		
						Light brown-orange very fine grain sandstone, little silt sized grains
				35		
						Light brown-orange very fine grain sandstone, little silt sized grains
				40		
						Light brown-orange very fine grain sandstone, little silt sized grains
				45		
						Light brown-orange very fine grain sandstone, little silt sized grains
				50		
						Dark brown very fine grain sandstone, little silt sized grains
				55		
						Dark brown very fine grain sandstone, little silt sized grains
				60		
						Dark gray very fine grain sandstone, little silt sized grains
				65		
						Dark gray very fine grain sandstone, little silt sized grains
				70		
						Dark gray very fine grain sandstone, little silt sized grains
				75		
						Dark gray very fine grain sandstone, little silt sized grains with black shale
				80		
						Dark gray very fine grain sandstone, little silt sized grains with black shale
				85		
						Black shale with some dark gray sandstone, little silt sized grains
				90		
						Black shale with some dark gray sandstone, little silt sized grains
				95		
						Black shale
				100		

Monitoring Well Construction Information

Monitoring Well Diameter:	2	in		
Bottom of Monitoring Well:	101	ft bgs		
Stick Up or Flush Mount:	Flush			
Screen Interval:	81	To	101	ft bgs
Riser Interval:	0.5	To	81	ft bgs
Sand Pack Interval:	78	To	102	ft bgs
Bentonite Seal:	73	To	78	ft bgs
Grout Interval:	1	To	73	ft bgs

Additional Information

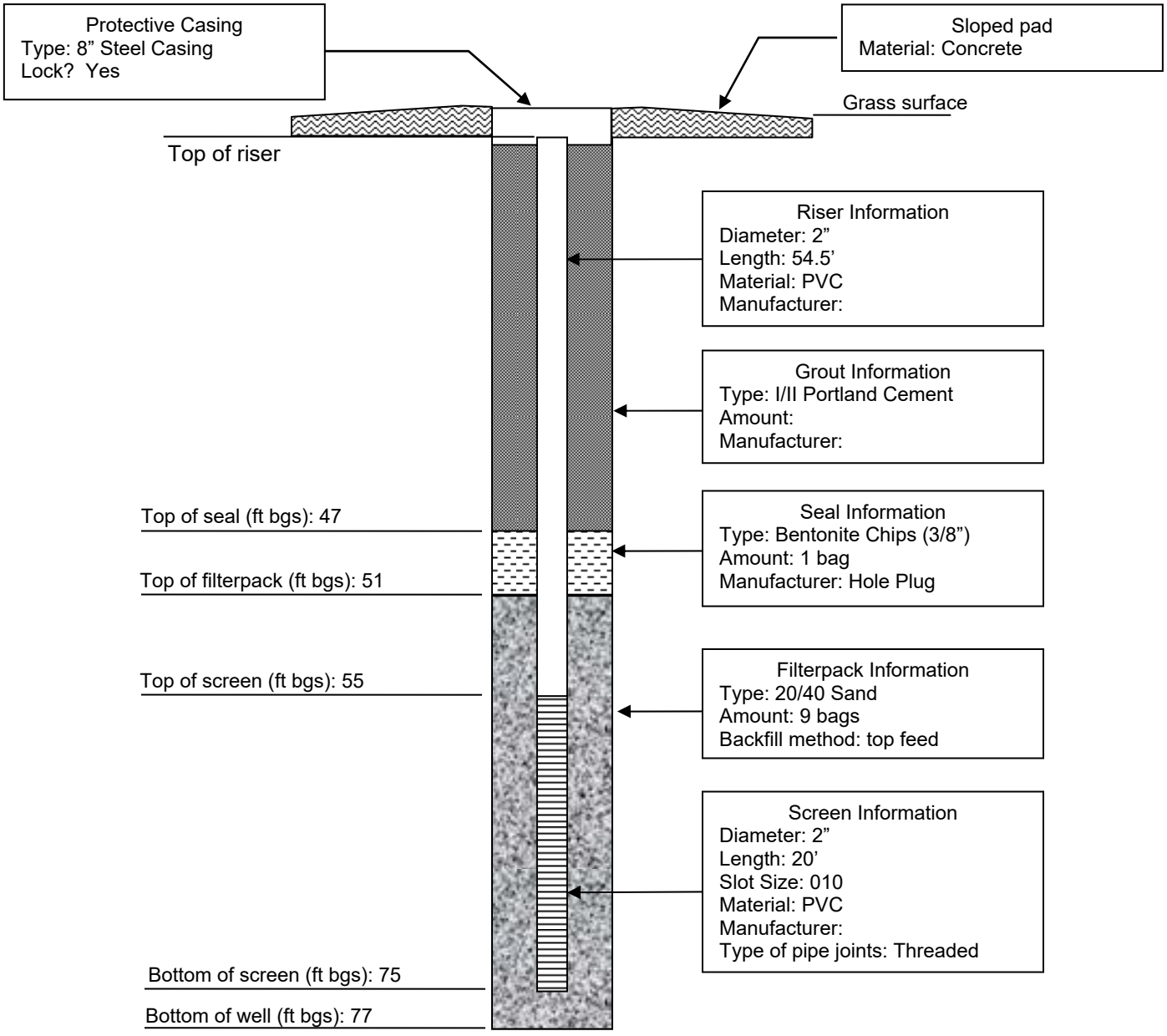
Logged by: M. Wright Date: 7/15/20
Drilling Contractor: Boland Drilling Driller: Trevor

APPENDIX B

Well Completion Diagrams

RECORD OF MONITORING WELL CONSTRUCTION
(FLUSH MOUNT)

EA Engineering, Science, and Technology, Inc.	Monitoring Well/Soil Boring ID No.: **MW-1**
Project Title/ Project No.: Montana Air National Guard / 6280606	Date/Time Installed: 7/14/20 / 0740 Time Finished: 0947
Location: Great Falls, MT	Depth to Water: 45.25 ft bgs
Site Geologist: Mike Wright	Drilling Method: Air Rotary

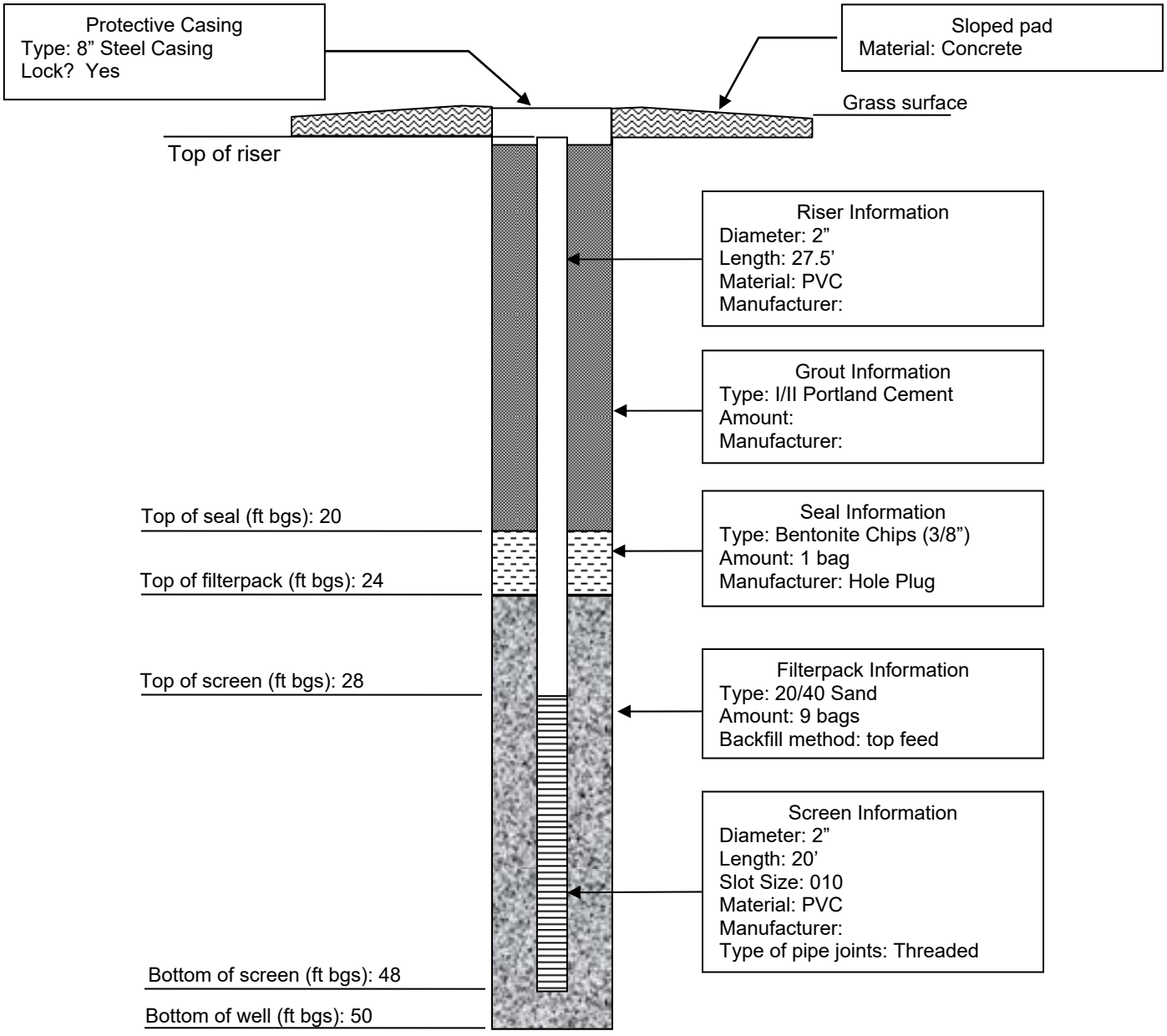


Note: All features not to scale

ags – Above Ground Surface
bgs – Below Ground Surface

RECORD OF MONITORING WELL CONSTRUCTION
(FLUSH MOUNT)

EA Engineering, Science, and Technology, Inc.	Monitoring Well/Soil Boring ID No.: **MW-2**
Project Title/ Project No.: Montana Air National Guard / 6280606	Date/Time Installed: 7/13/20 / 1130 Time Finished: 1330
Location: Great Falls, MT	Depth to Water: 40.10 ft bgs
Site Geologist: Mike Wright	Drilling Method: Air Rotary

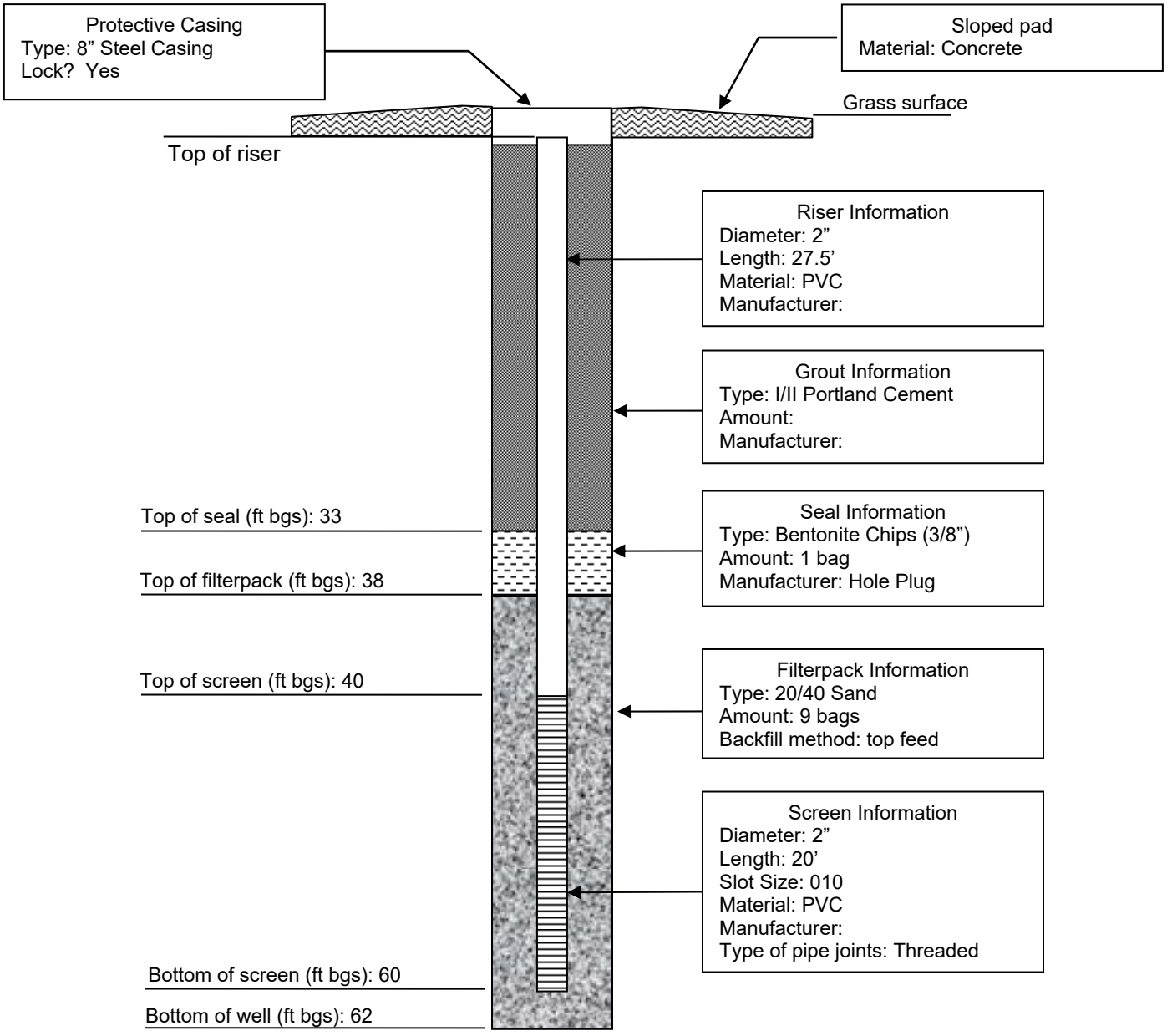


Note: All features not to scale

ags – Above Ground Surface
bgs – Below Ground Surface

RECORD OF MONITORING WELL CONSTRUCTION
(FLUSH MOUNT)

EA Engineering, Science, and Technology, Inc.	Monitoring Well/Soil Boring ID No.: **MW-3**
Project Title/ Project No.: Montana Air National Guard / 6280606	Date/Time Installed: 7/14/20 / 1120 Time Finished: 1334
Location: Great Falls, MT	Depth to Water: 32.25 ft bgs
Site Geologist: Mike Wright	Drilling Method: Air Rotary

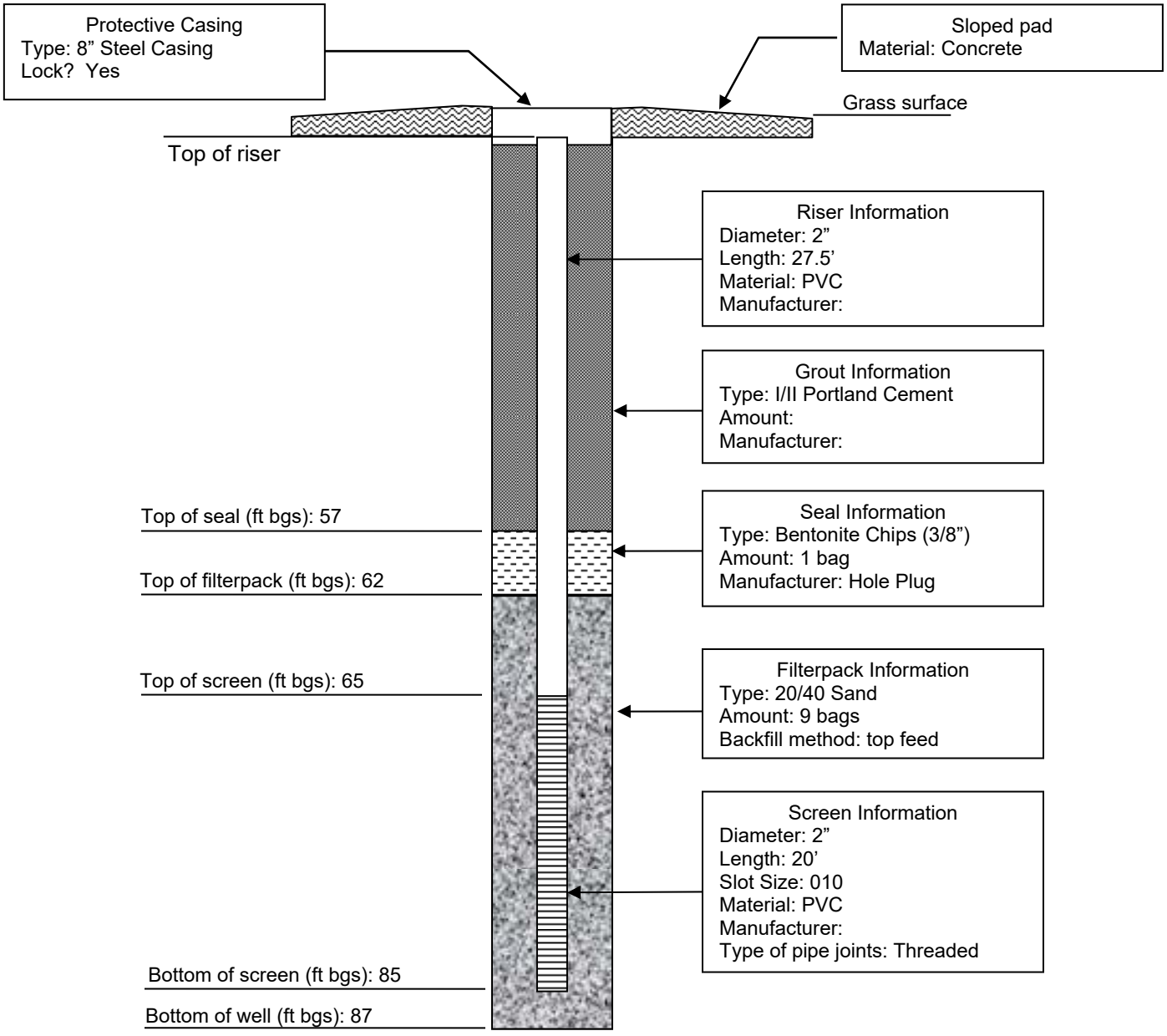


Note: All features not to scale

ags – Above Ground Surface
bgs – Below Ground Surface

RECORD OF MONITORING WELL CONSTRUCTION
(FLUSH MOUNT)

EA Engineering, Science, and Technology, Inc.	Monitoring Well/Soil Boring ID No.: **MW-4**
Project Title/ Project No.: Montana Air National Guard / 6280606	Date/Time Installed: 7/15/20 / 0730 Time Finished: 0940
Location: Great Falls, MT	Depth to Water: 36.15 ft bgs
Site Geologist: Mike Wright	Drilling Method: Air Rotary

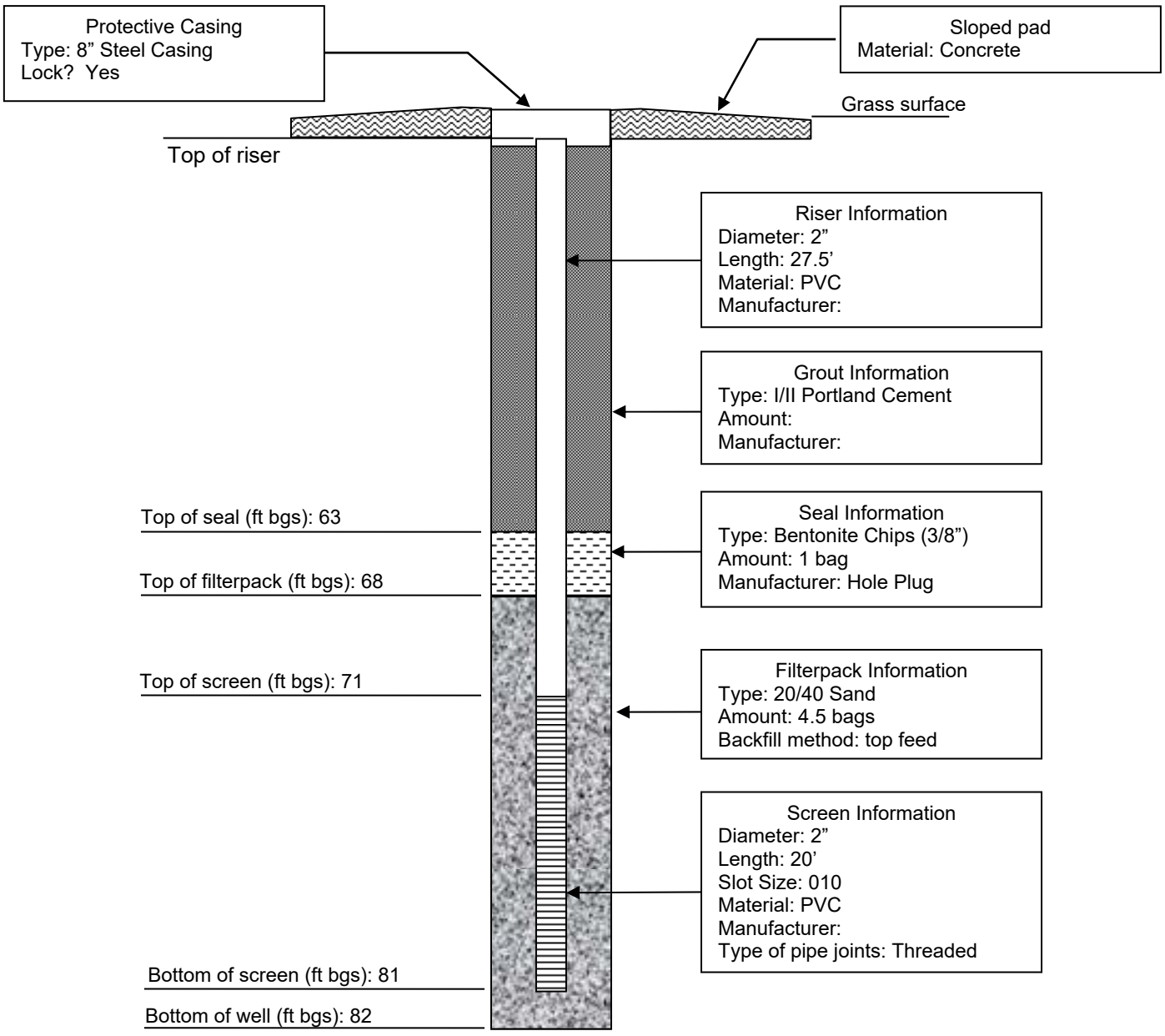


Note: All features not to scale

ags – Above Ground Surface
bgs – Below Ground Surface

RECORD OF MONITORING WELL CONSTRUCTION
(FLUSH MOUNT)

EA Engineering, Science, and Technology, Inc.	Monitoring Well/Soil Boring ID No.: **MW-5**
Project Title/ Project No.: Montana Air National Guard / 6280606	Date/Time Installed: 7/15/20 / 1010 Time Finished: 1230
Location: Great Falls, MT	Depth to Water: 24.25 ft bgs
Site Geologist: Mike Wright	Drilling Method: Air Rotary

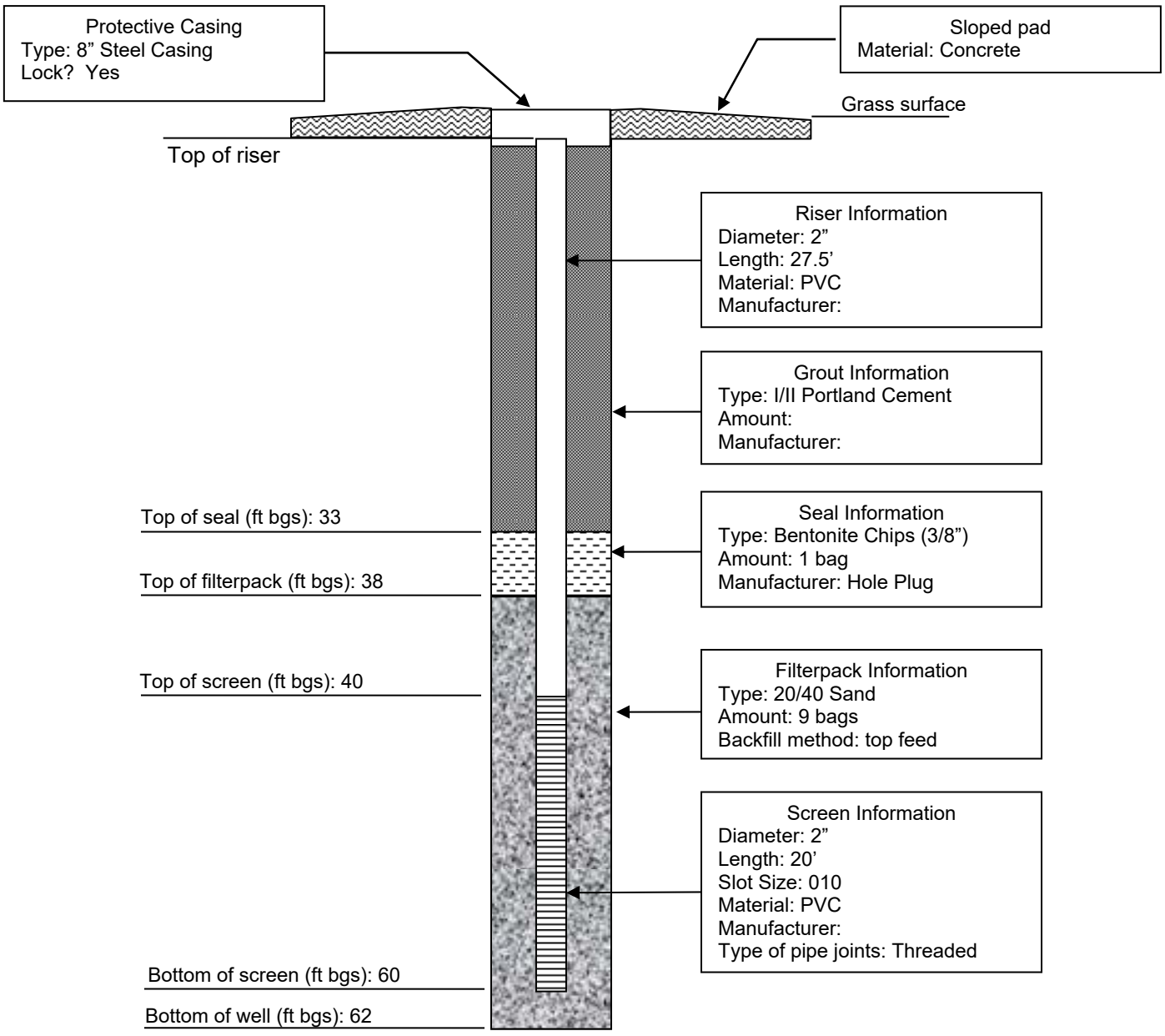


Note: All features not to scale

ags – Above Ground Surface
bgs – Below Ground Surface

RECORD OF MONITORING WELL CONSTRUCTION
(FLUSH MOUNT)

EA Engineering, Science, and Technology, Inc.	Monitoring Well/Soil Boring ID No.: **MW-6**
Project Title/ Project No.: Montana Air National Guard / 6280606	Date/Time Installed: 7/15/20 / 1300 Time Finished: 1450
Location: Great Falls, MT	Depth to Water: 31.21 ft bgs
Site Geologist: Mike Wright	Drilling Method: Air Rotary

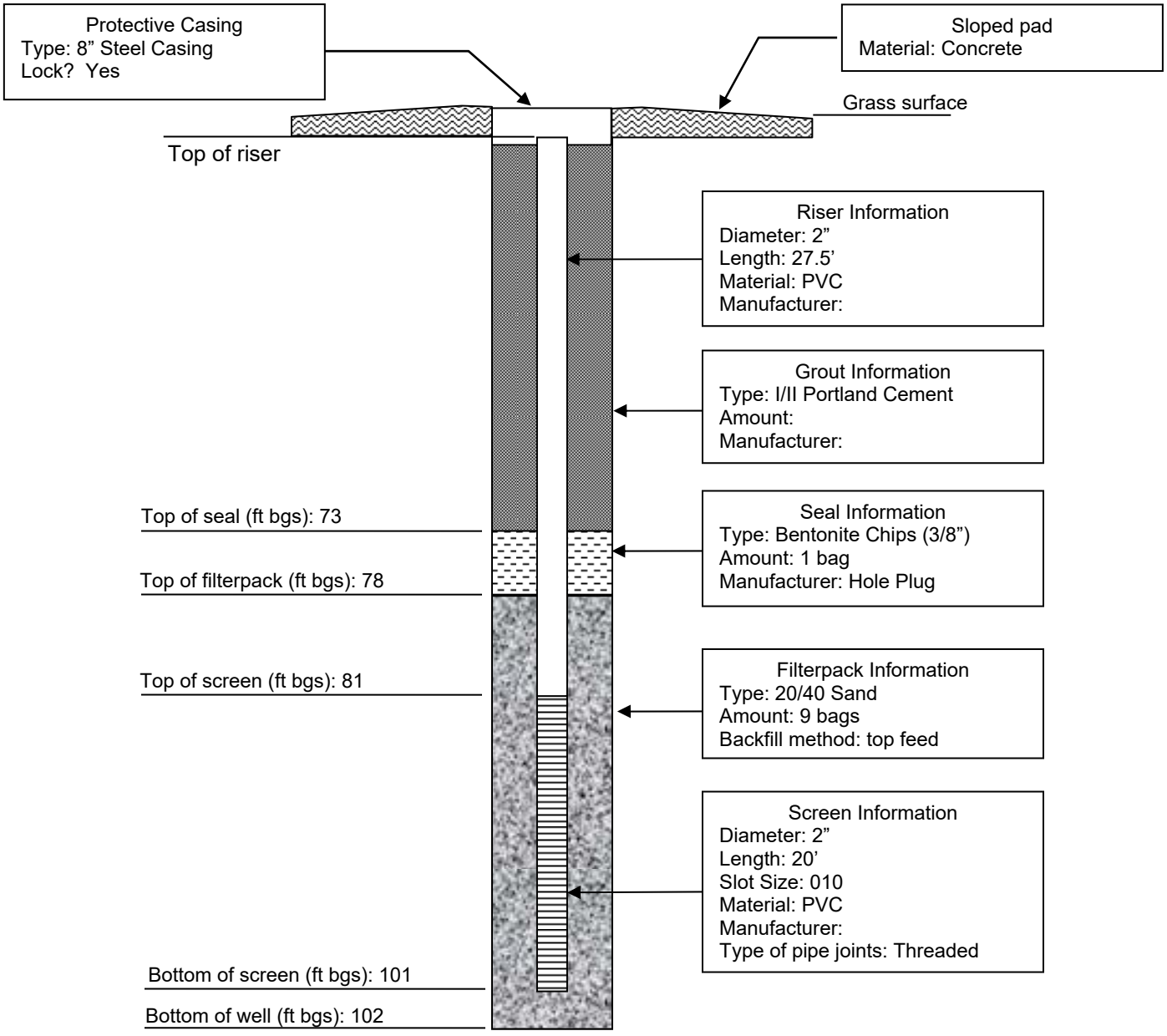


Note: All features not to scale

ags – Above Ground Surface
bgs – Below Ground Surface

RECORD OF MONITORING WELL CONSTRUCTION
(FLUSH MOUNT)

EA Engineering, Science, and Technology, Inc.	Monitoring Well/Soil Boring ID No.: **MW-7**
Project Title/ Project No.: Montana Air National Guard / 6280606	Date/Time Installed: 7/15/20 / 1450 Time Finished: 1640
Location: Great Falls, MT	Depth to Water: 40.25 ft bgs
Site Geologist: Mike Wright	Drilling Method: Air Rotary



Note: All features not to scale

ags – Above Ground Surface
bgs – Below Ground Surface

APPENDIX C

Well Development Logs

MTANG-Great Falls
MW Installation
Project # 6280606
Well Development
Data Sheet
Site Location: MW-1

Date: 7/17/2020
EA: M. Wright

Contractors: Boland Drilling

TIME	pH +/- 0.1 units	Conductivity (S/m) +/- 10%	Turbidity (ntu) +/- 10%	Temperature (°C) +/- 1 degree	Redox Potential (mV) +/- 10 mV
0825	9.44	0.810	562	10.85	53.8
0830	8.68	0.804	99.5	9.99	53.9
0835	8.46	0.805	78.7	10.15	56.9
0840	8.25	0.808	8.9	10.83	62.4
0845	8.27	0.808	9.8	9.69	66.3
0850	8.26	0.806	9.0	9.31	68.0
0855	8.26	0.805	4.2	9.18	68.7

MTANG-Great Falls
MW Installation
Project # 6280606
Well Development
Data Sheet
Site Location: MW-2

Date: 7/17/2020
EA: M. Wright

Contractors: Boland Drilling

TIME	pH +/- 0.1 units	Conductivity (S/m) +/- 10%	Turbidity (ntu) +/- 10%	Temperature (°C) +/- 1 degree	Redox Potential (mV) +/- 10 mV
0925	8.22	0.624	1382	10.97	79.0
0935	8.13	0.641	1391	10.99	77.0
0940	8.11	0.640	1421	12.77	76.9
0945	8.06	0.632	1415	13.79	80.2
0950	8.02	0.635	1416	13.96	78.3
0955	8.04	0.636	137.9	15.28	78.1
1000	8.06	0.641	83.1	15.28	88.1
1005	8.02	0.647	450.0	16.77	77.6
1010	7.64	0.647	587.0	16.10	77.7
1015	7.66	0.647	431.0	16.10	78.8
1020	7.65	0.647	377.0	15.92	79.2
1025	7.66	0.648	363.0	15.95	79.6

MTANG-Great Falls
MW Installation
Project # 6280606
Well Development
Data Sheet
Site Location: MW-3

Date: 7/17/2020
EA: M. Wright

Contractors: Boland Drilling

TIME	pH +/- 0.1 units	Conductivity (S/m) +/- 10%	Turbidity (ntu) +/- 10%	Temperature (°C) +/- 1 degree	Redox Potential (mV) +/- 10 mV
1115	7.91	1.756	1391	11.83	96.8
1120	7.57	1.799	296	10.27	94.7
1125	7.43	1.821	60.9	10.15	92.3
1130	7.40	1.872	38.6	9.45	92.9
1135	7.13	1.816	30.2	9.66	96.9
1140	7.18	1.820	19.5	9.40	88.9
1145	7.18	1.820	20.6	9.59	87.4
1150	7.18	1.819	16.1	9.64	87.6
1155	7.21	1.822	13.2	9.55	86.4
1200	7.23	1.820	14.6	9.84	85.6
1205	7.26	1.823	17.6	9.33	89.0
1210	7.27	1.817	11.6	9.29	88.4
1215	7.26	1.817	13.0	9.21	88.3

MTANG-Great Falls
MW Installation
Project # 6280606
Well Development
Data Sheet
Site Location: MW-4

Date: 7/17/2020
EA: M. Wright

Contractors: Boland Drilling

TIME	pH +/- 0.1 units	Conductivity (S/m) +/- 10%	Turbidity (ntu) +/- 10%	Temperature (°C) +/- 1 degree	Redox Potential (mV) +/- 10 mV
1235	7.52	1.608	1389	11.61	101.5
1240	7.37	1.595	269	11.84	95.9
1245	7.32	1.613	123	11.89	92.4
1250	7.45	1.650	1368	10.89	92.2
1255	7.36	1.639	1247	10.90	91.9
1300	7.34	1.666	1202	11.15	90.2
1305	7.36	1.633	1265	11.46	88.3
1310	7.41	1.680	1142	10.79	88.7
1315	7.42	1.670	1314	10.49	88.2
1320	7.41	1.686	936	10.56	88.3
1325	7.37	1.698	95.6	10.90	88.1
1330	7.38	1.702	22.6	10.79	88.3
1335	7.38	1.701	12.6	10.50	88.3

MTANG-Great Falls
MW Installation
Project # 6280606
Well Development
Data Sheet
Site Location: MW-5

Date: 7/17/2020
EA: M. Wright

Contractors: Boland Drilling

TIME	pH +/- 0.1 units	Conductivity (S/m) +/- 10%	Turbidity (ntu) +/- 10%	Temperature (°C) +/- 1 degree	Redox Potential (mV) +/- 10 mV
1410	8.07	1.201	1380	10.74	89.5
1415	7.17	1.175	161	12.17	87.7
1420	7.49	1.537	495	12.12	95.0
1425	7.84	1.240	1389	11.63	87.3
1430	7.83	1.285	776	11.00	88.8
1435	7.64	1.757	209	11.16	95.8
1440	7.53	1.894	101	11.01	95.7
1445	7.51	1.921	49.6	11.13	94.7
1450	7.51	1.913	48.8	11.07	93.7
1455	7.53	1.926	46.1	11.01	93.9

MTANG-Great Falls
MW Installation
Project # 6280606
Well Development
Data Sheet
Site Location: MW-6

Date: 7/17/2020
EA: M. Wright

Contractors: Boland Drilling

TIME	pH +/- 0.1 units	Conductivity (S/m) +/- 10%	Turbidity (ntu) +/- 10%	Temperature (°C) +/- 1 degree	Redox Potential (mV) +/- 10 mV
1525	7.86	1.269	53.6	10.70	89.5
1530	7.62	1.240	14.4	10.64	86.7
1535	7.51	1.241	2.4	10.64	87.7
1540	7.44	1.241	2.9	10.53	87.6
1545	7.44	1.245	0.3	10.60	87.6
1550	7.43	1.244	0.5	10.55	86.9
1555	7.44	1.242	0.2	10.49	86.1

MTANG-Great Falls
MW Installation Date: 7/17/2020 Page 1 of 1
Project # 6280606 EA: M. Wright
Well Development
Data Sheet Contractors: Boland Drilling
Site Location: MW-7

TIME	pH +/- 0.1 units	Conductivity (S/m) +/- 10%	Turbidity (ntu) +/- 10%	Temperature (°C) +/- 1 degree	Redox Potential (mV) +/- 10 mV
1605	8.15	1.845	1090	12.13	107.2
1610	8.21	1.890	1183	10.98	106.6
1615	8.23	1.782	1900	12.08	101.6
1620	8.29	1.909	2601	12.59	100.7
1625	8.42	1.954	2198	11.63	99.5
1630	8.46	1.945	1967	14.22	96.3
1635	8.49	2.139	1872	14.13	97.7

NOTES: Well purged dry at 1635

Appendix B

Purge Logs—20 July 2020 Sampling Event

This page intentionally left blank

EA Engineering, Science, and Technology, Inc., PBC

WELL PURGING AND SAMPLING RECORD

WELL ID MW-1

WELL/SITE DESCRIPTION Airfield

WEATHER/ TEMP , 80°F, sunny

DATE 7 / 20 / 2020 TIME 0755 FIELD TECHNICIAN MW

SAMPLING DATE 7 / 20 / 2020 SAMPLE TIME 0825

SAMPLE IDENTIFICATION MW-1

WELL DEPTH 75 ft SCREEN HEIGHT 55-75 ft

WATER DEPTH ~10.2 ft WELL DIAMETER 2 in

WATER COL. HEIGHT ft SANDPACK DIAM. in

EQUIVALENT VOLUME OF STANDING WATER (gal) (L)

PUMP RATE 0.3 (LPM)

PUMP TIME min

WELL WENT DRY? ( ) Yes (X) No PUMP TIME min

VOL. REMOVED 9 (L) RECOVERY TIME min

PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED (gal) (L)

Date	Time	Volume Removed Unit:	pH --	Cond. ms/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate LPM
7/20/20	0755	0	9.47	0.809	9.25	26.9	686	8.06	47.45	0.3
7/20/20	0800	1.5	9.07	0.806	9.61	28.4	591	7.69	45.50	-
7/20/20	0805	3.0	8.61	0.806	9.80	31.1	316	7.54	45.38	-
7/20/20	0810	4.5	8.54	0.805	10.21	34.2	180	7.43	45.48	-
7/20/20	0815	6.0	8.49	0.804	10.50	38.1	45.21	7.49	45.55	-
7/20/20	0820	7.5	8.48	0.802	9.94	41.7	47.44	7.51	45.70	-
7/20/20	0825	9.0	8.48	0.803	10.25	43.6	49.01	7.52	45.74	-

COMMENTS sample collected @ 0825

SIGNATURE Mike Wright

EA Engineering, Science, and Technology, Inc., PBC

WELL PURGING AND SAMPLING RECORD

WELL ID MW-2

WELL/SITE DESCRIPTION Airfield

WEATHER/ TEMP , 80°F, sunny

DATE 7 / 20 / 2020 TIME 0925 FIELD TECHNICIAN MW

SAMPLING DATE 7 / 20 / 2020 SAMPLE TIME 0955

SAMPLE IDENTIFICATION MW-2

WELL DEPTH 48 ft SCREEN HEIGHT 28-48 ft

WATER DEPTH ft WELL DIAMETER 2 in

WATER COL. HEIGHT ft SANDPACK DIAM. in

EQUIVALENT VOLUME OF STANDING WATER (gal) (L)

PUMP RATE 0.3 (LPM)

PUMP TIME min

WELL WENT DRY? ( ) Yes (X) No PUMP TIME min

VOL. REMOVED 9 (L) RECOVERY TIME min

PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED (gal) (L)

Date	Time	Volume Removed Unit:	pH --	Cond. ms/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate LPM
7/20/20	0925	0	8.66	0.615	10.02	66.9	1370	9,88	41.04	0.3
7/20/20	0930	1.5	8.48	0.610	9.58	64.5	219	10.05	41.78	-
7/20/20	0935	3.0	8.41	0.614	10.20	62.2	233	9.98	41.78	-
7/20/20	0940	4.5	8.31	0.624	10.64	61.3	67.5	9.96	41.80	-
7/20/20	0945	6.0	8.30	0.629	11.04	61.1	40.6	9.82	41.45	-
7/20/20	0950	7.5	8.30	0.631	11.21	61.1	41.7	9.80	41.80	-
7/20/20	0955	9.0	8.29	0.634	11.44	61.0	38.4	9.76	41.78	-

COMMENTS sample collected @ 0955

SIGNATURE Mike Wright

EA Engineering, Science, and Technology, Inc., PBC

WELL PURGING AND SAMPLING RECORD

WELL ID MW-3

WELL/SITE DESCRIPTION Airfield

WEATHER/ TEMP , 80°F, sunny

DATE 7 / 20 / 2020 TIME 1020 FIELD TECHNICIAN MW

SAMPLING DATE 7 / 20 / 2020 SAMPLE TIME 1050

SAMPLE IDENTIFICATION MW-3

WELL DEPTH 60 ft SCREEN HEIGHT 40-60 ft

WATER DEPTH ft WELL DIAMETER 2 in

WATER COL. HEIGHT ft SANDPACK DIAM. in

EQUIVALENT VOLUME OF STANDING WATER (gal) (L)

PUMP RATE 0.2 (LPM)

PUMP TIME min

WELL WENT DRY? ( ) Yes (X) No PUMP TIME min

VOL. REMOVED 6 (L) RECOVERY TIME min

PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED (gal) (L)

Date	Time	Volume Removed Unit:	pH --	Cond. ms/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate LPM
7/20/20	1020	0	8.20	1.619	10.66	81.3	1378	4.10	32.33	0.2
7/20/20	1025	1	7.73	1.806	9.85	79.1	433	0.61	32.43	-
7/20/20	1030	2	7.69	1.811	9.77	73.9	249	0.35	32.42	-
7/20/20	1035	3	7.69	1.813	9.56	70.0	78.6	0.21	32.36	-
7/20/20	1040	4	7.42	1.815	9.98	67.0	36.8	0.22	32.38	-
7/20/20	1045	5	7.41	1.810	10.33	64.4	33.9	0.21	32.42	-
7/20/20	1050	6	7.41	1.809	10.61	62.0	34.7	0.20	32.41	-

COMMENTS sample collected @ 1050 DUP

SIGNATURE Mike Wright

EA Engineering, Science, and Technology, Inc., PBC

WELL PURGING AND SAMPLING RECORD

WELL ID MW-4
WELL/SITE DESCRIPTION Airfield
WEATHER/ TEMP , 80°F, sunny

DATE 7 / 20 / 2020 TIME 1115 FIELD TECHNICIAN MW
SAMPLING DATE 7 / 20 / 2020 SAMPLE TIME 1210
SAMPLE IDENTIFICATION MW-4

WELL DEPTH 85 ft SCREEN HEIGHT 65-85 ft
WATER DEPTH ft WELL DIAMETER 2 in
WATER COL. HEIGHT ft SANDPACK DIAM. in
EQUIVALENT VOLUME OF STANDING WATER (gal) (L)
PUMP RATE 0.2 (LPM)
PUMP TIME min
WELL WENT DRY? ( ) Yes (X) No PUMP TIME min
VOL. REMOVED 12 (L) RECOVERY TIME min
PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED (gal) (L)

Date	Time	Volume Removed Unit:	pH --	Cond. ms/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate LPM
7/20/20	1115	0	7.91	1.703	12.77	78.6	61.9	3.66	29.18	0.2
7/20/20	1120	1	7.45	1.693	10.53	72.8	564	2.61	30.12	-
7/20/20	1125	2	7.38	1.688	10.26	70.7	242	2.44	30.35	-
7/20/20	1130	3	7.37	1.688	11.12	68.1	203	2.37	30.26	-
7/20/20	1135	4	7.36	1.688	11.21	66.9	146	2.31	30.34	-
7/20/20	1140	5	7.34	1.687	10.83	65.9	98.1	1.75	30.66	-
7/20/20	1145	6	7.33	1.686	10.99	62.6	49.1	1.08	31.59	-
7/20/20	1150	7	7.32	1.685	10.81	59.3	28.6	0.73	30.66	-
7/20/20	1155	8	7.32	1.685	10.78	57.6	25.3	0.51	30.89	-
7/20/20	1200	9	7.31	1.684	10.62	55.1	23.8	0.31	30.84	-
7/20/20	1205	10	7.31	1.684	10.71	53.3	22.9	0.30	30.98	-
7/20/20	1210	11	7.30	1.683	10.71	51.8	23.4	0.29	31.12	-

COMMENTS sample collected @ 1210 MS/MSD

SIGNATURE Mike Wright

EA Engineering, Science, and Technology, Inc., PBC

WELL PURGING AND SAMPLING RECORD

WELL ID MW-5
WELL/SITE DESCRIPTION Airfield
WEATHER/ TEMP , 80°F, sunny

DATE 7 / 20 / 2020 TIME 1300 FIELD TECHNICIAN MW
SAMPLING DATE 7 / 20 / 2020 SAMPLE TIME 1400
SAMPLE IDENTIFICATION MW-5

WELL DEPTH 81 ft SCREEN HEIGHT 71-81 ft
WATER DEPTH ft WELL DIAMETER 2 in
WATER COL. HEIGHT ft SANDPACK DIAM. in
EQUIVALENT VOLUME OF STANDING WATER (gal) (L)
PUMP RATE 0.2 (LPM)
PUMP TIME min
WELL WENT DRY? ( ) Yes (X) No PUMP TIME min
VOL. REMOVED 11 (L) RECOVERY TIME min
PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED (gal) (L)

Date	Time	Volume Removed Unit:	pH --	Cond. ms/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate LPM
7/20/20	1305	0	8.00	1.943	12.43	77.6	45.7	1.86	20.71	0.2
7/20/20	1310	1	7.40	1.931	11.45	74.0	529	2.96	20.84	-
7/20/20	1315	2	7.34	1.930	10.97	71.9	567	3.02	20.81	-
7/20/20	1320	3	7.29	1.930	11.27	70.3	361	2.66	20.83	-
7/20/20	1325	4	7.29	1.929	10.97	68.7	190	1.90	20.84	-
7/20/20	1330	5	7.27	1.926	11.01	67.3	150	1.25	20.82	-
7/20/20	1335	6	7.26	1.926	11.08	65.6	44.4	0.71	20.80	-
7/20/20	1340	7	7.25	1.925	11.08	64.4	35.3	0.41	20.75	-
7/20/20	1345	8	7.23	1.924	10.88	63.1	22.9	0.19	20.80	-
7/20/20	1350	9	7.22	1.926	10.14	61.9	15.9	0.02	21.01	-
7/20/20	1355	10	7.21	1.924	9.99	61.0	16.3	0.01	21.20	-
7/20/20	1400	11	7.21	1.925	10.03	59.2	15.3	0.00	21.69	-

COMMENTS sample collected @ 1400

SIGNATURE Mike Wright

EA Engineering, Science, and Technology, Inc., PBC

WELL PURGING AND SAMPLING RECORD

WELL ID MW-6

WELL/SITE DESCRIPTION Airfield

WEATHER/ TEMP , 80°F, sunny

DATE 7 / 20 / 2020 TIME 1420 FIELD TECHNICIAN MW

SAMPLING DATE 7 / 20 / 2020 SAMPLE TIME 1450

SAMPLE IDENTIFICATION MW-6

WELL DEPTH 60 ft SCREEN HEIGHT 40-60 ft

WATER DEPTH ft WELL DIAMETER 2 in

WATER COL. HEIGHT ft SANDPACK DIAM. in

EQUIVALENT VOLUME OF STANDING WATER (gal) (L)

PUMP RATE 0.2 (LPM)

PUMP TIME min

WELL WENT DRY? ( ) Yes (X) No PUMP TIME min

VOL. REMOVED 6 (L) RECOVERY TIME min

PURGE AGAIN? ( )Yes ( ) No TOTAL VOL. REMOVED (gal) (L)

Date	Time	Volume Removed Unit:	pH --	Cond. ms/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate LPM
7/20/20	1420	0	8.14	1.267	14.14	61.9	13.5	6.57	26.04	0.2
7/20/20	1425	1	7.76	1.247	11.93	62.4	5.8	5.82	26.12	-
7/20/20	1430	2	7.55	1.248	11.93	63.2	0.6	5.79	26.12	-
7/20/20	1435	3	7.36	1.246	11.61	64.5	0.3	5.74	26.14	-
7/20/20	1440	4	7.35	1.245	11.73	65.4	0.1	5.72	26.14	-
7/20/20	1445	5	7.34	1.245	11.51	66.2	0.1	5.72	26.13	-
7/20/20	1450	6	7.34	1.246	11.56	66.9	0.0	5.70	26.12	-

COMMENTS sample collected @ 1450

SIGNATURE Mike Wright

EA Engineering, Science, and Technology, Inc., PBC

WELL PURGING AND SAMPLING RECORD

WELL ID MW-7

WELL/SITE DESCRIPTION Airfield

WEATHER/ TEMP , 80°F, sunny

DATE 7 / 20 / 2020 TIME 1515 FIELD TECHNICIAN MW

SAMPLING DATE 7 / 20 / 2020 SAMPLE TIME 1600

SAMPLE IDENTIFICATION MW-7

WELL DEPTH 101 ft SCREEN HEIGHT 81-101 ft

WATER DEPTH ft WELL DIAMETER 2 in

WATER COL. HEIGHT ft SANDPACK DIAM. in

EQUIVALENT VOLUME OF STANDING WATER (gal) (L)

PUMP RATE 0.2 (LPM)

PUMP TIME 25 min

WELL WENT DRY? (X) Yes ( ) No PUMP TIME 5 min

VOL. REMOVED 5 (L) RECOVERY TIME 15 min

PURGE AGAIN? (X)Yes ( ) No TOTAL VOL. REMOVED 6 (L)

Date	Time	Volume Removed Unit:	pH --	Cond. ms/cm	Temp. °C	ORP mV	Turb. NTU	DO mg/L	Depth to Water from TOC	Pump Rate LPM
7/20/20	1520	0	8.40	2.084	18.24	91.5	1332	7.69	94.90	0.2
7/20/20	1525	1	8.72	2.070	15.40	91.7	1260	7.70	95.56	-
7/20/20	1530	2	8.38	1.993	12.27	88.5	1184	7.83	96.92	-
7/20/20	1535	3	8.31	2.011	14.03	84.8	1390	7.31	97.73	-
7/20/20	1540	4	8.37	2.034	15.82	82.1	1178	7.00	98.20	-
7/20/20	1545	5	8.35	2.074	13.24	81.2	1097	6.85	98.89	-

COMMENTS went dry @ 1545 allowed to recover until enough volume in well to collect sample (15 min) sample collected @ 1600

SIGNATURE Mike Wright

Appendix C

Soil Boring Logs

This page intentionally left blank

EA Engineering, P.C.
EA Science and Technology

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____
Surface Elevation: _____
Casing Below Surface: _____
Reference Elevation: _____
Reference Description: _____

Job. No.	Client:	Air National Guard	Location:
6280606	Project:	Montana ANG	Great Falls MT

Drilling Method: Hand Auger | **Well ID:** SB-1

Sampling Method: Composite | **Sheet 1 of 1**

Water Level:					Drilling Start	Drilling Finish
Time:					DATE: 7/21/20	DATE: 7/21/20
Date:					TIME:	TIME:

Surface Conditions: Grassy
Weather: Sunny
Temperature: 80 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				0.5		
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				1		
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				1.45		

Sample Information	Additional Information
SB-1-0-0.5 SB-1-1-1.45	Auger refusal at 1.45 ft bgs

Logged by: M. Wright Date: 7/21/20
Drilling Contractor: N/A Driller: N/A

EA Engineering, P.C.
EA Science and Technology

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____
Surface Elevation: _____
Casing Below Surface: _____
Reference Elevation: _____
Reference Description: _____

Job. No.	Client:	Location:
6280606	Project: Montana ANG	Great Falls MT

Drilling Method: Hand Auger
Well ID: SB-2
Sampling Method: Composite
Sheet 1 of 1

Water Level:					Drilling Start	Drilling Finish
Time:					DATE: 7/21/20	DATE: 7/21/20
Date:					TIME:	TIME:

Surface Conditions: Grassy
Weather: Sunny
Temperature: 80 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				0.5		
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				1		
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				1.5		

Sample Information	Additional Information
SB-2-0-0.5 SB-2-1-1.5	Auger refusal at 1.5 ft bgs

Logged by: M. Wright Date: 7/21/20
Drilling Contractor: N/A Driller: N/A

EA Engineering, P.C.
EA Science and Technology

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____
Surface Elevation: _____
Casing Below Surface: _____
Reference Elevation: _____
Reference Description: _____

Job. No.	**Client:**	Air National Guard	**Location:**
6280606	**Project:**	Montana ANG	Great Falls MT
Drilling Method: Hand Auger			**Well ID:** SB-3
Sampling Method: Composite			**Sheet 1 of 1**

					Drilling	
Water Level:					**Start**	**Finish**
Time:					DATE: 7/21/20	DATE: 7/21/20
Date:					TIME:	TIME:

Surface Conditions: Grassy
Weather: Sunny
Temperature: 80 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				0.5		
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				1		
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				1.4		

Sample Information	Additional Information
SB-3-0-0.5 SB-3-1-1.4	Auger refusal at 1.4 ft bgs

Logged by: M. Wright Date: 7/21/20
Drilling Contractor: N/A Driller: N/A

EA Engineering, P.C.
EA Science and Technology

LOG OF SOIL BORING

Coordinates: Northing _____ Easting: _____
Surface Elevation: _____
Casing Below Surface: _____
Reference Elevation: _____
Reference Description: _____

Job. No.	Client:	Location:
6280606	Project: Montana ANG	Great Falls MT

Drilling Method: Hand Auger
Well ID: SB-4
Sampling Method: Composite
Sheet 1 of 1

Water Level:					Drilling Start	Drilling Finish
Time:					DATE: 7/21/20	DATE: 7/21/20
Date:					TIME:	TIME:

Surface Conditions: Grassy
Weather: Sunny
Temperature: 80 F

Blow Counts (140-lb)	Ft. Driven/ Ft. Recvrd	Boring Diagram	PID (ppm)	Depth in Feet	USCS Log	
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				0.5		
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				1		
						Light brown very fine grain sand, little silt sized grains, trace small gravel
				1.4		

Sample Information	Additional Information
SB-4-0-0.5 SB-4-1-1.4	Auger refusal at 1.4 ft bgs

Logged by: M. Wright Date: 7/21/20
Drilling Contractor: N/A Driller: N/A

Appendix D

Non-Hazardous Waste Manifest

This page intentionally left blank

201001602930

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
SQG	1	406-791-0298	LF 093020

GENERATOR

5. Generator's Name and Mailing Address
Montana Air National Guard - Great Falls Environmental Offi
2800 Airport Ave. B, Great Falls, MT 59404
(406) 791-0298 Attn: Jared Grundhauser
Generator's Phone:

Generator's Site Address (if different than mailing address)
Montana Air National Guard - Great Falls
2800 Airport Ave. B
Great Falls, MT 59404

6. Transporter 1 Company Name
Steve Forler Trucking, Inc.
U.S. EPA ID Number
IDR 000 205 625

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
US Ecology Idaho
20400 Lemley Rd., Grand View, ID 83624
(336) 855-7925
Facility's Phone:
U.S. EPA ID Number
IDD 073 114 654

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non RCRA, Non DOT Regulated Solid (IDW soil)	20	DM	8000	P	
2.	Non RCRA, Non DOT Regulated Liquid (IDW water)	5	DM	275	G	
3.	Non RCRA, non DOT Regulated Material (carbon)	1	DM	100	P	
4.						

13. Special Handling Instructions and Additional Information
1: App# 52206-0 (Non-Regulated IDW Soil)
2: App# 52209-0 (Non-Regulated IDW water)
3. App # 52524-0 (non regulated carbon)
CESI - KWSA

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Jared Grundhauser
Signature:
Month: 9 Day: 29 Year: 2020

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Logan Forler
Signature:
Month: 9 Day: 30 Year: 20

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Savannah Richardson
Signature:
Month: 10 Day: 1 Year: 2020

Appendix E

Data Validation Report

This page intentionally left blank

ENVIRONMENTAL
Data Services, Inc.

DATA VALIDATION SUMMARY REPORT
AIR NATIONAL GUARD EMERGING CONTAMINANTS

Client: EA Engineering, Science & Technology, Inc., Abingdon, Maryland
SDG: 410-8511-1
Laboratory: Eurofins Lancaster Laboratories, Lancaster, Pennsylvania
Site: Air National Guard, Great Falls, Montana
Date: September 3, 2020

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	MW-1	410-8511-1	Water
1RE	MW-1RE	410-8511-1RE	Water
2	MW-2	410-8511-2	Water
3	MW-3	410-8511-3	Water
3RE	MW-3RE	410-8511-3RE	Water
4	MW-4	410-8511-4	Water
4MS	MW-4MS	410-8511-4MS	Water
4MSD	MW-4MSD	410-8511-4MSD	Water
5	MW-5	410-8511-5	Water
6	MW-6	410-8511-	Water
7	MW-7	410-8511-7	Water
8	FD-07202020	410-8511-8	Water
9	RB-07202020	410-8511-9	Water
9RE	RB-07202020RE	410-8511-9RE	Water
10	RB-07212020	410-8511-10	Water
12	SB-1-0-0.5	410-8511-12	Soil
12MS	SB-1-0-0.5MS	410-8511-12MS	Soil
12MSD	SB-1-0-0.5MSD	410-8511-12MSD	Soil
13	SB-1-1-1.45	410-8511-13	Soil
13RE	SB-1-1-1.45RE	410-8511-13RE	Soil
14	SB-2-0-0.5	410-8511-14	Soil
15	SB-2-1-1.5	410-8511-15	Soil
16	SB-3-0-0.5	410-8511-16	Soil
17	SB-3-1-1.4	410-8511-17	Soil
18	SB-4-0-0.5	410-8511-18	Soil
18RE	SB-4-0-0.5RE	410-8511-18RE	Soil
19	SB-4-1-1.4	410-8511-19	Soil
20	FD-07212020	410-8511-20	Soil

A Stage 2B/4 data validation was performed on the analytical data for eight water samples, nine soil samples, and two aqueous equipment blank samples collected on June 20-21, 2020 by the EA Engineering at the EA Engineering at the Air National Guard site in Great Falls, Montana. The samples were analyzed under the EPA Method "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)".

Specific method references are as follows:

Analysis	*Method References*
PFAS	USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, Department of Defense (DoD) Final General Data Validation Guidelines, November 2019, and the DoD Data Validation Guidelines as follows:

- The US Department of Defense (DoD) Data Validation Guidelines Module 3, Data Validation Procedure for Per- and Polyfluoroalkyl Substances Analysis by QSM Table B-15, May 2020;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes as qualified for the deficiencies detailed in this report.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedances of QC criteria.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water and soil samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) criteria were met.

Method Blank

- The method blanks exhibited the following contamination.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
410-25697/1-A	PFOS	0.757	U	3, 3RE, 8

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
RB-07202020	None - ND	-	-	-
RB-07212020	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate percent recoveries (%R) except for the following.

EDS Sample	Surrogate	%R	Qualifier
1	13C8 FOSA	19%	UJ
1RE	13C8 FOSA	28%	UJ
3	13C8 FOSA	30%	UJ
3RE	13C8 FOSA	27%	UJ
	13C2 PFTeDA	11%	UJ
9	d5-NEtFOSAA	178%	None - Sample ND
9RE	13C2 PFDoDA	32%	UJ
13	d3-NMeFOSAA	40%	UJ
13RE	d3-NMeFOSAA	45%	UJ
18	d3-NMeFOSAA	45%	UJ
18RE	d3-NMeFOSAA	49%	UJ

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values except for the following.

MS/MSD Sample	Compound	MS %R/MSD %R/RPD	Qualifier	Affected Samples
4	PFOA	80%/OK/OK	J	4
12	PFNA	135%/136%/OK	J	12
	PFOS	OK/45%/OK	None	4X Rule Applies

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- Several samples were analyzed at a dilution for several compounds. The reporting limits were adjusted accordingly. No action was required.

- Several samples were reanalyzed due to surrogate deficiencies with similar results. Please refer to the Form Is for which results to use for reporting purposes.
- Several samples exhibited high concentrations of compounds over the calibration range of the instrument and were flagged (E) by the laboratory. The samples were not diluted and reanalyzed. These results were already qualified due to holding times and no further qualifications were required.

Field Duplicate Sample Precision

- Field duplicate results are summarized below. The precision was acceptable.

PFAS				
Compound	MW-3 ng/L	FD-07202020 ng/L	RPD	Qualifier
PFHxA	65	66	2%	None
PFHpA	18	18	0%	
PFOA	86	86	0%	
PFNA	1.5	0.41U	NC	
PFBS	9.2	9.6	4%	
PFOS	130	120	8%	
PFPeS	10	11	10%	
PFHpS	3.5	3.4	3%	
PFBA	18	18	0%	
PFPeA	69	67	3%	
PFHxS	210	210	0%	

PFAS				
Compound	SB-2-0-0.5 ng/g	FD-07212020 ng/g	RPD	Qualifier
PFHxA	1.7	1.8	6%	None
PFHpA	0.61	0.61	0%	
PFOA	5.4	5.1	6%	
PFNA	3.9	3.8	3%	
PFDA	3.5	3.7	6%	
PFTDoA	3.9	3.8	3%	
PFHxS	22	23	4%	
NEtFOSAA	0.20U	0.28	NC	
PFPeS	0.42	0.46	9%	
PFHpS	1.1	1.1	0%	
PFNS	2.5	2.6	4%	
PFDS	2.4	2.2	9%	
FOSA	9.9	10	1%	
PFBA	0.87	0.81	7%	
PFPeA	1.0	1.0	0%	
PFUnDA	1.1	0.97	13%	
PFDoDA	0.46	0.48	4%	
6:2 FTS	1.6	1.7	6%	
PFOS	760	810	6%	
8:2 FTS	140	130	7%	

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed: Nancy Weaver Dated: 9/9/20

Nancy Weaver
Senior Chemist

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

Reason Code	Definition
HT	Holding Time
MB	Method Blank
SURR	Surrogate
LCS	Laboratory Control Sample
MS/MSD	Matrix Spike/Matrix Spike Duplicate
RPD	Relative Percent Difference
CB/CCB	Calibration Blank or Continuing Calibration Blank
CCV	Calibration Verification
SD	ICP Serial Dilution
TB	Trip Blank
EB	Equipment Blank
FB	Field Blank
FD	Field Duplicate
CQ	Compound Quantitation
IS	Internal Standard

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

1

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-1 Lab Sample ID: 410-8511-1

Matrix: Water Lab File ID: 20JUL29-34.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 08:25

Extraction Method: 537 (Mod) Date Extracted: 07/28/2020 17:20

Sample wt/vol: 292.3(mL) Date Analyzed: 07/29/2020 17:33

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 27503 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	1.4	J M	1.7	0.86	0.43
375-85-9	Perfluoroheptanoic acid	0.43	U M	1.7	0.86	0.43
335-67-1	Perfluorooctanoic acid	1.4	J M	1.7	0.86	0.43
375-95-1	Perfluorononanoic acid	0.43	U	1.7	0.86	0.43
335-76-2	Perfluorodecanoic acid	0.43	U	1.7	0.86	0.43
72629-94-8	Perfluorotridecanoic acid	0.43	U	1.7	0.86	0.43
376-06-7	Perfluorotetradecanoic acid	0.43	U	1.7	0.86	0.43
375-73-5	Perfluorobutanesulfonic acid	0.61	J	1.7	0.86	0.43
355-46-4	Perfluorohexanesulfonic acid	2.2	M	1.7	0.86	0.43
1763-23-1	Perfluorooctanesulfonic acid	2.0		1.7	0.86	0.43
2991-50-6	NEtFOSAA	0.43	U	2.6	0.86	0.43
2355-31-9	NMeFOSAA	0.51	U	1.7	1.0	0.51
2706-91-4	Perfluoropentanesulfonic acid	0.43	U	1.7	0.86	0.43
375-92-8	Perfluoroheptanesulfonic acid	0.43	U	1.7	0.86	0.43
68259-12-1	Perfluorononanesulfonic acid	0.43	U	1.7	0.86	0.43
335-77-3	Perfluorodecanesulfonic acid	0.43	U	1.7	0.86	0.43
754-91-6	Perfluorooctanesulfonamide	0.43	U UJ	1.7	0.86	0.43 Surr
375-22-4	Perfluorobutanoic acid	1.7	U	4.3	3.4	1.7
2706-90-3	Perfluoropentanoic acid	1.6	J	1.7	0.86	0.43
2058-94-8	Perfluoroundecanoic acid	0.43	U	1.7	0.86	0.43
307-55-1	Perfluorododecanoic acid	0.43	U	1.7	0.86	0.43
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.7	U M	4.3	3.4	1.7
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.86	U	2.6	1.7	0.86
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.43	U	1.7	0.86	0.43

NW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-1 Lab Sample ID: 410-8511-1

Matrix: Water Lab File ID: 20JUL29-34.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 08:25

Extraction Method: 537 (Mod) Date Extracted: 07/28/2020 17:20

Sample wt/vol: 292.3(mL) Date Analyzed: 07/29/2020 17:33

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 27503 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	132		50-150
STL02280	M2-8:2 FTS	108		50-150
STL02279	M2-6:2 FTS	117		50-150
STL02577	13C5 PFHxA	97		50-150
STL01892	13C4 PFHpA	103		50-150
STL01052	13C8 PFOA	99		50-150
STL02578	13C9 PFNA	107		50-150
STL02579	13C6 PFDA	98		50-150
STL02580	13C7 PFUnA	105		50-150
STL02703	13C2-PFDoDA	109		50-150
STL02116	13C2 PFTeDA	106		50-150
STL02337	13C3 PFBS	120		50-150
STL02581	13C3 PFHxS	106		50-150
STL01054	13C8 PFOS	105		50-150
STL02118	d3-NMeFOSAA	120		50-150
STL02117	d5-NEtFOSAA	127		50-150
STL01056	13C8 FOSA	19	Ø	50-150
STL00992	13C4 PFBA	94		50-150
STL01893	13C5 PFPeA	96		50-150

NW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

IRE

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-1 RE Lab Sample ID: 410-8511-1 RE

Matrix: Water Lab File ID: 20JUL25-54.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 08:25

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 296.7(mL) Date Analyzed: 07/25/2020 16:33 use EDS #1

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	1.4	J	1.7	0.84	0.42
375-85-9	Perfluoroheptanoic acid	0.42	U	1.7	0.84	0.42
335-67-1	Perfluorooctanoic acid	1.2	J M	1.7	0.84	0.42
375-95-1	Perfluorononanoic acid	0.42	U	1.7	0.84	0.42
335-76-2	Perfluorodecanoic acid	0.42	U	1.7	0.84	0.42
72629-94-8	Perfluorotridecanoic acid	0.42	U	1.7	0.84	0.42
376-06-7	Perfluorotetradecanoic acid	0.42	U	1.7	0.84	0.42
375-73-5	Perfluorobutanesulfonic acid	0.63	J	1.7	0.84	0.42
355-46-4	Perfluorohexanesulfonic acid	2.2	M	1.7	0.84	0.42
1763-23-1	Perfluorooctanesulfonic acid	2.2	M	1.7	0.84	0.42
2991-50-6	NEtFOSAA	0.42	U	2.5	0.84	0.42
2355-31-9	NMeFOSAA	0.51	U	1.7	1.0	0.51
2706-91-4	Perfluoropentanesulfonic acid	0.42	U M	1.7	0.84	0.42
375-92-8	Perfluoroheptanesulfonic acid	0.42	U	1.7	0.84	0.42
68259-12-1	Perfluorononanesulfonic acid	0.42	U	1.7	0.84	0.42
335-77-3	Perfluorodecanesulfonic acid	0.42	U	1.7	0.84	0.42
754-91-6	Perfluorooctanesulfonamide	0.42	U ug	1.7	0.84	0.42
375-22-4	Perfluorobutanoic acid	1.7	U	4.2	3.4	1.7
2706-90-3	Perfluoropentanoic acid	1.5	J M	1.7	0.84	0.42
2058-94-8	Perfluoroundecanoic acid	0.42	U	1.7	0.84	0.42
307-55-1	Perfluorododecanoic acid	0.42	U	1.7	0.84	0.42
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.7	U	4.2	3.4	1.7
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.84	U	2.5	1.7	0.84
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.42	U	1.7	0.84	0.42

SURR

NW 9/3/20

1 RE

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-1 RE Lab Sample ID: 410-8511-1 RE

Matrix: Water Lab File ID: 20JUL25-54.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 08:25

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 296.7(mL) Date Analyzed: 07/25/2020 16:33 UDE EDS #1

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	127		50-150
STL02280	M2-8:2 FTS	105		50-150
STL02279	M2-6:2 FTS	111		50-150
STL02577	13C5 PFHxA	99		50-150
STL01892	13C4 PFHpA	97		50-150
STL01052	13C8 PFOA	99		50-150
STL02578	13C9 PFNA	101		50-150
STL02579	13C6 PFDA	92		50-150
STL02580	13C7 PFUnA	95		50-150
STL02703	13C2-PFDoDA	85		50-150
STL02116	13C2 PFTeDA	73		50-150
STL02337	13C3 PFBS	102		50-150
STL02581	13C3 PFHxS	96		50-150
STL01054	13C8 PFOS	95		50-150
STL02118	d3-NMeFOSAA	102		50-150
STL02117	d5-NEtFOSAA	108		50-150
STL01056	13C8 FOSA	28	Q	50-150
STL00992	13C4 PFBA	96		50-150
STL01893	13C5 PFPeA	101		50-150

MW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

2

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-2 Lab Sample ID: 410-8511-2

Matrix: Water Lab File ID: 20JUL25-55.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 09:55

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 301.9(mL) Date Analyzed: 07/25/2020 16:42

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	19	M	1.7	0.83	0.41
375-85-9	Perfluoroheptanoic acid	9.1		1.7	0.83	0.41
335-67-1	Perfluorooctanoic acid	6.9	M	1.7	0.83	0.41
375-95-1	Perfluorononanoic acid	0.41	U	1.7	0.83	0.41
335-76-2	Perfluorodecanoic acid	0.41	U	1.7	0.83	0.41
72629-94-8	Perfluorotridecanoic acid	0.41	U	1.7	0.83	0.41
376-06-7	Perfluorotetradecanoic acid	0.41	U	1.7	0.83	0.41
375-73-5	Perfluorobutanesulfonic acid	2.7		1.7	0.83	0.41
355-46-4	Perfluorohexanesulfonic acid	29	M	1.7	0.83	0.41
1763-23-1	Perfluorooctanesulfonic acid	0.41	U M	1.7	0.83	0.41
2991-50-6	NEtFOSAA	0.41	U	2.5	0.83	0.41
2355-31-9	NMeFOSAA	0.50	U	1.7	0.99	0.50
2706-91-4	Perfluoropentanesulfonic acid	2.6		1.7	0.83	0.41
375-92-8	Perfluoroheptanesulfonic acid	0.41	U	1.7	0.83	0.41
68259-12-1	Perfluorononanesulfonic acid	0.41	U	1.7	0.83	0.41
335-77-3	Perfluorodecanesulfonic acid	0.41	U	1.7	0.83	0.41
754-91-6	Perfluorooctanesulfonamide	0.41	U	1.7	0.83	0.41
375-22-4	Perfluorobutanoic acid	7.8		4.1	3.3	1.7
2706-90-3	Perfluoropentanoic acid	20		1.7	0.83	0.41
2058-94-8	Perfluoroundecanoic acid	0.41	U	1.7	0.83	0.41
307-55-1	Perfluorododecanoic acid	0.41	U	1.7	0.83	0.41
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.7	U	4.1	3.3	1.7
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.83	U	2.5	1.7	0.83
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.41	U	1.7	0.83	0.41

NW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

2

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-2 Lab Sample ID: 410-8511-2

Matrix: Water Lab File ID: 20JUL25-55.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 09:55

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 301.9(mL) Date Analyzed: 07/25/2020 16:42

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	149		50-150
STL02280	M2-8:2 FTS	110		50-150
STL02279	M2-6:2 FTS	123		50-150
STL02577	13C5 PFHxA	113		50-150
STL01892	13C4 PFHpA	118		50-150
STL01052	13C8 PFOA	110		50-150
STL02578	13C9 PFNA	112		50-150
STL02579	13C6 PFDA	103		50-150
STL02580	13C7 PFUnA	106		50-150
STL02703	13C2-PFDoDA	109		50-150
STL02116	13C2 PFTeDA	98		50-150
STL02337	13C3 PFBS	117		50-150
STL02581	13C3 PFHxS	109		50-150
STL01054	13C8 PFOS	109		50-150
STL02118	d3-NMeFOSAA	114		50-150
STL02117	d5-NEtFOSAA	118		50-150
STL01056	13C8 FOSA	92		50-150
STL00992	13C4 PFBA	105		50-150
STL01893	13C5 PFPeA	113		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-3 Lab Sample ID: 410-8511-3

Matrix: Water Lab File ID: 20JUL29-35.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 10:50

Extraction Method: 537 (Mod) Date Extracted: 07/28/2020 17:20

Sample wt/vol: 280(mL) Date Analyzed: 07/29/2020 17:42

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 27503 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	65	M	1.8	0.89	0.45
375-85-9	Perfluoroheptanoic acid	18		1.8	0.89	0.45
335-67-1	Perfluorooctanoic acid	86	M	1.8	0.89	0.45
375-95-1	Perfluorononanoic acid	1.5	J	1.8	0.89	0.45
335-76-2	Perfluorodecanoic acid	0.45	U	1.8	0.89	0.45
72629-94-8	Perfluorotridecanoic acid	0.45	U	1.8	0.89	0.45
376-06-7	Perfluorotetradecanoic acid	0.45	U	1.8	0.89	0.45
375-73-5	Perfluorobutanesulfonic acid	9.2		1.8	0.89	0.45
1763-23-1	Perfluorooctanesulfonic acid	130	M	1.8	0.89	0.45
2991-50-6	NEtFOSAA	0.45	U	2.7	0.89	0.45
2355-31-9	NMeFOSAA	0.54	U	1.8	1.1	0.54
2706-91-4	Perfluoropentanesulfonic acid	10		1.8	0.89	0.45
375-92-8	Perfluoroheptanesulfonic acid	3.5		1.8	0.89	0.45
68259-12-1	Perfluorononanesulfonic acid	0.45	U	1.8	0.89	0.45
335-77-3	Perfluorodecanesulfonic acid	0.45	U	1.8	0.89	0.45
754-91-6	Perfluorooctanesulfonamide	1.4	~~J M~~ U J	1.8	0.89	0.45
375-22-4	Perfluorobutanoic acid	18		4.5	3.6	1.8
2706-90-3	Perfluoropentanoic acid	69		1.8	0.89	0.45
2058-94-8	Perfluoroundecanoic acid	0.45	U	1.8	0.89	0.45
307-55-1	Perfluorododecanoic acid	0.45	U	1.8	0.89	0.45
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.8	U	4.5	3.6	1.8
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.89	U	2.7	1.8	0.89
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.45	U	1.8	0.89	0.45

MB SUM

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-3 Lab Sample ID: 410-8511-3

Matrix: Water Lab File ID: 20JUL29-35.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 10:50

Extraction Method: 537 (Mod) Date Extracted: 07/28/2020 17:20

Sample wt/vol: 280(mL) Date Analyzed: 07/29/2020 17:42

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 27503 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	140		50-150
STL02280	M2-8:2 FTS	109		50-150
STL02279	M2-6:2 FTS	120		50-150
STL02577	13C5 PFHxA	100		50-150
STL01892	13C4 PFHpA	101		50-150
STL01052	13C8 PFOA	103		50-150
STL02578	13C9 PFNA	105		50-150
STL02579	13C6 PFDA	106		50-150
STL02580	13C7 PFUnA	106		50-150
STL02703	13C2-PFDoDA	112		50-150
STL02116	13C2 PFTeDA	106		50-150
STL02337	13C3 PFBS	138		50-150
STL02581	13C3 PFHxS	104		50-150
STL01054	13C8 PFOS	102		50-150
STL02118	d3-NMeFOSAA	122		50-150
STL02117	d5-NEtFOSAA	123		50-150
STL01056	13C8 FOSA	30	φ	50-150
STL00992	13C4 PFBA	101		50-150
STL01893	13C5 PFPeA	118		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-3 DL Lab Sample ID: 410-8511-3 DL

Matrix: Water Lab File ID: 20JUL29-48.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 10:50

Extraction Method: 537 (Mod) Date Extracted: 07/28/2020 17:20

Sample wt/vol: 280(mL) Date Analyzed: 07/29/2020 19:40

Con. Extract Vol.: 1(mL) Dilution Factor: 10

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 27503 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
355-46-4	Perfluorohexanesulfonic acid	210	~~D M~~	18	8.9	4.5

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02581	13C3 PFHxS	123		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

3RE

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-3 RE Lab Sample ID: 410-8511-3 RE

Matrix: Water Lab File ID: 20JUL25-56.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 10:50

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 302(mL) Date Analyzed: 07/25/2020 16:51 WBE EOS #3

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL	
307-24-4	Perfluorohexanoic acid	63		1.7	0.83	0.41	
375-85-9	Perfluoroheptanoic acid	18		1.7	0.83	0.41	
335-67-1	Perfluorooctanoic acid	82	~~M~~	1.7	0.83	0.41	
375-95-1	Perfluorononanoic acid	1.4	J	1.7	0.83	0.41	
335-76-2	Perfluorodecanoic acid	0.41	U	1.7	0.83	0.41	
72629-94-8	Perfluorotridecanoic acid	0.41	U	1.7	0.83	0.41	
376-06-7	Perfluorotetradecanoic acid	0.41	~~U~~ UJ	1.7	0.83	0.41	Surr
375-73-5	Perfluorobutanesulfonic acid	9.1		1.7	0.83	0.41	
355-46-4	Perfluorohexanesulfonic acid	220	~~E M~~ J	1.7	0.83	0.41	CQ
1763-23-1	Perfluorooctanesulfonic acid	120	~~M~~	1.7	0.83	0.41	
2991-50-6	NEtFOSAA	0.41	U	2.5	0.83	0.41	
2355-31-9	NMeFOSAA	0.50	U	1.7	0.99	0.50	
2706-91-4	Perfluoropentanesulfonic acid	11		1.7	0.83	0.41	
375-92-8	Perfluoroheptanesulfonic acid	3.4		1.7	0.83	0.41	
68259-12-1	Perfluorononanesulfonic acid	0.41	U	1.7	0.83	0.41	
335-77-3	Perfluorodecanesulfonic acid	0.41	U	1.7	0.83	0.41	
754-91-6	Perfluorooctanesulfonamide	1.4	~~J~~ UJ	1.7	0.83	0.41	MB Surr
375-22-4	Perfluorobutanoic acid	18		4.1	3.3	1.7	
2706-90-3	Perfluoropentanoic acid	66		1.7	0.83	0.41	
2058-94-8	Perfluoroundecanoic acid	0.41	U	1.7	0.83	0.41	
307-55-1	Perfluorododecanoic acid	0.41	U	1.7	0.83	0.41	
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.7	U	4.1	3.3	1.7	
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.83	U	2.5	1.7	0.83	
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.41	U	1.7	0.83	0.41	

3RE

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-3 RE Lab Sample ID: 410-8511-3 RE

Matrix: Water Lab File ID: 20JUL25-56.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 10:50

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 302 (mL) Date Analyzed: 07/25/2020 16:51

Con. Extract Vol.: 1 (mL) Dilution Factor: 1

Injection Volume: 3 (uL) GC Column: Gemini C18 50mm ID: 3 (mm)

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 26285 Units: ng/L

EDS
Use #3

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	131		50-150
STL02280	M2-8:2 FTS	98		50-150
STL02279	M2-6:2 FTS	114		50-150
STL02577	13C5 PFHxA	103		50-150
STL01892	13C4 PFHpA	105		50-150
STL01052	13C8 PFOA	103		50-150
STL02578	13C9 PFNA	104		50-150
STL02579	13C6 PFDA	114		50-150
STL02580	13C7 PFUnA	85		50-150
STL02703	13C2-PFDoDA	56		50-150
STL02116	13C2 PFTeDA	11	D	50-150
STL02337	13C3 PFBS	127		50-150
STL02581	13C3 PFHxS	101		50-150
STL01054	13C8 PFOS	103		50-150
STL02118	d3-NMeFOSAA	102		50-150
STL02117	d5-NEtFOSAA	112		50-150
STL01056	13C8 FOSA	27	D	50-150
STL00992	13C4 PFBA	103		50-150
STL01893	13C5 PFPeA	121		50-150

NW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

4

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-4 Lab Sample ID: 410-8511-4

Matrix: Water Lab File ID: 20JUL25-57.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 12:10

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 277.2(mL) Date Analyzed: 07/25/2020 17:00

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	8.9		1.8	0.90	0.45
375-85-9	Perfluoroheptanoic acid	1.4	J	1.8	0.90	0.45
335-67-1	Perfluorooctanoic acid	11	~~M~~ ~~J~~ J	1.8	0.90	0.45
375-95-1	Perfluorononanoic acid	0.45	U	1.8	0.90	0.45
335-76-2	Perfluorodecanoic acid	0.45	U	1.8	0.90	0.45
72629-94-8	Perfluorotridecanoic acid	0.45	U	1.8	0.90	0.45
376-06-7	Perfluorotetradecanoic acid	0.45	U	1.8	0.90	0.45
375-73-5	Perfluorobutanesulfonic acid	2.3		1.8	0.90	0.45
355-46-4	Perfluorohexanesulfonic acid	19	M	1.8	0.90	0.45
1763-23-1	Perfluorooctanesulfonic acid	1.0	J M	1.8	0.90	0.45
2991-50-6	NEtFOSAA	0.45	U	2.7	0.90	0.45
2355-31-9	NMeFOSAA	0.54	U	1.8	1.1	0.54
2706-91-4	Perfluoropentanesulfonic acid	2.4		1.8	0.90	0.45
375-92-8	Perfluoroheptanesulfonic acid	0.45	U	1.8	0.90	0.45
68259-12-1	Perfluorononanesulfonic acid	0.45	U	1.8	0.90	0.45
335-77-3	Perfluorodecanesulfonic acid	0.45	U	1.8	0.90	0.45
754-91-6	Perfluorooctanesulfonamide	0.45	U	1.8	0.90	0.45
375-22-4	Perfluorobutanoic acid	6.0		4.5	3.6	1.8
2706-90-3	Perfluoropentanoic acid	6.2		1.8	0.90	0.45
2058-94-8	Perfluoroundecanoic acid	0.45	U	1.8	0.90	0.45
307-55-1	Perfluorododecanoic acid	0.45	U	1.8	0.90	0.45
27619-97-2	6:2 Fluorotelomer sulfonic acid	3.6	J	4.5	3.6	1.8
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.90	U	2.7	1.8	0.90
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.45	U	1.8	0.90	0.45

MS/MSD

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

4

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-4 Lab Sample ID: 410-8511-4

Matrix: Water Lab File ID: 20JUL25-57.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 12:10

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 277.2(mL) Date Analyzed: 07/25/2020 17:00

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	126		50-150
STL02280	M2-8:2 FTS	107		50-150
STL02279	M2-6:2 FTS	122		50-150
STL02577	13C5 PFHxA	111		50-150
STL01892	13C4 PFHpA	109		50-150
STL01052	13C8 PFOA	112		50-150
STL02578	13C9 PFNA	108		50-150
STL02579	13C6 PFDA	103		50-150
STL02580	13C7 PFUnA	110		50-150
STL02703	13C2-PFDoDA	105		50-150
STL02116	13C2 PFTeDA	100		50-150
STL02337	13C3 PFBS	123		50-150
STL02581	13C3 PFHxS	116		50-150
STL01054	13C8 PFOS	110		50-150
STL02118	d3-NMeFOSAA	125		50-150
STL02117	d5-NEtFOSAA	125		50-150
STL01056	13C8 FOSA	111		50-150
STL00992	13C4 PFBA	109		50-150
STL01893	13C5 PFPeA	120		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

5

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-5 Lab Sample ID: 410-8511-5

Matrix: Water Lab File ID: 20JUL25-60.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 14:00

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 278.1(mL) Date Analyzed: 07/25/2020 17:27

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	0.45	U	1.8	0.90	0.45
375-85-9	Perfluoroheptanoic acid	0.45	U	1.8	0.90	0.45
335-67-1	Perfluorooctanoic acid	0.45	U	1.8	0.90	0.45
375-95-1	Perfluorononanoic acid	0.45	U	1.8	0.90	0.45
335-76-2	Perfluorodecanoic acid	0.45	U	1.8	0.90	0.45
72629-94-8	Perfluorotridecanoic acid	0.45	U	1.8	0.90	0.45
376-06-7	Perfluorotetradecanoic acid	0.45	U	1.8	0.90	0.45
375-73-5	Perfluorobutanesulfonic acid	0.45	U M	1.8	0.90	0.45
355-46-4	Perfluorohexanesulfonic acid	0.55	J M	1.8	0.90	0.45
1763-23-1	Perfluorooctanesulfonic acid	0.45	U	1.8	0.90	0.45
2991-50-6	NEtFOSAA	0.45	U	2.7	0.90	0.45
2355-31-9	NMeFOSAA	0.54	U	1.8	1.1	0.54
2706-91-4	Perfluoropentanesulfonic acid	0.45	U	1.8	0.90	0.45
375-92-8	Perfluoroheptanesulfonic acid	0.45	U	1.8	0.90	0.45
68259-12-1	Perfluorononanesulfonic acid	0.45	U	1.8	0.90	0.45
335-77-3	Perfluorodecanesulfonic acid	0.45	U	1.8	0.90	0.45
754-91-6	Perfluorooctanesulfonamide	0.45	U	1.8	0.90	0.45
375-22-4	Perfluorobutanoic acid	1.8	U	4.5	3.6	1.8
2706-90-3	Perfluoropentanoic acid	0.45	U M	1.8	0.90	0.45
2058-94-8	Perfluoroundecanoic acid	0.45	U	1.8	0.90	0.45
307-55-1	Perfluorododecanoic acid	0.45	U	1.8	0.90	0.45
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.8	U	4.5	3.6	1.8
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.90	U	2.7	1.8	0.90
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.45	U	1.8	0.90	0.45

5

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-5 Lab Sample ID: 410-8511-5

Matrix: Water Lab File ID: 20JUL25-60.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 14:00

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 278.1(mL) Date Analyzed: 07/25/2020 17:27

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	111		50-150
STL02280	M2-8:2 FTS	103		50-150
STL02279	M2-6:2 FTS	117		50-150
STL02577	13C5 PFHxA	103		50-150
STL01892	13C4 PFHpA	104		50-150
STL01052	13C8 PFOA	105		50-150
STL02578	13C9 PFNA	102		50-150
STL02579	13C6 PFDA	101		50-150
STL02580	13C7 PFUnA	102		50-150
STL02703	13C2-PFDoDA	101		50-150
STL02116	13C2 PFTeDA	101		50-150
STL02337	13C3 PFBS	113		50-150
STL02581	13C3 PFHxS	108		50-150
STL01054	13C8 PFOS	102		50-150
STL02118	d3-NMeFOSAA	111		50-150
STL02117	d5-NEtFOSAA	116		50-150
STL01056	13C8 FOSA	101		50-150
STL00992	13C4 PFBA	103		50-150
STL01893	13C5 PFPeA	116		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

6

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-6 Lab Sample ID: 410-8511-6

Matrix: Water Lab File ID: 20JUL25-61.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 14:50

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 294(mL) Date Analyzed: 07/25/2020 17:36

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	37		1.7	0.85	0.43
375-85-9	Perfluoroheptanoic acid	6.4		1.7	0.85	0.43
335-67-1	Perfluorooctanoic acid	48	M	1.7	0.85	0.43
375-95-1	Perfluorononanoic acid	0.43	U	1.7	0.85	0.43
335-76-2	Perfluorodecanoic acid	0.43	U	1.7	0.85	0.43
72629-94-8	Perfluorotridecanoic acid	0.43	U	1.7	0.85	0.43
376-06-7	Perfluorotetradecanoic acid	0.43	U	1.7	0.85	0.43
375-73-5	Perfluorobutanesulfonic acid	6.8		1.7	0.85	0.43
355-46-4	Perfluorohexanesulfonic acid	110	M	1.7	0.85	0.43
1763-23-1	Perfluorooctanesulfonic acid	33	M	1.7	0.85	0.43
2991-50-6	NEtFOSAA	0.43	U	2.6	0.85	0.43
2355-31-9	NMeFOSAA	0.51	U	1.7	1.0	0.51
2706-91-4	Perfluoropentanesulfonic acid	6.6		1.7	0.85	0.43
375-92-8	Perfluoroheptanesulfonic acid	1.7		1.7	0.85	0.43
68259-12-1	Perfluorononanesulfonic acid	0.43	U	1.7	0.85	0.43
335-77-3	Perfluorodecanesulfonic acid	0.43	U	1.7	0.85	0.43
754-91-6	Perfluorooctanesulfonamide	0.43	U	1.7	0.85	0.43
375-22-4	Perfluorobutanoic acid	9.9		4.3	3.4	1.7
2706-90-3	Perfluoropentanoic acid	26		1.7	0.85	0.43
2058-94-8	Perfluoroundecanoic acid	0.43	U	1.7	0.85	0.43
307-55-1	Perfluorododecanoic acid	0.43	U	1.7	0.85	0.43
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.7	U	4.3	3.4	1.7
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.85	U	2.6	1.7	0.85
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.43	U	1.7	0.85	0.43

MW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

6

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-6 Lab Sample ID: 410-8511-6

Matrix: Water Lab File ID: 20JUL25-61.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 14:50

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 294(mL) Date Analyzed: 07/25/2020 17:36

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	133		50-150
STL02280	M2-8:2 FTS	107		50-150
STL02279	M2-6:2 FTS	109		50-150
STL02577	13C5 PFHxA	100		50-150
STL01892	13C4 PFHpA	101		50-150
STL01052	13C8 PFOA	103		50-150
STL02578	13C9 PFNA	102		50-150
STL02579	13C6 PFDA	97		50-150
STL02580	13C7 PFUnA	101		50-150
STL02703	13C2-PFDoDA	99		50-150
STL02116	13C2 PFTeDA	98		50-150
STL02337	13C3 PFBS	122		50-150
STL02581	13C3 PFHxS	101		50-150
STL01054	13C8 PFOS	102		50-150
STL02118	d3-NMeFOSAA	110		50-150
STL02117	d5-NEtFOSAA	122		50-150
STL01056	13C8 FOSA	78		50-150
STL00992	13C4 PFBA	101		50-150
STL01893	13C5 PFPeA	115		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

7

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-7 Lab Sample ID: 410-8511-7

Matrix: Water Lab File ID: 20JUL25-62.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 16:00

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 288.9(mL) Date Analyzed: 07/25/2020 17:45

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	23	M	1.7	0.87	0.43
375-85-9	Perfluoroheptanoic acid	2.7	M	1.7	0.87	0.43
335-67-1	Perfluorooctanoic acid	2.7	M	1.7	0.87	0.43
375-95-1	Perfluorononanoic acid	0.43	U	1.7	0.87	0.43
335-76-2	Perfluorodecanoic acid	0.43	U	1.7	0.87	0.43
72629-94-8	Perfluorotridecanoic acid	0.43	U	1.7	0.87	0.43
376-06-7	Perfluorotetradecanoic acid	0.43	U	1.7	0.87	0.43
375-73-5	Perfluorobutanesulfonic acid	3.2		1.7	0.87	0.43
355-46-4	Perfluorohexanesulfonic acid	7.6	M	1.7	0.87	0.43
1763-23-1	Perfluorooctanesulfonic acid	0.69	J M	1.7	0.87	0.43
2991-50-6	NEtFOSAA	0.43	U	2.6	0.87	0.43
2355-31-9	NMeFOSAA	0.52	U	1.7	1.0	0.52
2706-91-4	Perfluoropentanesulfonic acid	2.1	M	1.7	0.87	0.43
375-92-8	Perfluoroheptanesulfonic acid	0.43	U	1.7	0.87	0.43
68259-12-1	Perfluorononanesulfonic acid	0.43	U	1.7	0.87	0.43
335-77-3	Perfluorodecanesulfonic acid	0.43	U	1.7	0.87	0.43
754-91-6	Perfluorooctanesulfonamide	0.43	U	1.7	0.87	0.43
375-22-4	Perfluorobutanoic acid	9.6	M	4.3	3.5	1.7
2706-90-3	Perfluoropentanoic acid	20		1.7	0.87	0.43
2058-94-8	Perfluoroundecanoic acid	0.43	U	1.7	0.87	0.43
307-55-1	Perfluorododecanoic acid	0.43	U	1.7	0.87	0.43
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.7	U	4.3	3.5	1.7
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.87	U	2.6	1.7	0.87
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.43	U	1.7	0.87	0.43

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

7

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: MW-7 Lab Sample ID: 410-8511-7

Matrix: Water Lab File ID: 20JUL25-62.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 16:00

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 288.9(mL) Date Analyzed: 07/25/2020 17:45

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	128		50-150
STL02280	M2-8:2 FTS	102		50-150
STL02279	M2-6:2 FTS	110		50-150
STL02577	13C5 PFHxA	102		50-150
STL01892	13C4 PFHpA	111		50-150
STL01052	13C8 PFOA	98		50-150
STL02578	13C9 PFNA	106		50-150
STL02579	13C6 PFDA	91		50-150
STL02580	13C7 PFUnA	103		50-150
STL02703	13C2-PFDoDA	100		50-150
STL02116	13C2 PFTeDA	93		50-150
STL02337	13C3 PFBS	123		50-150
STL02581	13C3 PFHxS	100		50-150
STL01054	13C8 PFOS	103		50-150
STL02118	d3-NMeFOSAA	112		50-150
STL02117	d5-NEtFOSAA	125		50-150
STL01056	13C8 FOSA	102		50-150
STL00992	13C4 PFBA	95		50-150
STL01893	13C5 PFPeA	114		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

8

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: FD-07202020 Lab Sample ID: 410-8511-8

Matrix: Water Lab File ID: 20JUL25-64.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 00:00

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 301.4(mL) Date Analyzed: 07/25/2020 18:03

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	66		1.7	0.83	0.41
375-85-9	Perfluoroheptanoic acid	18	M	1.7	0.83	0.41
335-67-1	Perfluorooctanoic acid	86	M	1.7	0.83	0.41
375-95-1	Perfluorononanoic acid	0.41	U	1.7	0.83	0.41
335-76-2	Perfluorodecanoic acid	0.41	U	1.7	0.83	0.41
72629-94-8	Perfluorotridecanoic acid	0.41	U	1.7	0.83	0.41
376-06-7	Perfluorotetradecanoic acid	0.41	U	1.7	0.83	0.41
375-73-5	Perfluorobutanesulfonic acid	9.6		1.7	0.83	0.41
1763-23-1	Perfluorooctanesulfonic acid	120	M	1.7	0.83	0.41
2991-50-6	NEtFOSAA	0.41	U	2.5	0.83	0.41
2355-31-9	NMeFOSAA	0.50	U	1.7	1.0	0.50
2706-91-4	Perfluoropentanesulfonic acid	11		1.7	0.83	0.41
375-92-8	Perfluoroheptanesulfonic acid	3.4		1.7	0.83	0.41
68259-12-1	Perfluorononanesulfonic acid	0.41	U	1.7	0.83	0.41
335-77-3	Perfluorodecanesulfonic acid	0.41	U	1.7	0.83	0.41
754-91-6	Perfluorooctanesulfonamide	0.88	J U	1.7	0.83	0.41
375-22-4	Perfluorobutanoic acid	18		4.1	3.3	1.7
2706-90-3	Perfluoropentanoic acid	67		1.7	0.83	0.41
2058-94-8	Perfluoroundecanoic acid	0.41	U	1.7	0.83	0.41
307-55-1	Perfluorododecanoic acid	0.41	U	1.7	0.83	0.41
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.7	U	4.1	3.3	1.7
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.83	U	2.5	1.7	0.83
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.41	U	1.7	0.83	0.41

MB

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

8

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: FD-07202020 Lab Sample ID: 410-8511-8

Matrix: Water Lab File ID: 20JUL25-64.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 00:00

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 301.4(mL) Date Analyzed: 07/25/2020 18:03

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	138		50-150
STL02280	M2-8:2 FTS	104		50-150
STL02279	M2-6:2 FTS	113		50-150
STL02577	13C5 PFHxA	96		50-150
STL01892	13C4 PFHpA	95		50-150
STL01052	13C8 PFOA	98		50-150
STL02578	13C9 PFNA	97		50-150
STL02579	13C6 PFDA	94		50-150
STL02580	13C7 PFUnA	93		50-150
STL02703	13C2-PFDoDA	86		50-150
STL02116	13C2 PFTeDA	77		50-150
STL02337	13C3 PFBS	113		50-150
STL02581	13C3 PFHxS	96		50-150
STL01054	13C8 PFOS	99		50-150
STL02118	d3-NMeFOSAA	100		50-150
STL02117	d5-NEtFOSAA	111		50-150
STL01056	13C8 FOSA	90		50-150
STL00992	13C4 PFBA	93		50-150
STL01893	13C5 PFPeA	107		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

8

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: FD-07202020 DL Lab Sample ID: 410-8511-8 DL

Matrix: Water Lab File ID: 20JUL28-13.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 00:00

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 301.4(mL) Date Analyzed: 07/28/2020 15:00

Con. Extract Vol.: 1(mL) Dilution Factor: 10

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 27160 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
355-46-4	Perfluorohexanesulfonic acid	210	D M	17	8.3	4.1

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02581	13C3 PFHxS	97		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

9

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: RB-07202020 Lab Sample ID: 410-8511-9

Matrix: Water Lab File ID: 20JUL29-37.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 16:15

Extraction Method: 537 (Mod) Date Extracted: 07/28/2020 17:20

Sample wt/vol: 308.3(mL) Date Analyzed: 07/29/2020 18:00

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 27503 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	0.41	U	1.6	0.81	0.41
375-85-9	Perfluoroheptanoic acid	0.41	U	1.6	0.81	0.41
335-67-1	Perfluorooctanoic acid	0.41	U	1.6	0.81	0.41
375-95-1	Perfluorononanoic acid	0.41	U	1.6	0.81	0.41
335-76-2	Perfluorodecanoic acid	0.41	U	1.6	0.81	0.41
72629-94-8	Perfluorotridecanoic acid	0.41	U	1.6	0.81	0.41
376-06-7	Perfluorotetradecanoic acid	0.41	U	1.6	0.81	0.41
375-73-5	Perfluorobutanesulfonic acid	0.41	U	1.6	0.81	0.41
355-46-4	Perfluorohexanesulfonic acid	0.41	U	1.6	0.81	0.41
1763-23-1	Perfluorooctanesulfonic acid	0.41	U	1.6	0.81	0.41
2991-50-6	NEtFOSAA	0.41	U	2.4	0.81	0.41
2355-31-9	NMeFOSAA	0.49	U	1.6	0.97	0.49
2706-91-4	Perfluoropentanesulfonic acid	0.41	U	1.6	0.81	0.41
375-92-8	Perfluoroheptanesulfonic acid	0.41	U	1.6	0.81	0.41
68259-12-1	Perfluorononanesulfonic acid	0.41	U	1.6	0.81	0.41
335-77-3	Perfluorodecanesulfonic acid	0.41	U	1.6	0.81	0.41
754-91-6	Perfluorooctanesulfonamide	0.41	U	1.6	0.81	0.41
375-22-4	Perfluorobutanoic acid	1.6	U	4.1	3.2	1.6
2706-90-3	Perfluoropentanoic acid	0.41	U	1.6	0.81	0.41
2058-94-8	Perfluoroundecanoic acid	0.41	U	1.6	0.81	0.41
307-55-1	Perfluorododecanoic acid	0.41	U	1.6	0.81	0.41
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.6	U	4.1	3.2	1.6
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.81	U	2.4	1.6	0.81
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.41	U	1.6	0.81	0.41

NW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: RB-07202020 Lab Sample ID: 410-8511-9

Matrix: Water Lab File ID: 20JUL29-37.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 16:15

Extraction Method: 537 (Mod) Date Extracted: 07/28/2020 17:20

Sample wt/vol: 308.3(mL) Date Analyzed: 07/29/2020 18:00

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 27503 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	118		50-150
STL02280	M2-8:2 FTS	117		50-150
STL02279	M2-6:2 FTS	109		50-150
STL02577	13C5 PFHxA	103		50-150
STL01892	13C4 PFHpA	106		50-150
STL01052	13C8 PFOA	107		50-150
STL02578	13C9 PFNA	109		50-150
STL02579	13C6 PFDA	108		50-150
STL02580	13C7 PFUnA	132		50-150
STL02703	13C2-PFDoDA	115		50-150
STL02116	13C2 PFTeDA	108		50-150
STL02337	13C3 PFBS	106		50-150
STL02581	13C3 PFHxS	105		50-150
STL01054	13C8 PFOS	105		50-150
STL02118	d3-NMeFOSAA	142		50-150
STL02117	d5-NEtFOSAA	178	Q	50-150
STL01056	13C8 FOSA	114		50-150
STL00992	13C4 PFBA	108		50-150
STL01893	13C5 PFPeA	104		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

9RE

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: RB-07202020 RE Lab Sample ID: 410-8511-9 RE

Matrix: Water Lab File ID: 20JUL25-65.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 16:15

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 279.5(mL) Date Analyzed: 07/25/2020 18:12 use EDS #9

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	0.45	U	1.8	0.89	0.45
375-85-9	Perfluoroheptanoic acid	0.45	U	1.8	0.89	0.45
335-67-1	Perfluorooctanoic acid	0.45	U	1.8	0.89	0.45
375-95-1	Perfluorononanoic acid	0.45	U	1.8	0.89	0.45
335-76-2	Perfluorodecanoic acid	0.45	U	1.8	0.89	0.45
72629-94-8	Perfluorotridecanoic acid	0.45	U	1.8	0.89	0.45
376-06-7	Perfluorotetradecanoic acid	0.45	U	1.8	0.89	0.45
375-73-5	Perfluorobutanesulfonic acid	0.45	U	1.8	0.89	0.45
355-46-4	Perfluorohexanesulfonic acid	0.45	U	1.8	0.89	0.45
1763-23-1	Perfluorooctanesulfonic acid	0.45	U	1.8	0.89	0.45
2991-50-6	NEtFOSAA	0.45	U	2.7	0.89	0.45
2355-31-9	NMeFOSAA	0.54	U	1.8	1.1	0.54
2706-91-4	Perfluoropentanesulfonic acid	0.45	U	1.8	0.89	0.45
375-92-8	Perfluoroheptanesulfonic acid	0.45	U	1.8	0.89	0.45
68259-12-1	Perfluorononanesulfonic acid	0.45	U	1.8	0.89	0.45
335-77-3	Perfluorodecanesulfonic acid	0.45	U	1.8	0.89	0.45
754-91-6	Perfluorooctanesulfonamide	0.45	U	1.8	0.89	0.45
375-22-4	Perfluorobutanoic acid	1.8	U	4.5	3.6	1.8
2706-90-3	Perfluoropentanoic acid	0.45	U	1.8	0.89	0.45
2058-94-8	Perfluoroundecanoic acid	0.45	U	1.8	0.89	0.45
307-55-1	Perfluorododecanoic acid	0.45	~~U~~ UJ	1.8	0.89	0.45
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.8	U	4.5	3.6	1.8
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.89	U	2.7	1.8	0.89
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.45	U	1.8	0.89	0.45

surr

MW 9/3/20

9RE

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: RB-07202020 RE Lab Sample ID: 410-8511-9 RE

Matrix: Water Lab File ID: 20JUL25-65.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/20/2020 16:15

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 279.5(mL) Date Analyzed: 07/25/2020 18:12

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

Use EOS #9

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	111		50-150
STL02280	M2-8:2 FTS	139		50-150
STL02279	M2-6:2 FTS	117		50-150
STL02577	13C5 PFHxA	106		50-150
STL01892	13C4 PFHpA	101		50-150
STL01052	13C8 PFOA	103		50-150
STL02578	13C9 PFNA	111		50-150
STL02579	13C6 PFDA	91		50-150
STL02580	13C7 PFUnA	55		50-150
STL02703	13C2-PFDoDA	32	Q	50-150
STL02116	13C2 PFTeDA	80		50-150
STL02337	13C3 PFBS	101		50-150
STL02581	13C3 PFHxS	105		50-150
STL01054	13C8 PFOS	109		50-150
STL02118	d3-NMeFOSAA	88		50-150
STL02117	d5-NEtFOSAA	55		50-150
STL01056	13C8 FOSA	59		50-150
STL00992	13C4 PFBA	103		50-150
STL01893	13C5 PFPeA	100		50-150

NW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: RB-07212020 Lab Sample ID: 410-8511-10

Matrix: Water Lab File ID: 20JUL25-66.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:50

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 279.8(mL) Date Analyzed: 07/25/2020 18:21

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	0.45	U	1.8	0.89	0.45
375-85-9	Perfluoroheptanoic acid	0.45	U	1.8	0.89	0.45
335-67-1	Perfluorooctanoic acid	0.45	U	1.8	0.89	0.45
375-95-1	Perfluorononanoic acid	0.45	U	1.8	0.89	0.45
335-76-2	Perfluorodecanoic acid	0.45	U	1.8	0.89	0.45
72629-94-8	Perfluorotridecanoic acid	0.45	U	1.8	0.89	0.45
376-06-7	Perfluorotetradecanoic acid	0.45	U	1.8	0.89	0.45
375-73-5	Perfluorobutanesulfonic acid	0.45	U	1.8	0.89	0.45
355-46-4	Perfluorohexanesulfonic acid	0.45	U	1.8	0.89	0.45
1763-23-1	Perfluorooctanesulfonic acid	0.45	U	1.8	0.89	0.45
2991-50-6	NEtFOSAA	0.45	U	2.7	0.89	0.45
2355-31-9	NMeFOSAA	0.54	U	1.8	1.1	0.54
2706-91-4	Perfluoropentanesulfonic acid	0.45	U	1.8	0.89	0.45
375-92-8	Perfluoroheptanesulfonic acid	0.45	U	1.8	0.89	0.45
68259-12-1	Perfluorononanesulfonic acid	0.45	U	1.8	0.89	0.45
335-77-3	Perfluorodecanesulfonic acid	0.45	U	1.8	0.89	0.45
754-91-6	Perfluorooctanesulfonamide	0.45	U	1.8	0.89	0.45
375-22-4	Perfluorobutanoic acid	1.8	U	4.5	3.6	1.8
2706-90-3	Perfluoropentanoic acid	0.45	U	1.8	0.89	0.45
2058-94-8	Perfluoroundecanoic acid	0.45	U	1.8	0.89	0.45
307-55-1	Perfluorododecanoic acid	0.45	U	1.8	0.89	0.45
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.8	U	4.5	3.6	1.8
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.89	U	2.7	1.8	0.89
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.45	U	1.8	0.89	0.45

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: RB-07212020 Lab Sample ID: 410-8511-10

Matrix: Water Lab File ID: 20JUL25-66.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:50

Extraction Method: 537 (Mod) Date Extracted: 07/23/2020 15:32

Sample wt/vol: 279.8(mL) Date Analyzed: 07/25/2020 18:21

Con. Extract Vol.: 1(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: GPC Cleanup:(Y/N) N

Analysis Batch No.: 26285 Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	105		50-150
STL02280	M2-8:2 FTS	121		50-150
STL02279	M2-6:2 FTS	114		50-150
STL02577	13C5 PFHxA	107		50-150
STL01892	13C4 PFHpA	109		50-150
STL01052	13C8 PFOA	109		50-150
STL02578	13C9 PFNA	107		50-150
STL02579	13C6 PFDA	113		50-150
STL02580	13C7 PFUnA	112		50-150
STL02703	13C2-PFDoDA	108		50-150
STL02116	13C2 PFTeDA	106		50-150
STL02337	13C3 PFBS	104		50-150
STL02581	13C3 PFHxS	109		50-150
STL01054	13C8 PFOS	107		50-150
STL02118	d3-NMeFOSAA	124		50-150
STL02117	d5-NEtFOSAA	123		50-150
STL01056	13C8 FOSA	112		50-150
STL00992	13C4 PFBA	107		50-150
STL01893	13C5 PFPeA	104		50-150

nw 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

12

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-1-0-0.5 Lab Sample ID: 410-8511-12

Matrix: Solid Lab File ID: 20JUL24-87.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:15

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.01(g) Date Analyzed: 07/24/2020 21:45

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 6.5 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	2.4		0.64	0.42	0.21
375-85-9	Perfluoroheptanoic acid	0.50	J	0.64	0.42	0.21
335-67-1	Perfluorooctanoic acid	3.4	M	0.64	0.42	0.21
375-95-1	Perfluorononanoic acid	11		0.64	0.42	0.21
335-76-2	Perfluorodecanoic acid	4.3		0.64	0.42	0.21
72629-94-8	Perfluorotridecanoic acid	2.0		0.64	0.42	0.21
376-06-7	Perfluorotetradecanoic acid	0.21	U	0.64	0.42	0.21
375-73-5	Perfluorobutanesulfonic acid	0.42	U	2.1	1.7	0.42
355-46-4	Perfluorohexanesulfonic acid	35	M	0.64	0.42	0.21
2991-50-6	NEtFOSAA	0.21	U	2.1	0.42	0.21
2355-31-9	NMeFOSAA	0.21	U	2.1	0.42	0.21
2706-91-4	Perfluoropentanesulfonic acid	0.30	J M	3.2	0.42	0.21
375-92-8	Perfluoroheptanesulfonic acid	3.0		0.64	0.42	0.21
68259-12-1	Perfluorononanesulfonic acid	3.2	~~M1~~ J	0.64	0.42	0.21
335-77-3	Perfluorodecanesulfonic acid	3.2		0.64	0.42	0.21
754-91-6	Perfluorooctanesulfonamide	11		0.64	0.42	0.21
375-22-4	Perfluorobutanoic acid	0.99	J	2.1	1.7	0.64
2706-90-3	Perfluoropentanoic acid	1.2		0.64	0.42	0.21
2058-94-8	Perfluoroundecanoic acid	1.6	M	0.64	0.42	0.21
307-55-1	Perfluorododecanoic acid	0.48	J M	0.64	0.42	0.21
27619-97-2	6:2 Fluorotelomer sulfonic acid	0.64	U	2.1	1.7	0.64
39108-34-4	8:2 Fluorotelomer sulfonic acid	1.7	J	3.2	1.7	0.64
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.64	U	2.1	1.7	0.64

MS/MSD

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-1-0-0.5 Lab Sample ID: 410-8511-12

Matrix: Solid Lab File ID: 20JUL24-87.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:15

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.01(g) Date Analyzed: 07/24/2020 21:45

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 6.5 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	106		50-150
STL02280	M2-8:2 FTS	99		50-150
STL02279	M2-6:2 FTS	108		50-150
STL02577	13C5 PFHxA	99		50-150
STL01892	13C4 PFHpA	97		50-150
STL01052	13C8 PFOA	101		50-150
STL02578	13C9 PFNA	120		50-150
STL02579	13C6 PFDA	98		50-150
STL02580	13C7 PFUnA	100		50-150
STL02703	13C2-PFDoDA	91		50-150
STL02116	13C2 PFTeDA	103		50-150
STL02337	13C3 PFBS	99		50-150
STL02581	13C3 PFHxS	100		50-150
STL01054	13C8 PFOS	117		50-150
STL02118	d3-NMeFOSAA	58		50-150
STL02117	d5-NEtFOSAA	66		50-150
STL01056	13C8 FOSA	70		50-150
STL00992	13C4 PFBA	92		50-150
STL01893	13C5 PFPeA	93		50-150

12

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-1-0-0.5 DL Lab Sample ID: 410-8511-12 DL

Matrix: Solid Lab File ID: 20JUL27-08.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:15

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.01(g) Date Analyzed: 07/27/2020 16:30

Con. Extract Vol.: 4(mL) Dilution Factor: 10

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 6.5 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid	830	~~D M~~	6.4	4.2	2.1

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01054	13C8 PFOS	108		50-150

MW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-1-1-1.45 Lab Sample ID: 410-8511-13

Matrix: Solid Lab File ID: 20JUL24-90.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:25

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.02(g) Date Analyzed: 07/24/2020 22:12

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 12.8 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	4.2		0.67	0.45	0.22
375-85-9	Perfluoroheptanoic acid	1.4		0.67	0.45	0.22
335-67-1	Perfluorooctanoic acid	46	M	0.67	0.45	0.22
375-95-1	Perfluorononanoic acid	17		0.67	0.45	0.22
335-76-2	Perfluorodecanoic acid	0.67	M	0.67	0.45	0.22
72629-94-8	Perfluorotridecanoic acid	0.22	U M	0.67	0.45	0.22
376-06-7	Perfluorotetradecanoic acid	0.22	U	0.67	0.45	0.22
375-73-5	Perfluorobutanesulfonic acid	0.45	U	2.2	1.8	0.45
2991-50-6	NEtFOSAA	0.22	U	2.2	0.45	0.22
2355-31-9	NMeFOSAA	0.22	U UJ	2.2	0.45	0.22
2706-91-4	Perfluoropentanesulfonic acid	1.2	J M	3.4	0.45	0.22
375-92-8	Perfluoroheptanesulfonic acid	28		0.67	0.45	0.22
68259-12-1	Perfluorononanesulfonic acid	0.22	U	0.67	0.45	0.22
335-77-3	Perfluorodecanesulfonic acid	0.31	J M	0.67	0.45	0.22
754-91-6	Perfluorooctanesulfonamide	3.7		0.67	0.45	0.22
375-22-4	Perfluorobutanoic acid	1.4	J	2.2	1.8	0.67
2706-90-3	Perfluoropentanoic acid	2.1		0.67	0.45	0.22
2058-94-8	Perfluoroundecanoic acid	0.22	U M	0.67	0.45	0.22
307-55-1	Perfluorododecanoic acid	0.22	U	0.67	0.45	0.22
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.6	J	2.2	1.8	0.67
39108-34-4	8:2 Fluorotelomer sulfonic acid	2.3	J	3.4	1.8	0.67
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.67	U	2.2	1.8	0.67

surr

13

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-1-1-1.45 Lab Sample ID: 410-8511-13

Matrix: Solid Lab File ID: 20JUL24-90.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:25

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.02(g) Date Analyzed: 07/24/2020 22:12

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 12.8 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	88		50-150
STL02280	M2-8:2 FTS	92		50-150
STL02279	M2-6:2 FTS	88		50-150
STL02577	13C5 PFHxA	88		50-150
STL01892	13C4 PFHpA	88		50-150
STL01052	13C8 PFOA	90		50-150
STL02578	13C9 PFNA	98		50-150
STL02579	13C6 PFDA	90		50-150
STL02580	13C7 PFUnA	88		50-150
STL02703	13C2-PFDoDA	90		50-150
STL02116	13C2 PFTeDA	87		50-150
STL02337	13C3 PFBS	87		50-150
STL02581	13C3 PFHxS	93		50-150
STL01054	13C8 PFOS	101		50-150
STL02118	d3-NMeFOSAA	40	Ø	50-150
STL02117	d5-NEtFOSAA	51		50-150
STL01056	13C8 FOSA	84		50-150
STL00992	13C4 PFBA	85		50-150
STL01893	13C5 PFPeA	86		50-150

NW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-1-1-1.45 DL Lab Sample ID: 410-8511-13 DL

Matrix: Solid Lab File ID: 20JUL27-09.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:25

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.02(g) Date Analyzed: 07/27/2020 16:39

Con. Extract Vol.: 4(mL) Dilution Factor: 10

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 12.8 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
355-46-4	Perfluorohexanesulfonic acid	220	~~D M~~	6.7	4.5	2.2
1763-23-1	Perfluorooctanesulfonic acid	790	~~D M~~	6.7	4.5	2.2

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02581	13C3 PFHxS	84		50-150
STL01054	13C8 PFOS	88		50-150

NW 9/3/20

13RE

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-1-1-1.45 RE Lab Sample ID: 410-8511-13 RE

Matrix: Solid Lab File ID: 20JUL27-28.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:25

Extraction Method: 537 (Mod) Date Extracted: 07/27/2020 08:21

Sample wt/vol: 1.01(g) Date Analyzed: 07/27/2020 19:31

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 12.8 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

use EDS # 13

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	4.0		0.68	0.45	0.23
375-85-9	Perfluoroheptanoic acid	1.3		0.68	0.45	0.23
335-67-1	Perfluorooctanoic acid	44	~~M~~	0.68	0.45	0.23
375-95-1	Perfluorononanoic acid	15		0.68	0.45	0.23
335-76-2	Perfluorodecanoic acid	0.48	J ~~M~~	0.68	0.45	0.23
72629-94-8	Perfluorotridecanoic acid	0.23	U	0.68	0.45	0.23
376-06-7	Perfluorotetradecanoic acid	0.23	U	0.68	0.45	0.23
375-73-5	Perfluorobutanesulfonic acid	0.45	U	2.3	1.8	0.45
355-46-4	Perfluorohexanesulfonic acid	210	~~E M~~ J	0.68	0.45	0.23
1763-23-1	Perfluorooctanesulfonic acid	560	~~E M~~ J	0.68	0.45	0.23
2991-50-6	NEtFOSAA	0.23	U	2.3	0.45	0.23
2355-31-9	NMeFOSAA	0.23	~~U~~ UJ	2.3	0.45	0.23
2706-91-4	Perfluoropentanesulfonic acid	1.1	J	3.4	0.45	0.23
375-92-8	Perfluoroheptanesulfonic acid	27		0.68	0.45	0.23
68259-12-1	Perfluorononanesulfonic acid	0.23	J	0.68	0.45	0.23
335-77-3	Perfluorodecanesulfonic acid	0.24	J	0.68	0.45	0.23
754-91-6	Perfluorooctanesulfonamide	3.3		0.68	0.45	0.23
375-22-4	Perfluorobutanoic acid	1.3	J	2.3	1.8	0.68
2706-90-3	Perfluoropentanoic acid	1.9		0.68	0.45	0.23
2058-94-8	Perfluoroundecanoic acid	0.23	U ~~M~~	0.68	0.45	0.23
307-55-1	Perfluorododecanoic acid	0.23	U	0.68	0.45	0.23
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.5	J	2.3	1.8	0.68
39108-34-4	8:2 Fluorotelomer sulfonic acid	2.4	J	3.4	1.8	0.68
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.68	U	2.3	1.8	0.68

CQ
CQ
surr

13RE

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-1-1-1.45 RE Lab Sample ID: 410-8511-13 RE

Matrix: Solid Lab File ID: 20JUL27-28.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:25

Extraction Method: 537 (Mod) Date Extracted: 07/27/2020 08:21

Sample wt/vol: 1.01(g) Date Analyzed: 07/27/2020 19:31 Use EDS #13

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 12.8 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	99		50-150
STL02280	M2-8:2 FTS	99		50-150
STL02279	M2-6:2 FTS	99		50-150
STL02577	13C5 PFHxA	109		50-150
STL01892	13C4 PFHpA	109		50-150
STL01052	13C8 PFOA	108		50-150
STL02578	13C9 PFNA	116		50-150
STL02579	13C6 PFDA	108		50-150
STL02580	13C7 PFUnA	114		50-150
STL02703	13C2-PFDoDA	112		50-150
STL02116	13C2 PFTeDA	107		50-150
STL02337	13C3 PFBS	108		50-150
STL02581	13C3 PFHxS	110		50-150
STL01054	13C8 PFOS	118		50-150
STL02118	d3-NMeFOSAA	45	∅	50-150
STL02117	d5-NEtFOSAA	59		50-150
STL01056	13C8 FOSA	122		50-150
STL00992	13C4 PFBA	107		50-150
STL01893	13C5 PFPeA	105		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-2-0-0.5 Lab Sample ID: 410-8511-14

Matrix: Solid Lab File ID: 20JUL24-91.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:45

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.05(g) Date Analyzed: 07/24/2020 22:21

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 4.6 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	1.7	M	0.60	0.40	0.20
375-85-9	Perfluoroheptanoic acid	0.61		0.60	0.40	0.20
335-67-1	Perfluorooctanoic acid	5.4	M	0.60	0.40	0.20
375-95-1	Perfluorononanoic acid	3.9		0.60	0.40	0.20
335-76-2	Perfluorodecanoic acid	3.5	M	0.60	0.40	0.20
72629-94-8	Perfluorotridecanoic acid	3.9		0.60	0.40	0.20
376-06-7	Perfluorotetradecanoic acid	0.20	U M	0.60	0.40	0.20
375-73-5	Perfluorobutanesulfonic acid	0.40	U	2.0	1.6	0.40
355-46-4	Perfluorohexanesulfonic acid	22	M	0.60	0.40	0.20
2991-50-6	NEtFOSAA	0.20	U	2.0	0.40	0.20
2355-31-9	NMeFOSAA	0.20	U	2.0	0.40	0.20
2706-91-4	Perfluoropentanesulfonic acid	0.42	J	3.0	0.40	0.20
375-92-8	Perfluoroheptanesulfonic acid	1.1		0.60	0.40	0.20
68259-12-1	Perfluorononanesulfonic acid	2.5		0.60	0.40	0.20
335-77-3	Perfluorodecanesulfonic acid	2.4		0.60	0.40	0.20
754-91-6	Perfluorooctanesulfonamide	9.9		0.60	0.40	0.20
375-22-4	Perfluorobutanoic acid	0.87	J	2.0	1.6	0.60
2706-90-3	Perfluoropentanoic acid	1.0	M	0.60	0.40	0.20
2058-94-8	Perfluoroundecanoic acid	1.1	M	0.60	0.40	0.20
307-55-1	Perfluorododecanoic acid	0.46	J M	0.60	0.40	0.20
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.6	J	2.0	1.6	0.60
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.60	U	2.0	1.6	0.60

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-2-0-0.5 Lab Sample ID: 410-8511-14

Matrix: Solid Lab File ID: 20JUL24-91.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:45

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.05(g) Date Analyzed: 07/24/2020 22:21

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 4.6 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	97		50-150
STL02280	M2-8:2 FTS	93		50-150
STL02279	M2-6:2 FTS	96		50-150
STL02577	13C5 PFHxA	91		50-150
STL01892	13C4 PFHpA	89		50-150
STL01052	13C8 PFOA	92		50-150
STL02578	13C9 PFNA	102		50-150
STL02579	13C6 PFDA	90		50-150
STL02580	13C7 PFUnA	95		50-150
STL02703	13C2-PFDoDA	89		50-150
STL02116	13C2 PFTeDA	94		50-150
STL02337	13C3 PFBS	94		50-150
STL02581	13C3 PFHxS	96		50-150
STL01054	13C8 PFOS	103		50-150
STL02118	d3-NMeFOSAA	50		50-150
STL02117	d5-NEtFOSAA	57		50-150
STL01056	13C8 FOSA	61		50-150
STL00992	13C4 PFBA	86		50-150
STL01893	13C5 PFPeA	89		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-2-0-0.5 DL Lab Sample ID: 410-8511-14 DL

Matrix: Solid Lab File ID: 20JUL27-10.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:45

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.05(g) Date Analyzed: 07/27/2020 16:48

Con. Extract Vol.: 4(mL) Dilution Factor: 10

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 4.6 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid	760	D	6.0	4.0	2.0
39108-34-4	8:2 Fluorotelomer sulfonic acid	140	D	30	16	6.0

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02280	M2-8:2 FTS	76		50-150
STL01054	13C8 PFOS	88		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-2-1-1.5 Lab Sample ID: 410-8511-15

Matrix: Solid Lab File ID: 20JUL24-92.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:55

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.03(g) Date Analyzed: 07/24/2020 22:30

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.2 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	5.6		0.64	0.43	0.21
375-85-9	Perfluoroheptanoic acid	2.6	M	0.64	0.43	0.21
335-67-1	Perfluorooctanoic acid	68	M	0.64	0.43	0.21
375-95-1	Perfluorononanoic acid	11		0.64	0.43	0.21
335-76-2	Perfluorodecanoic acid	1.7	M	0.64	0.43	0.21
72629-94-8	Perfluorotridecanoic acid	0.47	J	0.64	0.43	0.21
376-06-7	Perfluorotetradecanoic acid	0.21	U	0.64	0.43	0.21
375-73-5	Perfluorobutanesulfonic acid	0.71	J	2.1	1.7	0.43
2991-50-6	NEtFOSAA	0.21	U	2.1	0.43	0.21
2355-31-9	NMeFOSAA	0.21	U	2.1	0.43	0.21
2706-91-4	Perfluoropentanesulfonic acid	1.1	J	3.2	0.43	0.21
375-92-8	Perfluoroheptanesulfonic acid	25		0.64	0.43	0.21
68259-12-1	Perfluorononanesulfonic acid	0.93		0.64	0.43	0.21
335-77-3	Perfluorodecanesulfonic acid	0.71		0.64	0.43	0.21
754-91-6	Perfluorooctanesulfonamide	9.6		0.64	0.43	0.21
375-22-4	Perfluorobutanoic acid	1.2	J	2.1	1.7	0.64
2706-90-3	Perfluoropentanoic acid	3.2		0.64	0.43	0.21
2058-94-8	Perfluoroundecanoic acid	0.21	U M	0.64	0.43	0.21
307-55-1	Perfluorododecanoic acid	0.21	U M	0.64	0.43	0.21
27619-97-2	6:2 Fluorotelomer sulfonic acid	29		2.1	1.7	0.64
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.64	U	2.1	1.7	0.64

NW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-2-1-1.5 Lab Sample ID: 410-8511-15

Matrix: Solid Lab File ID: 20JUL24-92.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:55

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.03(g) Date Analyzed: 07/24/2020 22:30

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.2 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	104		50-150
STL02280	M2-8:2 FTS	94		50-150
STL02279	M2-6:2 FTS	99		50-150
STL02577	13C5 PFHxA	101		50-150
STL01892	13C4 PFHpA	97		50-150
STL01052	13C8 PFOA	97		50-150
STL02578	13C9 PFNA	119		50-150
STL02579	13C6 PFDA	95		50-150
STL02580	13C7 PFUnA	99		50-150
STL02703	13C2-PFDoDA	96		50-150
STL02116	13C2 PFTeDA	99		50-150
STL02337	13C3 PFBS	96		50-150
STL02581	13C3 PFHxS	100		50-150
STL01054	13C8 PFOS	107		50-150
STL02118	d3-NMeFOSAA	54		50-150
STL02117	d5-NEtFOSAA	64		50-150
STL01056	13C8 FOSA	82		50-150
STL00992	13C4 PFBA	93		50-150
STL01893	13C5 PFPeA	94		50-150

15

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-2-1-1.5 DL Lab Sample ID: 410-8511-15 DL

Matrix: Solid Lab File ID: 20JUL27-11.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:55

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.03(g) Date Analyzed: 07/27/2020 16:57

Con. Extract Vol.: 4(mL) Dilution Factor: 10

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.2 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
355-46-4	Perfluorohexanesulfonic acid	150	~~D M~~	6.4	4.3	2.1
39108-34-4	8:2 Fluorotelomer sulfonic acid	280	p	32	17	6.4

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02280	M2-8:2 FTS	84		50-150
STL02581	13C3 PFHxS	90		50-150

15

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-2-1-1.5 DL2 Lab Sample ID: 410-8511-15 DL2

Matrix: Solid Lab File ID: 20JUL27-74.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 08:55

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.03(g) Date Analyzed: 07/28/2020 02:28

Con. Extract Vol.: 4(mL) Dilution Factor: 100

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.2 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid	1500	~~B~~ M	64	43	21

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01054	13C8 PFOS	104		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-3-0-0.5 Lab Sample ID: 410-8511-16

Matrix: Solid Lab File ID: 20JUL24-93.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:10

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.02(g) Date Analyzed: 07/24/2020 22:39

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 5.9 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	2.0	M	0.63	0.42	0.21
375-85-9	Perfluoroheptanoic acid	1.1		0.63	0.42	0.21
335-67-1	Perfluorooctanoic acid	3.8	M	0.63	0.42	0.21
375-95-1	Perfluorononanoic acid	1.7		0.63	0.42	0.21
335-76-2	Perfluorodecanoic acid	2.7		0.63	0.42	0.21
72629-94-8	Perfluorotridecanoic acid	0.67		0.63	0.42	0.21
376-06-7	Perfluorotetradecanoic acid	0.21	U	0.63	0.42	0.21
375-73-5	Perfluorobutanesulfonic acid	0.42	U	2.1	1.7	0.42
355-46-4	Perfluorohexanesulfonic acid	11	M	0.63	0.42	0.21
2991-50-6	NEtFOSAA	0.21	U	2.1	0.42	0.21
2355-31-9	NMeFOSAA	0.21	U	2.1	0.42	0.21
2706-91-4	Perfluoropentanesulfonic acid	0.26	J M	3.1	0.42	0.21
375-92-8	Perfluoroheptanesulfonic acid	0.75		0.63	0.42	0.21
68259-12-1	Perfluorononanesulfonic acid	1.9		0.63	0.42	0.21
335-77-3	Perfluorodecanesulfonic acid	2.7		0.63	0.42	0.21
754-91-6	Perfluorooctanesulfonamide	25		0.63	0.42	0.21
375-22-4	Perfluorobutanoic acid	0.91	J	2.1	1.7	0.63
2706-90-3	Perfluoropentanoic acid	1.5		0.63	0.42	0.21
2058-94-8	Perfluoroundecanoic acid	0.65	M	0.63	0.42	0.21
307-55-1	Perfluorododecanoic acid	0.30	J M	0.63	0.42	0.21
27619-97-2	6:2 Fluorotelomer sulfonic acid	5.8		2.1	1.7	0.63
39108-34-4	8:2 Fluorotelomer sulfonic acid	36		3.1	1.7	0.63
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.63	U	2.1	1.7	0.63

MW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-3-0-0.5 Lab Sample ID: 410-8511-16

Matrix: Solid Lab File ID: 20JUL24-93.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:10

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.02(g) Date Analyzed: 07/24/2020 22:39

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 5.9 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	100		50-150
STL02280	M2-8:2 FTS	100		50-150
STL02279	M2-6:2 FTS	110		50-150
STL02577	13C5 PFHxA	96		50-150
STL01892	13C4 PFHpA	96		50-150
STL01052	13C8 PFOA	99		50-150
STL02578	13C9 PFNA	99		50-150
STL02579	13C6 PFDA	91		50-150
STL02580	13C7 PFUnA	97		50-150
STL02703	13C2-PFDoDA	96		50-150
STL02116	13C2 PFTeDA	96		50-150
STL02337	13C3 PFBS	95		50-150
STL02581	13C3 PFHxS	101		50-150
STL01054	13C8 PFOS	101		50-150
STL02118	d3-NMeFOSAA	52		50-150
STL02117	d5-NEtFOSAA	62		50-150
STL01056	13C8 FOSA	64		50-150
STL00992	13C4 PFBA	88		50-150
STL01893	13C5 PFPeA	88		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-3-0-0.5 DL Lab Sample ID: 410-8511-16 DL

Matrix: Solid Lab File ID: 20JUL27-12.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:10

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.02(g) Date Analyzed: 07/27/2020 17:06

Con. Extract Vol.: 4(mL) Dilution Factor: 10

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 5.9 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid	430	~~D M~~	6.3	4.2	2.1

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01054	13C8 PFOS	86		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-3-1-1.4 Lab Sample ID: 410-8511-17

Matrix: Solid Lab File ID: 20JUL27-29.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:18

Extraction Method: 537 (Mod) Date Extracted: 07/27/2020 08:21

Sample wt/vol: 1.00(g) Date Analyzed: 07/27/2020 19:40

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.3 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	1.8	M	0.66	0.44	0.22
375-85-9	Perfluoroheptanoic acid	2.0		0.66	0.44	0.22
335-67-1	Perfluorooctanoic acid	10	M	0.66	0.44	0.22
375-95-1	Perfluorononanoic acid	8.1		0.66	0.44	0.22
335-76-2	Perfluorodecanoic acid	0.93	M	0.66	0.44	0.22
72629-94-8	Perfluorotridecanoic acid	0.22	U	0.66	0.44	0.22
376-06-7	Perfluorotetradecanoic acid	0.22	U	0.66	0.44	0.22
375-73-5	Perfluorobutanesulfonic acid	0.44	U	2.2	1.8	0.44
355-46-4	Perfluorohexanesulfonic acid	17	M	0.66	0.44	0.22
2991-50-6	NEtFOSAA	0.22	U	2.2	0.44	0.22
2355-31-9	NMeFOSAA	0.22	U	2.2	0.44	0.22
2706-91-4	Perfluoropentanesulfonic acid	0.22	U	3.3	0.44	0.22
375-92-8	Perfluoroheptanesulfonic acid	3.5		0.66	0.44	0.22
68259-12-1	Perfluorononanesulfonic acid	0.51	J	0.66	0.44	0.22
335-77-3	Perfluorodecanesulfonic acid	0.48	J	0.66	0.44	0.22
754-91-6	Perfluorooctanesulfonamide	6.1		0.66	0.44	0.22
375-22-4	Perfluorobutanoic acid	1.0	J	2.2	1.8	0.66
2706-90-3	Perfluoropentanoic acid	2.4		0.66	0.44	0.22
2058-94-8	Perfluoroundecanoic acid	0.22	U	0.66	0.44	0.22
307-55-1	Perfluorododecanoic acid	0.22	U	0.66	0.44	0.22
27619-97-2	6:2 Fluorotelomer sulfonic acid	11		2.2	1.8	0.66
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.66	U	2.2	1.8	0.66

17

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-3-1-1.4 Lab Sample ID: 410-8511-17

Matrix: Solid Lab File ID: 20JUL27-29.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:18

Extraction Method: 537 (Mod) Date Extracted: 07/27/2020 08:21

Sample wt/vol: 1.00(g) Date Analyzed: 07/27/2020 19:40

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.3 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	118		50-150
STL02280	M2-8:2 FTS	119		50-150
STL02279	M2-6:2 FTS	113		50-150
STL02577	13C5 PFHxA	112		50-150
STL01892	13C4 PFHpA	112		50-150
STL01052	13C8 PFOA	111		50-150
STL02578	13C9 PFNA	131		50-150
STL02579	13C6 PFDA	117		50-150
STL02580	13C7 PFUnA	117		50-150
STL02703	13C2-PFDoDA	113		50-150
STL02116	13C2 PFTeDA	111		50-150
STL02337	13C3 PFBS	107		50-150
STL02581	13C3 PFHxS	116		50-150
STL01054	13C8 PFOS	110		50-150
STL02118	d3-NMeFOSAA	77		50-150
STL02117	d5-NEtFOSAA	86		50-150
STL01056	13C8 FOSA	108		50-150
STL00992	13C4 PFBA	106		50-150
STL01893	13C5 PFPeA	103		50-150

17

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-3-1-1.4 DL Lab Sample ID: 410-8511-17 DL

Matrix: Solid Lab File ID: 20JUL28-31.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:18

Extraction Method: 537 (Mod) Date Extracted: 07/27/2020 08:21

Sample wt/vol: 1.00(g) Date Analyzed: 07/28/2020 20:45

Con. Extract Vol.: 4(mL) Dilution Factor: 10

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.3 GPC Cleanup:(Y/N) N

Analysis Batch No.: 27160 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
39108-34-4	8:2 Fluorotelomer sulfonic acid	180	D	33	18	6.6

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02280	M2-8:2 FTS	101		50-150

17

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-3-1-1.4 DL2 Lab Sample ID: 410-8511-17 DL2

Matrix: Solid Lab File ID: 20JUL29-24.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:18

Extraction Method: 537 (Mod) Date Extracted: 07/27/2020 08:21

Sample wt/vol: 1.00(g) Date Analyzed: 07/29/2020 12:25

Con. Extract Vol.: 4(mL) Dilution Factor: 100

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.3 GPC Cleanup:(Y/N) N

Analysis Batch No.: 27503 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid	1500	~~D~~ M	66	44	22

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01054	13C8 PFOS	78		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-4-0-0.5 Lab Sample ID: 410-8511-18

Matrix: Solid Lab File ID: 20JUL24-96.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:30

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.05(g) Date Analyzed: 07/24/2020 23:06

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.6 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	0.69	M	0.63	0.42	0.21
375-85-9	Perfluoroheptanoic acid	0.40	J	0.63	0.42	0.21
335-67-1	Perfluorooctanoic acid	1.2	M	0.63	0.42	0.21
375-95-1	Perfluorononanoic acid	5.2		0.63	0.42	0.21
335-76-2	Perfluorodecanoic acid	0.76	M	0.63	0.42	0.21
72629-94-8	Perfluorotridecanoic acid	0.21	U M	0.63	0.42	0.21
376-06-7	Perfluorotetradecanoic acid	0.21	U	0.63	0.42	0.21
375-73-5	Perfluorobutanesulfonic acid	0.42	U	2.1	1.7	0.42
355-46-4	Perfluorohexanesulfonic acid	3.0	M	0.63	0.42	0.21
2991-50-6	NEtFOSAA	0.21	U	2.1	0.42	0.21
2355-31-9	NMeFOSAA	0.21	U UJ	2.1	0.42	0.21
2706-91-4	Perfluoropentanesulfonic acid	0.21	U	3.2	0.42	0.21
375-92-8	Perfluoroheptanesulfonic acid	0.53	J	0.63	0.42	0.21
68259-12-1	Perfluorononanesulfonic acid	0.24	J	0.63	0.42	0.21
335-77-3	Perfluorodecanesulfonic acid	0.25	J	0.63	0.42	0.21
754-91-6	Perfluorooctanesulfonamide	0.32	J	0.63	0.42	0.21
375-22-4	Perfluorobutanoic acid	0.68	J	2.1	1.7	0.63
2706-90-3	Perfluoropentanoic acid	0.67		0.63	0.42	0.21
2058-94-8	Perfluoroundecanoic acid	0.31	J M	0.63	0.42	0.21
307-55-1	Perfluorododecanoic acid	0.21	U	0.63	0.42	0.21
27619-97-2	6:2 Fluorotelomer sulfonic acid	0.63	U	2.1	1.7	0.63
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.63	U	3.2	1.7	0.63
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.63	U	2.1	1.7	0.63

Surr

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-4-0-0.5 Lab Sample ID: 410-8511-18

Matrix: Solid Lab File ID: 20JUL24-96.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:30

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.05(g) Date Analyzed: 07/24/2020 23:06

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.6 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	95		50-150
STL02280	M2-8:2 FTS	90		50-150
STL02279	M2-6:2 FTS	99		50-150
STL02577	13C5 PFHxA	89		50-150
STL01892	13C4 PFHpA	87		50-150
STL01052	13C8 PFOA	91		50-150
STL02578	13C9 PFNA	91		50-150
STL02579	13C6 PFDA	87		50-150
STL02580	13C7 PFUnA	89		50-150
STL02703	13C2-PFDoDA	88		50-150
STL02116	13C2 PFTeDA	89		50-150
STL02337	13C3 PFBS	92		50-150
STL02581	13C3 PFHxS	99		50-150
STL01054	13C8 PFOS	98		50-150
STL02118	d3-NMeFOSAA	45	Ø	50-150
STL02117	d5-NEtFOSAA	61		50-150
STL01056	13C8 FOSA	76		50-150
STL00992	13C4 PFBA	84		50-150
STL01893	13C5 PFPeA	85		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

18

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-4-0-0.5 DL Lab Sample ID: 410-8511-18 DL

Matrix: Solid Lab File ID: 20JUL27-14.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:30

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.05(g) Date Analyzed: 07/27/2020 17:24

Con. Extract Vol.: 4(mL) Dilution Factor: 10

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.6 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid	130	~~D M~~	6.3	4.2	2.1

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL01054	13C8 PFOS	84		50-150

18RE

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-4-0-0.5 RE Lab Sample ID: 410-8511-18 RE

Matrix: Solid Lab File ID: 20JUL27-30.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:30

Extraction Method: 537 (Mod) Date Extracted: 07/27/2020 08:21

Sample wt/vol: 1.01(g) Date Analyzed: 07/27/2020 19:49 use EDS #18

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.6 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	0.69		0.66	0.44	0.22
375-85-9	Perfluoroheptanoic acid	0.35	J	0.66	0.44	0.22
335-67-1	Perfluorooctanoic acid	1.3	M	0.66	0.44	0.22
375-95-1	Perfluorononanoic acid	4.7		0.66	0.44	0.22
335-76-2	Perfluorodecanoic acid	0.22	U	0.66	0.44	0.22
72629-94-8	Perfluorotridecanoic acid	0.22	U	0.66	0.44	0.22
376-06-7	Perfluorotetradecanoic acid	0.22	U	0.66	0.44	0.22
375-73-5	Perfluorobutanesulfonic acid	0.44	U	2.2	1.8	0.44
355-46-4	Perfluorohexanesulfonic acid	3.2		0.66	0.44	0.22
1763-23-1	Perfluorooctanesulfonic acid	110	~~E M~~ J	0.66	0.44	0.22 CQ
2991-50-6	NEtFOSAA	0.22	U	2.2	0.44	0.22
2355-31-9	NMeFOSAA	0.22	~~U~~ UJ	2.2	0.44	0.22 surr
2706-91-4	Perfluoropentanesulfonic acid	0.22	U	3.3	0.44	0.22
375-92-8	Perfluoroheptanesulfonic acid	0.51	J	0.66	0.44	0.22
68259-12-1	Perfluorononanesulfonic acid	0.22	U	0.66	0.44	0.22
335-77-3	Perfluorodecanesulfonic acid	0.22	U	0.66	0.44	0.22
754-91-6	Perfluorooctanesulfonamide	0.35	J	0.66	0.44	0.22
375-22-4	Perfluorobutanoic acid	0.68	J	2.2	1.8	0.66
2706-90-3	Perfluoropentanoic acid	0.68		0.66	0.44	0.22
2058-94-8	Perfluoroundecanoic acid	0.47	J	0.66	0.44	0.22
307-55-1	Perfluorododecanoic acid	0.22	U	0.66	0.44	0.22
27619-97-2	6:2 Fluorotelomer sulfonic acid	0.66	U	2.2	1.8	0.66
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.66	U	3.3	1.8	0.66
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.66	U	2.2	1.8	0.66

18RE

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-4-0-0.5 RE Lab Sample ID: 410-8511-18 RE

Matrix: Solid Lab File ID: 20JUL27-30.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:30

Extraction Method: 537 (Mod) Date Extracted: 07/27/2020 08:21

Sample wt/vol: 1.01(g) Date Analyzed: 07/27/2020 19:49 Use EDS #18

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 9.6 GPC Cleanup: (Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	101		50-150
STL02280	M2-8:2 FTS	97		50-150
STL02279	M2-6:2 FTS	110		50-150
STL02577	13C5 PFHxA	101		50-150
STL01892	13C4 PFHpA	106		50-150
STL01052	13C8 PFOA	106		50-150
STL02578	13C9 PFNA	105		50-150
STL02579	13C6 PFDA	99		50-150
STL02580	13C7 PFUnA	109		50-150
STL02703	13C2-PFDoDA	102		50-150
STL02116	13C2 PFTeDA	101		50-150
STL02337	13C3 PFBS	102		50-150
STL02581	13C3 PFHxS	111		50-150
STL01054	13C8 PFOS	111		50-150
STL02118	d3-NMeFOSAA	49	9	50-150
STL02117	d5-NEtFOSAA	60		50-150
STL01056	13C8 FOSA	94		50-150
STL00992	13C4 PFBA	98		50-150
STL01893	13C5 PFPeA	97		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-4-1-1.4 Lab Sample ID: 410-8511-19

Matrix: Solid Lab File ID: 20JUL24-97.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:35

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.06(g) Date Analyzed: 07/24/2020 23:16

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 15.1 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	0.84		0.67	0.44	0.22
375-85-9	Perfluoroheptanoic acid	0.61	J	0.67	0.44	0.22
335-67-1	Perfluorooctanoic acid	13	M	0.67	0.44	0.22
375-95-1	Perfluorononanoic acid	2.2		0.67	0.44	0.22
335-76-2	Perfluorodecanoic acid	0.22	U	0.67	0.44	0.22
72629-94-8	Perfluorotridecanoic acid	0.22	U	0.67	0.44	0.22
376-06-7	Perfluorotetradecanoic acid	0.22	U	0.67	0.44	0.22
375-73-5	Perfluorobutanesulfonic acid	0.44	U	2.2	1.8	0.44
355-46-4	Perfluorohexanesulfonic acid	37	M	0.67	0.44	0.22
1763-23-1	Perfluorooctanesulfonic acid	29	M	0.67	0.44	0.22
2991-50-6	NEtFOSAA	0.22	U	2.2	0.44	0.22
2355-31-9	NMeFOSAA	0.22	U	2.2	0.44	0.22
2706-91-4	Perfluoropentanesulfonic acid	0.22	U	3.3	0.44	0.22
375-92-8	Perfluoroheptanesulfonic acid	1.3		0.67	0.44	0.22
68259-12-1	Perfluorononanesulfonic acid	0.22	U	0.67	0.44	0.22
335-77-3	Perfluorodecanesulfonic acid	0.22	U	0.67	0.44	0.22
754-91-6	Perfluorooctanesulfonamide	0.22	U	0.67	0.44	0.22
375-22-4	Perfluorobutanoic acid	0.67	U	2.2	1.8	0.67
2706-90-3	Perfluoropentanoic acid	1.0		0.67	0.44	0.22
2058-94-8	Perfluoroundecanoic acid	0.22	U	0.67	0.44	0.22
307-55-1	Perfluorododecanoic acid	0.22	U	0.67	0.44	0.22
27619-97-2	6:2 Fluorotelomer sulfonic acid	0.67	U	2.2	1.8	0.67
39108-34-4	8:2 Fluorotelomer sulfonic acid	0.67	U	3.3	1.8	0.67
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.67	U	2.2	1.8	0.67

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: SB-4-1-1.4 Lab Sample ID: 410-8511-19

Matrix: Solid Lab File ID: 20JUL24-97.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 09:35

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.06(g) Date Analyzed: 07/24/2020 23:16

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 15.1 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	107		50-150
STL02280	M2-8:2 FTS	99		50-150
STL02279	M2-6:2 FTS	106		50-150
STL02577	13C5 PFHxA	103		50-150
STL01892	13C4 PFHpA	99		50-150
STL01052	13C8 PFOA	103		50-150
STL02578	13C9 PFNA	99		50-150
STL02579	13C6 PFDA	96		50-150
STL02580	13C7 PFUnA	104		50-150
STL02703	13C2-PFDoDA	97		50-150
STL02116	13C2 PFTeDA	93		50-150
STL02337	13C3 PFBS	98		50-150
STL02581	13C3 PFHxS	106		50-150
STL01054	13C8 PFOS	104		50-150
STL02118	d3-NMeFOSAA	67		50-150
STL02117	d5-NEtFOSAA	77		50-150
STL01056	13C8 FOSA	93		50-150
STL00992	13C4 PFBA	97		50-150
STL01893	13C5 PFPeA	99		50-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

20

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: FD-07212020 Lab Sample ID: 410-8511-20

Matrix: Solid Lab File ID: 20JUL24-98.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 00:00

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.06(g) Date Analyzed: 07/24/2020 23:25

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 4.3 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
307-24-4	Perfluorohexanoic acid	1.8		0.59	0.39	0.20
375-85-9	Perfluoroheptanoic acid	0.61	M	0.59	0.39	0.20
335-67-1	Perfluorooctanoic acid	5.1	M	0.59	0.39	0.20
375-95-1	Perfluorononanoic acid	3.8		0.59	0.39	0.20
335-76-2	Perfluorodecanoic acid	3.7	M	0.59	0.39	0.20
72629-94-8	Perfluorotridecanoic acid	3.8		0.59	0.39	0.20
376-06-7	Perfluorotetradecanoic acid	0.20	U	0.59	0.39	0.20
375-73-5	Perfluorobutanesulfonic acid	0.39	U	2.0	1.6	0.39
355-46-4	Perfluorohexanesulfonic acid	23	M	0.59	0.39	0.20
2991-50-6	NEtFOSAA	0.28	J	2.0	0.39	0.20
2355-31-9	NMeFOSAA	0.20	U	2.0	0.39	0.20
2706-91-4	Perfluoropentanesulfonic acid	0.46	J	3.0	0.39	0.20
375-92-8	Perfluoroheptanesulfonic acid	1.1		0.59	0.39	0.20
68259-12-1	Perfluorononanesulfonic acid	2.6		0.59	0.39	0.20
335-77-3	Perfluorodecanesulfonic acid	2.2		0.59	0.39	0.20
754-91-6	Perfluorooctanesulfonamide	10		0.59	0.39	0.20
375-22-4	Perfluorobutanoic acid	0.81	J	2.0	1.6	0.59
2706-90-3	Perfluoropentanoic acid	1.0		0.59	0.39	0.20
2058-94-8	Perfluoroundecanoic acid	0.97	M	0.59	0.39	0.20
307-55-1	Perfluorododecanoic acid	0.48	J M	0.59	0.39	0.20
27619-97-2	6:2 Fluorotelomer sulfonic acid	1.7	J	2.0	1.6	0.59
757124-72-4	4:2 Fluorotelomer sulfonic acid	0.59	U	2.0	1.6	0.59

NW 9/3/20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

20

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: FD-07212020 Lab Sample ID: 410-8511-20

Matrix: Solid Lab File ID: 20JUL24-98.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 00:00

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.06(g) Date Analyzed: 07/24/2020 23:25

Con. Extract Vol.: 4(mL) Dilution Factor: 1

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 4.3 GPC Cleanup:(Y/N) N

Analysis Batch No.: 25943 Units: ng/g

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02395	M2-4:2 FTS	90		50-150
STL02280	M2-8:2 FTS	90		50-150
STL02279	M2-6:2 FTS	92		50-150
STL02577	13C5 PFHxA	84		50-150
STL01892	13C4 PFHpA	88		50-150
STL01052	13C8 PFOA	85		50-150
STL02578	13C9 PFNA	99		50-150
STL02579	13C6 PFDA	89		50-150
STL02580	13C7 PFUnA	97		50-150
STL02703	13C2-PFDoDA	96		50-150
STL02116	13C2 PFTeDA	96		50-150
STL02337	13C3 PFBS	87		50-150
STL02581	13C3 PFHxS	92		50-150
STL01054	13C8 PFOS	97		50-150
STL02118	d3-NMeFOSAA	51		50-150
STL02117	d5-NEtFOSAA	62		50-150
STL01056	13C8 FOSA	71		50-150
STL00992	13C4 PFBA	83		50-150
STL01893	13C5 PFPeA	86		50-150

20

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Lancaster Laboratories E Job No.: 410-8511-1

SDG No.:

Client Sample ID: FD-07212020 DL Lab Sample ID: 410-8511-20 DL

Matrix: Solid Lab File ID: 20JUL27-15.d

Analysis Method: EPA 537 (Mod) Date Collected: 07/21/2020 00:00

Extraction Method: 537 (Mod) Date Extracted: 07/24/2020 09:12

Sample wt/vol: 1.06(g) Date Analyzed: 07/27/2020 17:33

Con. Extract Vol.: 4(mL) Dilution Factor: 10

Injection Volume: 3(uL) GC Column: Gemini C18 50mm ID: 3(mm)

% Moisture: 4.3 GPC Cleanup:(Y/N) N

Analysis Batch No.: 26801 Units: ng/g

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid	810	~~D M~~	5.9	3.9	2.0
39108-34-4	8:2 Fluorotelomer sulfonic acid	130	J	30	16	5.9

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL02280	M2-8:2 FTS	69		50-150
STL01054	13C8 PFOS	80		50-150

Appendix F

Laboratory Report

This page intentionally left blank

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Tel: (717)656-2300

Laboratory Job ID: 410-8511-1
Client Project/Site: Montana Air National Guard / 6280606

For:
EA Engineering, Science, and Technology
225 Schilling Circle
Suite 400
Hunt Valley, Maryland 21031

Attn: Accounts Payable (Mid-Atlantic)

Authorized for release by:
8/3/2020 3:14:23 PM

Kay Hower, Principal Project Manager
(717)556-7364
kayhower@eurofinsus.com

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments. QC data that exceed the upper limits and are associated with non-detect samples are qualified but no further narration is needed since the bias is high and does not change a non-detect result. Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANACASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Kay Hower
Principal Project Manager
8/3/2020 3:14:23 PM

Table of Contents

Definitions/Glossary

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

Qualifiers

LCMS

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
D	The reported value is from a dilution.
E	Result exceeded calibration range.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J1	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
M	Manual integrated compound.
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-8511-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Narrative

Job Narrative
410-8511-1

Receipt
The samples were received on 7/22/2020 11:06 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.5º C.

LCMS
Method EPA 537 (Mod): The labeled isotope recovery for the following samples were outside of the QC acceptance limits as noted on the QC Summary: MW-1 (410-8511-1), MW-3 (410-8511-3), RB-07202020 (410-8511-9) and IDW-AQ (410-8511-11). The following action was taken:
The sample was re-extracted within the method holding time and the labeled isotope recovery was again outside of the QC acceptance limits.

Method EPA 537 (Mod): The labeled isotope recovery for the following samples were outside of the QC acceptance limits as noted on the QC Summary: SB-1-1-1.45 (410-8511-13) and SB-4-0-0.5 (410-8511-18). The following action was taken:
The sample was re-extracted within the method holding time and the labeled isotope recovery was again outside of the QC acceptance limits.

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

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

Detection Summary

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

Client Sample ID: MW-1 — Lab Sample ID: 410-8511-1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	1.4	J M	1.7	0.86	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	1.4	J M	1.7	0.86	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanesulfonic acid	0.61	J	1.7	0.86	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	2.2	M	1.7	0.86	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid	2.0		1.7	0.86	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	1.6	J	1.7	0.86	0.43	ng/L	1		EPA 537 (Mod)	Total/NA

Client Sample ID: MW-2 — Lab Sample ID: 410-8511-2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	19	M	1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	9.1		1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	6.9	M	1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanesulfonic acid	2.7		1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	29	M	1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	2.6		1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	7.8		4.1	3.3	1.7	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	20		1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA

Client Sample ID: MW-3 — Lab Sample ID: 410-8511-3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	65	M	1.8	0.89	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	18		1.8	0.89	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	86	M	1.8	0.89	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorononanoic acid	1.5	J	1.8	0.89	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanesulfonic acid	9.2		1.8	0.89	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid	130	M	1.8	0.89	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	10		1.8	0.89	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	3.5		1.8	0.89	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonamide	1.4	J M	1.8	0.89	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	18		4.5	3.6	1.8	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	69		1.8	0.89	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid - DL	210	D M	18	8.9	4.5	ng/L	10		EPA 537 (Mod)	Total/NA

Client Sample ID: MW-4 — Lab Sample ID: 410-8511-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	8.9		1.8	0.90	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	1.4	J	1.8	0.90	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	11	M J1	1.8	0.90	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanesulfonic acid	2.3		1.8	0.90	0.45	ng/L	1		EPA 537 (Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

Client Sample ID: MW-4 (Continued) — Lab Sample ID: 410-8511-4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid	19	M	1.8	0.90	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid	1.0	J M	1.8	0.90	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	2.4		1.8	0.90	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	6.0		4.5	3.6	1.8	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	6.2		1.8	0.90	0.45	ng/L	1		EPA 537 (Mod)	Total/NA
6:2 Fluorotelomer sulfonic acid	3.6	J	4.5	3.6	1.8	ng/L	1		EPA 537 (Mod)	Total/NA

Client Sample ID: MW-5 — Lab Sample ID: 410-8511-5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid	0.55	J M	1.8	0.90	0.45	ng/L	1		EPA 537 (Mod)	Total/NA

Client Sample ID: MW-6 — Lab Sample ID: 410-8511-6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	37		1.7	0.85	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	6.4		1.7	0.85	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	48	M	1.7	0.85	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanesulfonic acid	6.8		1.7	0.85	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	110	M	1.7	0.85	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid	33	M	1.7	0.85	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	6.6		1.7	0.85	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	1.7		1.7	0.85	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	9.9		4.3	3.4	1.7	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	26		1.7	0.85	0.43	ng/L	1		EPA 537 (Mod)	Total/NA

Client Sample ID: MW-7 — Lab Sample ID: 410-8511-7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	23	M	1.7	0.87	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	2.7	M	1.7	0.87	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	2.7	M	1.7	0.87	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanesulfonic acid	3.2		1.7	0.87	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	7.6	M	1.7	0.87	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid	0.69	J M	1.7	0.87	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	2.1	M	1.7	0.87	0.43	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	9.6	M	4.3	3.5	1.7	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	20		1.7	0.87	0.43	ng/L	1		EPA 537 (Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

Client Sample ID: FD-07202020 — Lab Sample ID: 410-8511-8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	66		1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	18	M	1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	86	M	1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanesulfonic acid	9.6		1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid	120	M	1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	11		1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	3.4		1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonamide	0.88	J	1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	18		4.1	3.3	1.7	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	67		1.7	0.83	0.41	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid - DL	210	D M	17	8.3	4.1	ng/L	10		EPA 537 (Mod)	Total/NA

Client Sample ID: RB-07202020 — Lab Sample ID: 410-8511-9

No Detections.

Client Sample ID: RB-07212020 — Lab Sample ID: 410-8511-10

No Detections.

Client Sample ID: IDW-AQ — Lab Sample ID: 410-8511-11

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	28	M	1.7	0.87	0.44	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	3.9		1.7	0.87	0.44	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	37	M	1.7	0.87	0.44	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanesulfonic acid	4.4		1.7	0.87	0.44	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	54	M	1.7	0.87	0.44	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid	20	M	1.7	0.87	0.44	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	4.5		1.7	0.87	0.44	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	0.72	J	1.7	0.87	0.44	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	12		4.4	3.5	1.7	ng/L	1		EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	19		1.7	0.87	0.44	ng/L	1		EPA 537 (Mod)	Total/NA
6:2 Fluorotelomer sulfonic acid	2.1	J	4.4	3.5	1.7	ng/L	1		EPA 537 (Mod)	Total/NA

Client Sample ID: SB-1-0-0.5 — Lab Sample ID: 410-8511-12

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	2.4		0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	0.50	J	0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	3.4	M	0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanoic acid	11		0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanoic acid	4.3		0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorotridecanoic acid	2.0		0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SB-1-0-0.5 (Continued) — Lab Sample ID: 410-8511-12

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid	35	M	0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	0.30	J M	3.2	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	3.0		0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanesulfonic acid	3.2	J1	0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanesulfonic acid	3.2		0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonamide	11		0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	0.99	J	2.1	1.7	0.64	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	1.2		0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroundecanoic acid	1.6	M	0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorododecanoic acid	0.48	J M	0.64	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
8:2 Fluorotelomer sulfonic acid	1.7	J	3.2	1.7	0.64	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid - DL	830	D M	6.4	4.2	2.1	ng/g	10	☼	EPA 537 (Mod)	Total/NA

Client Sample ID: SB-1-1-1.45 — Lab Sample ID: 410-8511-13

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	4.2		0.67	0.45	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	1.4		0.67	0.45	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	46	M	0.67	0.45	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanoic acid	17		0.67	0.45	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanoic acid	0.67	M	0.67	0.45	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	1.2	J M	3.4	0.45	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	28		0.67	0.45	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanesulfonic acid	0.31	J M	0.67	0.45	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonamide	3.7		0.67	0.45	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	1.4	J	2.2	1.8	0.67	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	2.1		0.67	0.45	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
6:2 Fluorotelomer sulfonic acid	1.6	J	2.2	1.8	0.67	ng/g	1	☼	EPA 537 (Mod)	Total/NA
8:2 Fluorotelomer sulfonic acid	2.3	J	3.4	1.8	0.67	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid - DL	220	D M	6.7	4.5	2.2	ng/g	10	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid - DL	790	D M	6.7	4.5	2.2	ng/g	10	☼	EPA 537 (Mod)	Total/NA

Client Sample ID: SB-2-0-0.5 — Lab Sample ID: 410-8511-14

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	1.7	M	0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	0.61		0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	5.4	M	0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SB-2-0-0.5 (Continued) — Lab Sample ID: 410-8511-14

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid	3.9		0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanoic acid	3.5	M	0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorotridecanoic acid	3.9		0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	22	M	0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	0.42	J	3.0	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	1.1		0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanesulfonic acid	2.5		0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanesulfonic acid	2.4		0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonamide	9.9		0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	0.87	J	2.0	1.6	0.60	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	1.0	M	0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroundecanoic acid	1.1	M	0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorododecanoic acid	0.46	J M	0.60	0.40	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
6:2 Fluorotelomer sulfonic acid	1.6	J	2.0	1.6	0.60	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid - DL	760	D	6.0	4.0	2.0	ng/g	10	☼	EPA 537 (Mod)	Total/NA
8:2 Fluorotelomer sulfonic acid - DL	140	D	30	16	6.0	ng/g	10	☼	EPA 537 (Mod)	Total/NA

Client Sample ID: SB-2-1-1.5 — Lab Sample ID: 410-8511-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	5.6		0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	2.6	M	0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	68	M	0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanoic acid	11		0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanoic acid	1.7	M	0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorotridecanoic acid	0.47	J	0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorobutanesulfonic acid	0.71	J	2.1	1.7	0.43	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	1.1	J	3.2	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	25		0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanesulfonic acid	0.93		0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanesulfonic acid	0.71		0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonamide	9.6		0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	1.2	J	2.1	1.7	0.64	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	3.2		0.64	0.43	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
6:2 Fluorotelomer sulfonic acid	29		2.1	1.7	0.64	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid - DL	150	D M	6.4	4.3	2.1	ng/g	10	☼	EPA 537 (Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SB-2-1-1.5 (Continued) — Lab Sample ID: 410-8511-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
8:2 Fluorotelomer sulfonic acid - DL	280	D	32	17	6.4	ng/g	10	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid - DL2	1500	D M	64	43	21	ng/g	100	☼	EPA 537 (Mod)	Total/NA

Client Sample ID: SB-3-0-0.5 — Lab Sample ID: 410-8511-16

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	2.0	M	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	1.1		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	3.8	M	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanoic acid	1.7		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanoic acid	2.7		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorotridecanoic acid	0.67		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	11	M	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	0.26	J M	3.1	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	0.75		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanesulfonic acid	1.9		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanesulfonic acid	2.7		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonamide	25		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	0.91	J	2.1	1.7	0.63	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	1.5		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroundecanoic acid	0.65	M	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorododecanoic acid	0.30	J M	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
6:2 Fluorotelomer sulfonic acid	5.8		2.1	1.7	0.63	ng/g	1	☼	EPA 537 (Mod)	Total/NA
8:2 Fluorotelomer sulfonic acid	36		3.1	1.7	0.63	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid - DL	430	D M	6.3	4.2	2.1	ng/g	10	☼	EPA 537 (Mod)	Total/NA

Client Sample ID: SB-3-1-1.4 — Lab Sample ID: 410-8511-17

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	1.8	M	0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	2.0		0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	10	M	0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanoic acid	8.1		0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanoic acid	0.93	M	0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	17	M	0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	3.5		0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanesulfonic acid	0.51	J	0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanesulfonic acid	0.48	J	0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SB-3-1-1.4 (Continued) — Lab Sample ID: 410-8511-17

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonamide	6.1		0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	1.0	J	2.2	1.8	0.66	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	2.4		0.66	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
6:2 Fluorotelomer sulfonic acid	11		2.2	1.8	0.66	ng/g	1	☼	EPA 537 (Mod)	Total/NA
8:2 Fluorotelomer sulfonic acid - DL	180	D	33	18	6.6	ng/g	10	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid - DL2	1500	D M	66	44	22	ng/g	100	☼	EPA 537 (Mod)	Total/NA

Client Sample ID: SB-4-0-0.5 — Lab Sample ID: 410-8511-18

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	0.69	M	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	0.40	J	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	1.2	M	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanoic acid	5.2		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanoic acid	0.76	M	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	3.0	M	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	0.53	J	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanesulfonic acid	0.24	J	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanesulfonic acid	0.25	J	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonamide	0.32	J	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	0.68	J	2.1	1.7	0.63	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	0.67		0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroundecanoic acid	0.31	J M	0.63	0.42	0.21	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid - DL	130	D M	6.3	4.2	2.1	ng/g	10	☼	EPA 537 (Mod)	Total/NA

Client Sample ID: SB-4-1-1.4 — Lab Sample ID: 410-8511-19

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	0.84		0.67	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	0.61	J	0.67	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanoic acid	13	M	0.67	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanoic acid	2.2		0.67	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	37	M	0.67	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid	29	M	0.67	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	1.3		0.67	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	1.0		0.67	0.44	0.22	ng/g	1	☼	EPA 537 (Mod)	Total/NA

Client Sample ID: FD-07212020 — Lab Sample ID: 410-8511-20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	1.8		0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanoic acid	0.61	M	0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

Client Sample ID: FD-07212020 (Continued)
Lab Sample ID: 410-8511-20

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid	5.1	M	0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanoic acid	3.8		0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanoic acid	3.7	M	0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorotridecanoic acid	3.8		0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorohexanesulfonic acid	23	M	0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
NEtFOSAA	0.28	J	2.0	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanesulfonic acid	0.46	J	3.0	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroheptanesulfonic acid	1.1		0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorononanesulfonic acid	2.6		0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorodecanesulfonic acid	2.2		0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonamide	10		0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorobutanoic acid	0.81	J	2.0	1.6	0.59	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoropentanoic acid	1.0		0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluoroundecanoic acid	0.97	M	0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorododecanoic acid	0.48	J M	0.59	0.39	0.20	ng/g	1	☼	EPA 537 (Mod)	Total/NA
6:2 Fluorotelomer sulfonic acid	1.7	J	2.0	1.6	0.59	ng/g	1	☼	EPA 537 (Mod)	Total/NA
Perfluorooctanesulfonic acid - DL	810	D M	5.9	3.9	2.0	ng/g	10	☼	EPA 537 (Mod)	Total/NA
8:2 Fluorotelomer sulfonic acid - DL	130	D	30	16	5.9	ng/g	10	☼	EPA 537 (Mod)	Total/NA

Client Sample ID: IDW-SO-1
Lab Sample ID: 410-8511-21

No Detections.

Client Sample ID: IDW-SO-2
Lab Sample ID: 410-8511-22

No Detections.

This Detection Summary does not include radiochemical test results.

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: MW-1

Date Collected: 07/20/20 08:25
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-1

Matrix: Water

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**1.4**	**J M**	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluoroheptanoic acid	0.43	U M	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorooctanoic acid	**1.4**	**J M**	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorononanoic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorodecanoic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorotridecanoic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorotetradecanoic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorobutanesulfonic acid	**0.61**	**J**	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorohexanesulfonic acid	**2.2**	**M**	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorooctanesulfonic acid	**2.0**		1.7	0.86	0.43	ng/L		07/29/20 17:33	1
NEtFOSAA	0.43	U	2.6	0.86	0.43	ng/L		07/29/20 17:33	1
NMeFOSAA	0.51	U	1.7	1.0	0.51	ng/L		07/29/20 17:33	1
Perfluoropentanesulfonic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluoroheptanesulfonic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorononanesulfonic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorodecanesulfonic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorooctanesulfonamide	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorobutanoic acid	1.7	U	4.3	3.4	1.7	ng/L		07/29/20 17:33	1
Perfluoropentanoic acid	**1.6**	**J**	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluoroundecanoic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
Perfluorododecanoic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1
6:2 Fluorotelomer sulfonic acid	1.7	U M	4.3	3.4	1.7	ng/L		07/29/20 17:33	1
8:2 Fluorotelomer sulfonic acid	0.86	U	2.6	1.7	0.86	ng/L		07/29/20 17:33	1
4:2 Fluorotelomer sulfonic acid	0.43	U	1.7	0.86	0.43	ng/L		07/29/20 17:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*132*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
M2-8:2 FTS	*108*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
M2-6:2 FTS	*117*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C5 PFHxA	*97*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C4 PFHpA	*103*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C8 PFOA	*99*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C9 PFNA	*107*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C6 PFDA	*98*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C7 PFUnA	*105*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C2-PFDoDA	*109*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C2 PFTeDA	*106*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C3 PFBS	*120*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C3 PFHxS	*106*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C8 PFOS	*105*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
d3-NMeFOSAA	*120*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
d5-NEtFOSAA	*127*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C8 FOSA	*19*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C4 PFBA	*94*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*
13C5 PFPeA	*96*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:33*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: MW-2

Date Collected: 07/20/20 09:55
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-2

Matrix: Water

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**19**	**M**	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluoroheptanoic acid	**9.1**		1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorooctanoic acid	**6.9**	**M**	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorononanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorodecanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorotridecanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorotetradecanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorobutanesulfonic acid	**2.7**		1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorohexanesulfonic acid	**29**	**M**	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorooctanesulfonic acid	0.41	U M	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
NEtFOSAA	0.41	U	2.5	0.83	0.41	ng/L		07/25/20 16:42	1
NMeFOSAA	0.50	U	1.7	0.99	0.50	ng/L		07/25/20 16:42	1
Perfluoropentanesulfonic acid	**2.6**		1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluoroheptanesulfonic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorononanesulfonic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorodecanesulfonic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorooctanesulfonamide	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorobutanoic acid	**7.8**		4.1	3.3	1.7	ng/L		07/25/20 16:42	1
Perfluoropentanoic acid	**20**		1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluoroundecanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
Perfluorododecanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1
6:2 Fluorotelomer sulfonic acid	1.7	U	4.1	3.3	1.7	ng/L		07/25/20 16:42	1
8:2 Fluorotelomer sulfonic acid	0.83	U	2.5	1.7	0.83	ng/L		07/25/20 16:42	1
4:2 Fluorotelomer sulfonic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 16:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*149*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
M2-8:2 FTS	*110*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
M2-6:2 FTS	*123*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C5 PFHxA	*113*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C4 PFHpA	*118*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C8 PFOA	*110*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C9 PFNA	*112*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C6 PFDA	*103*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C7 PFUnA	*106*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C2-PFDoDA	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C2 PFTeDA	*98*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C3 PFBS	*117*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C3 PFHxS	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C8 PFOS	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
d3-NMeFOSAA	*114*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
d5-NEtFOSAA	*118*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C8 FOSA	*92*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C4 PFBA	*105*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*
13C5 PFPeA	*113*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:42*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: MW-3

Date Collected: 07/20/20 10:50
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-3

Matrix: Water

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**65**	**M**	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluoroheptanoic acid	**18**		1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorooctanoic acid	**86**	**M**	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorononanoic acid	**1.5**	**J**	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorodecanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorotridecanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorotetradecanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorobutanesulfonic acid	**9.2**		1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorooctanesulfonic acid	**130**	**M**	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
NEtFOSAA	0.45	U	2.7	0.89	0.45	ng/L		07/29/20 17:42	1
NMeFOSAA	0.54	U	1.8	1.1	0.54	ng/L		07/29/20 17:42	1
Perfluoropentanesulfonic acid	**10**		1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluoroheptanesulfonic acid	**3.5**		1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorononanesulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorodecanesulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorooctanesulfonamide	**1.4**	**J M**	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorobutanoic acid	**18**		4.5	3.6	1.8	ng/L		07/29/20 17:42	1
Perfluoropentanoic acid	**69**		1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluoroundecanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
Perfluorododecanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/29/20 17:42	1
6:2 Fluorotelomer sulfonic acid	1.8	U	4.5	3.6	1.8	ng/L		07/29/20 17:42	1
8:2 Fluorotelomer sulfonic acid	0.89	U	2.7	1.8	0.89	ng/L		07/29/20 17:42	1
4:2 Fluorotelomer sulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/29/20 17:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*140*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
M2-8:2 FTS	*109*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
M2-6:2 FTS	*120*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C5 PFHxA	*100*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C4 PFHpA	*101*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C8 PFOA	*103*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C9 PFNA	*105*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C6 PFDA	*106*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C7 PFUnA	*106*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C2-PFDoDA	*112*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C2 PFTeDA	*106*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C3 PFBS	*138*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C3 PFHxS	*104*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C8 PFOS	*102*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
d3-NMeFOSAA	*122*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
d5-NEtFOSAA	*123*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C8 FOSA	*30*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C4 PFBA	*101*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*
13C5 PFPeA	*118*		*50 - 150*	*07/28/20 17:20*	*07/29/20 17:42*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanesulfonic acid	**210**	**D M**	18	8.9	4.5	ng/L		07/29/20 19:40	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 PFHxS	*123*		*50 - 150*	*07/28/20 17:20*	*07/29/20 19:40*	*10*

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: MW-4

Date Collected: 07/20/20 12:10
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-4

Matrix: Water

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**8.9**		1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluoroheptanoic acid	**1.4**	**J**	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorooctanoic acid	**11**	**M J1**	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorononanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorodecanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorotridecanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorotetradecanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorobutanesulfonic acid	**2.3**		1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorohexanesulfonic acid	**19**	**M**	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorooctanesulfonic acid	**1.0**	**J M**	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
NEtFOSAA	0.45	U	2.7	0.90	0.45	ng/L		07/25/20 17:00	1
NMeFOSAA	0.54	U	1.8	1.1	0.54	ng/L		07/25/20 17:00	1
Perfluoropentanesulfonic acid	**2.4**		1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluoroheptanesulfonic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorononanesulfonic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorodecanesulfonic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorooctanesulfonamide	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorobutanoic acid	**6.0**		4.5	3.6	1.8	ng/L		07/25/20 17:00	1
Perfluoropentanoic acid	**6.2**		1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluoroundecanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
Perfluorododecanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1
6:2 Fluorotelomer sulfonic acid	**3.6**	**J**	4.5	3.6	1.8	ng/L		07/25/20 17:00	1
8:2 Fluorotelomer sulfonic acid	0.90	U	2.7	1.8	0.90	ng/L		07/25/20 17:00	1
4:2 Fluorotelomer sulfonic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*126*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
M2-8:2 FTS	*107*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
M2-6:2 FTS	*122*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C5 PFHxA	*111*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C4 PFHpA	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C8 PFOA	*112*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C9 PFNA	*108*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C6 PFDA	*103*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C7 PFUnA	*110*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C2-PFDoDA	*105*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C2 PFTeDA	*100*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C3 PFBS	*123*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C3 PFHxS	*116*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C8 PFOS	*110*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
d3-NMeFOSAA	*125*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
d5-NEtFOSAA	*125*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C8 FOSA	*111*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C4 PFBA	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*
13C5 PFPeA	*120*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:00*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: MW-5

Date Collected: 07/20/20 14:00
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-5

Matrix: Water

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluoroheptanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorooctanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorononanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorodecanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorotridecanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorotetradecanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorobutanesulfonic acid	0.45	U M	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorohexanesulfonic acid	**0.55**	**J M**	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorooctanesulfonic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
NEtFOSAA	0.45	U	2.7	0.90	0.45	ng/L		07/25/20 17:27	1
NMeFOSAA	0.54	U	1.8	1.1	0.54	ng/L		07/25/20 17:27	1
Perfluoropentanesulfonic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluoroheptanesulfonic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorononanesulfonic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorodecanesulfonic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorooctanesulfonamide	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorobutanoic acid	1.8	U	4.5	3.6	1.8	ng/L		07/25/20 17:27	1
Perfluoropentanoic acid	0.45	U M	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluoroundecanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
Perfluorododecanoic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1
6:2 Fluorotelomer sulfonic acid	1.8	U	4.5	3.6	1.8	ng/L		07/25/20 17:27	1
8:2 Fluorotelomer sulfonic acid	0.90	U	2.7	1.8	0.90	ng/L		07/25/20 17:27	1
4:2 Fluorotelomer sulfonic acid	0.45	U	1.8	0.90	0.45	ng/L		07/25/20 17:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*111*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
M2-8:2 FTS	*103*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
M2-6:2 FTS	*117*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C5 PFHxA	*103*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C4 PFHpA	*104*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C8 PFOA	*105*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C9 PFNA	*102*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C6 PFDA	*101*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C7 PFUnA	*102*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C2-PFDoDA	*101*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C2 PFTeDA	*101*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C3 PFBS	*113*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C3 PFHxS	*108*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C8 PFOS	*102*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
d3-NMeFOSAA	*111*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
d5-NEtFOSAA	*116*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C8 FOSA	*101*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C4 PFBA	*103*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*
13C5 PFPeA	*116*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:27*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: MW-6

Date Collected: 07/20/20 14:50
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-6

Matrix: Water

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**37**		1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluoroheptanoic acid	**6.4**		1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorooctanoic acid	**48**	**M**	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorononanoic acid	0.43	U	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorodecanoic acid	0.43	U	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorotridecanoic acid	0.43	U	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorotetradecanoic acid	0.43	U	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorobutanesulfonic acid	**6.8**		1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorohexanesulfonic acid	**110**	**M**	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorooctanesulfonic acid	**33**	**M**	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
NEtFOSAA	0.43	U	2.6	0.85	0.43	ng/L		07/25/20 17:36	1
NMeFOSAA	0.51	U	1.7	1.0	0.51	ng/L		07/25/20 17:36	1
Perfluoropentanesulfonic acid	**6.6**		1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluoroheptanesulfonic acid	**1.7**		1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorononanesulfonic acid	0.43	U	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorodecanesulfonic acid	0.43	U	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorooctanesulfonamide	0.43	U	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorobutanoic acid	**9.9**		4.3	3.4	1.7	ng/L		07/25/20 17:36	1
Perfluoropentanoic acid	**26**		1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluoroundecanoic acid	0.43	U	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
Perfluorododecanoic acid	0.43	U	1.7	0.85	0.43	ng/L		07/25/20 17:36	1
6:2 Fluorotelomer sulfonic acid	1.7	U	4.3	3.4	1.7	ng/L		07/25/20 17:36	1
8:2 Fluorotelomer sulfonic acid	0.85	U	2.6	1.7	0.85	ng/L		07/25/20 17:36	1
4:2 Fluorotelomer sulfonic acid	0.43	U	1.7	0.85	0.43	ng/L		07/25/20 17:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*133*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
M2-8:2 FTS	*107*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
M2-6:2 FTS	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C5 PFHxA	*100*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C4 PFHpA	*101*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C8 PFOA	*103*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C9 PFNA	*102*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C6 PFDA	*97*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C7 PFUnA	*101*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C2-PFDoDA	*99*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C2 PFTeDA	*98*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C3 PFBS	*122*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C3 PFHxS	*101*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C8 PFOS	*102*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
d3-NMeFOSAA	*110*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
d5-NEtFOSAA	*122*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C8 FOSA	*78*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C4 PFBA	*101*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*
13C5 PFPeA	*115*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:36*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: MW-7

Date Collected: 07/20/20 16:00
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-7

Matrix: Water

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**23**	**M**	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluoroheptanoic acid	**2.7**	**M**	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorooctanoic acid	**2.7**	**M**	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorononanoic acid	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorodecanoic acid	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorotridecanoic acid	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorotetradecanoic acid	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorobutanesulfonic acid	**3.2**		1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorohexanesulfonic acid	**7.6**	**M**	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorooctanesulfonic acid	**0.69**	**J M**	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
NEtFOSAA	0.43	U	2.6	0.87	0.43	ng/L		07/25/20 17:45	1
NMeFOSAA	0.52	U	1.7	1.0	0.52	ng/L		07/25/20 17:45	1
Perfluoropentanesulfonic acid	**2.1**	**M**	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluoroheptanesulfonic acid	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorononanesulfonic acid	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorodecanesulfonic acid	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorooctanesulfonamide	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorobutanoic acid	**9.6**	**M**	4.3	3.5	1.7	ng/L		07/25/20 17:45	1
Perfluoropentanoic acid	**20**		1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluoroundecanoic acid	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
Perfluorododecanoic acid	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1
6:2 Fluorotelomer sulfonic acid	1.7	U	4.3	3.5	1.7	ng/L		07/25/20 17:45	1
8:2 Fluorotelomer sulfonic acid	0.87	U	2.6	1.7	0.87	ng/L		07/25/20 17:45	1
4:2 Fluorotelomer sulfonic acid	0.43	U	1.7	0.87	0.43	ng/L		07/25/20 17:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*128*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
M2-8:2 FTS	*102*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
M2-6:2 FTS	*110*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C5 PFHxA	*102*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C4 PFHpA	*111*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C8 PFOA	*98*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C9 PFNA	*106*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C6 PFDA	*91*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C7 PFUnA	*103*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C2-PFDoDA	*100*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C2 PFTeDA	*93*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C3 PFBS	*123*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C3 PFHxS	*100*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C8 PFOS	*103*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
d3-NMeFOSAA	*112*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
d5-NEtFOSAA	*125*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C8 FOSA	*102*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C4 PFBA	*95*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*
13C5 PFPeA	*114*		*50 - 150*	*07/23/20 15:32*	*07/25/20 17:45*	*1*

Client Sample ID: FD-07202020
Date Collected: 07/20/20 00:00
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-8
Matrix: Water

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**66**		1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluoroheptanoic acid	**18**	**M**	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorooctanoic acid	**86**	**M**	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorononanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorodecanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorotridecanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorotetradecanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorobutanesulfonic acid	**9.6**		1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorooctanesulfonic acid	**120**	**M**	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
NEtFOSAA	0.41	U	2.5	0.83	0.41	ng/L		07/25/20 18:03	1
NMeFOSAA	0.50	U	1.7	1.0	0.50	ng/L		07/25/20 18:03	1
Perfluoropentanesulfonic acid	**11**		1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluoroheptanesulfonic acid	**3.4**		1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorononanesulfonic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorodecanesulfonic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorooctanesulfonamide	**0.88**	**J**	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorobutanoic acid	**18**		4.1	3.3	1.7	ng/L		07/25/20 18:03	1
Perfluoropentanoic acid	**67**		1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluoroundecanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
Perfluorododecanoic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 18:03	1
6:2 Fluorotelomer sulfonic acid	1.7	U	4.1	3.3	1.7	ng/L		07/25/20 18:03	1
8:2 Fluorotelomer sulfonic acid	0.83	U	2.5	1.7	0.83	ng/L		07/25/20 18:03	1
4:2 Fluorotelomer sulfonic acid	0.41	U	1.7	0.83	0.41	ng/L		07/25/20 18:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*138*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
M2-8:2 FTS	*104*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
M2-6:2 FTS	*113*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C5 PFHxA	*96*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C4 PFHpA	*95*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C8 PFOA	*98*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C9 PFNA	*97*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C6 PFDA	*94*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C7 PFUnA	*93*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C2-PFDoDA	*86*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C2 PFTeDA	*77*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C3 PFBS	*113*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C3 PFHxS	*96*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C8 PFOS	*99*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
d3-NMeFOSAA	*100*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
d5-NEtFOSAA	*111*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C8 FOSA	*90*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C4 PFBA	*93*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*
13C5 PFPeA	*107*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:03*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanesulfonic acid	**210**	**D M**	17	8.3	4.1	ng/L		07/28/20 15:00	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 PFHxS	*97*		*50 - 150*	*07/23/20 15:32*	*07/28/20 15:00*	*10*

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

Client Sample ID: RB-07202020
Lab Sample ID: 410-8511-9
Date Collected: 07/20/20 16:15
Matrix: Water
Date Received: 07/22/20 11:06

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluoroheptanoic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorooctanoic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorononanoic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorodecanoic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorotridecanoic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorotetradecanoic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorobutanesulfonic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorohexanesulfonic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorooctanesulfonic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
NEtFOSAA	0.41	U	2.4	0.81	0.41	ng/L		07/29/20 18:00	1
NMeFOSAA	0.49	U	1.6	0.97	0.49	ng/L		07/29/20 18:00	1
Perfluoropentanesulfonic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluoroheptanesulfonic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorononanesulfonic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorodecanesulfonic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorooctanesulfonamide	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorobutanoic acid	1.6	U	4.1	3.2	1.6	ng/L		07/29/20 18:00	1
Perfluoropentanoic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluoroundecanoic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
Perfluorododecanoic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1
6:2 Fluorotelomer sulfonic acid	1.6	U	4.1	3.2	1.6	ng/L		07/29/20 18:00	1
8:2 Fluorotelomer sulfonic acid	0.81	U	2.4	1.6	0.81	ng/L		07/29/20 18:00	1
4:2 Fluorotelomer sulfonic acid	0.41	U	1.6	0.81	0.41	ng/L		07/29/20 18:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*118*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
M2-8:2 FTS	*117*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
M2-6:2 FTS	*109*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C5 PFHxA	*103*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C4 PFHpA	*106*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C8 PFOA	*107*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C9 PFNA	*109*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C6 PFDA	*108*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C7 PFUnA	*132*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C2-PFDoDA	*115*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C2 PFTeDA	*108*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C3 PFBS	*106*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C3 PFHxS	*105*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C8 PFOS	*105*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
d3-NMeFOSAA	*142*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
d5-NEtFOSAA	*178*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C8 FOSA	*114*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C4 PFBA	*108*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*
13C5 PFPeA	*104*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:00*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: RB-07212020
Date Collected: 07/21/20 09:50
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-10
Matrix: Water

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluoroheptanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorooctanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorononanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorodecanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorotridecanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorotetradecanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorobutanesulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorohexanesulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorooctanesulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
NEtFOSAA	0.45	U	2.7	0.89	0.45	ng/L		07/25/20 18:21	1
NMeFOSAA	0.54	U	1.8	1.1	0.54	ng/L		07/25/20 18:21	1
Perfluoropentanesulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluoroheptanesulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorononanesulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorodecanesulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorooctanesulfonamide	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorobutanoic acid	1.8	U	4.5	3.6	1.8	ng/L		07/25/20 18:21	1
Perfluoropentanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluoroundecanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
Perfluorododecanoic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1
6:2 Fluorotelomer sulfonic acid	1.8	U	4.5	3.6	1.8	ng/L		07/25/20 18:21	1
8:2 Fluorotelomer sulfonic acid	0.89	U	2.7	1.8	0.89	ng/L		07/25/20 18:21	1
4:2 Fluorotelomer sulfonic acid	0.45	U	1.8	0.89	0.45	ng/L		07/25/20 18:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*105*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
M2-8:2 FTS	*121*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
M2-6:2 FTS	*114*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C5 PFHxA	*107*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C4 PFHpA	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C8 PFOA	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C9 PFNA	*107*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C6 PFDA	*113*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C7 PFUnA	*112*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C2-PFDoDA	*108*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C2 PFTeDA	*106*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C3 PFBS	*104*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C3 PFHxS	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C8 PFOS	*107*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
d3-NMeFOSAA	*124*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
d5-NEtFOSAA	*123*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C8 FOSA	*112*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C4 PFBA	*107*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*
13C5 PFPeA	*104*		*50 - 150*	*07/23/20 15:32*	*07/25/20 18:21*	*1*

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: IDW-AQ
Date Collected: 07/21/20 12:50
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-11
Matrix: Water

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**28**	**M**	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluoroheptanoic acid	**3.9**		1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorooctanoic acid	**37**	**M**	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorononanoic acid	0.44	U	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorodecanoic acid	0.44	U	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorotridecanoic acid	0.44	U	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorotetradecanoic acid	0.44	U	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorobutanesulfonic acid	**4.4**		1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorohexanesulfonic acid	**54**	**M**	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorooctanesulfonic acid	**20**	**M**	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
NEtFOSAA	0.44	U	2.6	0.87	0.44	ng/L		07/29/20 18:09	1
NMeFOSAA	0.52	U	1.7	1.0	0.52	ng/L		07/29/20 18:09	1
Perfluoropentanesulfonic acid	**4.5**		1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluoroheptanesulfonic acid	**0.72**	**J**	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorononanesulfonic acid	0.44	U	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorodecanesulfonic acid	0.44	U	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorooctanesulfonamide	0.44	U	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorobutanoic acid	**12**		4.4	3.5	1.7	ng/L		07/29/20 18:09	1
Perfluoropentanoic acid	**19**		1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluoroundecanoic acid	0.44	U	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
Perfluorododecanoic acid	0.44	U	1.7	0.87	0.44	ng/L		07/29/20 18:09	1
6:2 Fluorotelomer sulfonic acid	**2.1**	**J**	4.4	3.5	1.7	ng/L		07/29/20 18:09	1
8:2 Fluorotelomer sulfonic acid	0.87	U	2.6	1.7	0.87	ng/L		07/29/20 18:09	1
4:2 Fluorotelomer sulfonic acid	0.44	U	1.7	0.87	0.44	ng/L		07/29/20 18:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*359*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
M2-8:2 FTS	*153*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
M2-6:2 FTS	*329*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C5 PFHxA	*109*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C4 PFHpA	*146*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C8 PFOA	*112*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C9 PFNA	*161*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C6 PFDA	*86*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C7 PFUnA	*35*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C2-PFDoDA	*19*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C2 PFTeDA	*71*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C3 PFBS	*147*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C3 PFHxS	*110*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C8 PFOS	*107*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
d3-NMeFOSAA	*46*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
d5-NEtFOSAA	*26*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C8 FOSA	*34*	*Q*	*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C4 PFBA	*106*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*
13C5 PFPeA	*126*		*50 - 150*	*07/28/20 17:20*	*07/29/20 18:09*	*1*

Client Sample ID: SB-1-0-0.5

Date Collected: 07/21/20 08:15
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-12

Matrix: Solid
Percent Solids: 93.5

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**2.4**		0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluoroheptanoic acid	**0.50**	**J**	0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorooctanoic acid	**3.4**	**M**	0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorononanoic acid	**11**		0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorodecanoic acid	**4.3**		0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorotridecanoic acid	**2.0**		0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorotetradecanoic acid	0.21	U	0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorobutanesulfonic acid	0.42	U	2.1	1.7	0.42	ng/g	☼	07/24/20 21:45	1
Perfluorohexanesulfonic acid	**35**	**M**	0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
NEtFOSAA	0.21	U	2.1	0.42	0.21	ng/g	☼	07/24/20 21:45	1
NMeFOSAA	0.21	U	2.1	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluoropentanesulfonic acid	**0.30**	**J M**	3.2	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluoroheptanesulfonic acid	**3.0**		0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorononanesulfonic acid	**3.2**	**J1**	0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorodecanesulfonic acid	**3.2**		0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorooctanesulfonamide	**11**		0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorobutanoic acid	**0.99**	**J**	2.1	1.7	0.64	ng/g	☼	07/24/20 21:45	1
Perfluoropentanoic acid	**1.2**		0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluoroundecanoic acid	**1.6**	**M**	0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
Perfluorododecanoic acid	**0.48**	**J M**	0.64	0.42	0.21	ng/g	☼	07/24/20 21:45	1
6:2 Fluorotelomer sulfonic acid	0.64	U	2.1	1.7	0.64	ng/g	☼	07/24/20 21:45	1
8:2 Fluorotelomer sulfonic acid	**1.7**	**J**	3.2	1.7	0.64	ng/g	☼	07/24/20 21:45	1
4:2 Fluorotelomer sulfonic acid	0.64	U	2.1	1.7	0.64	ng/g	☼	07/24/20 21:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*106*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
M2-8:2 FTS	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
M2-6:2 FTS	*108*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C5 PFHxA	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C4 PFHpA	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C8 PFOA	*101*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C9 PFNA	*120*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C6 PFDA	*98*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C7 PFUnA	*100*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C2-PFDoDA	*91*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C2 PFTeDA	*103*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C3 PFBS	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C3 PFHxS	*100*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C8 PFOS	*117*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
d3-NMeFOSAA	*58*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
d5-NEtFOSAA	*66*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C8 FOSA	*70*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C4 PFBA	*92*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*
13C5 PFPeA	*93*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:45*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**830**	**D M**	6.4	4.2	2.1	ng/g	☼	07/27/20 16:30	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOS	*108*		*50 - 150*	*07/24/20 09:12*	*07/27/20 16:30*	*10*

Client Sample ID: SB-1-0-0.5

Date Collected: 07/21/20 08:15
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-12

Matrix: Solid
Percent Solids: 93.5

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**6.5**		1.0		1.0	%		07/23/20 18:43	1
Percent Solids	**93.5**		1.0		1.0	%		07/23/20 18:43	1

Client Sample ID: SB-1-1-1.45

Date Collected: 07/21/20 08:25
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-13

Matrix: Solid
Percent Solids: 87.2

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**4.2**		0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluoroheptanoic acid	**1.4**		0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorooctanoic acid	**46**	**M**	0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorononanoic acid	**17**		0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorodecanoic acid	**0.67**	**M**	0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorotridecanoic acid	0.22	U M	0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorotetradecanoic acid	0.22	U	0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorobutanesulfonic acid	0.45	U	2.2	1.8	0.45	ng/g	☼	07/24/20 22:12	1
NEtFOSAA	0.22	U	2.2	0.45	0.22	ng/g	☼	07/24/20 22:12	1
NMeFOSAA	0.22	U	2.2	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluoropentanesulfonic acid	**1.2**	**J M**	3.4	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluoroheptanesulfonic acid	**28**		0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorononanesulfonic acid	0.22	U	0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorodecanesulfonic acid	**0.31**	**J M**	0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorooctanesulfonamide	**3.7**		0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorobutanoic acid	**1.4**	**J**	2.2	1.8	0.67	ng/g	☼	07/24/20 22:12	1
Perfluoropentanoic acid	**2.1**		0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluoroundecanoic acid	0.22	U M	0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
Perfluorododecanoic acid	0.22	U	0.67	0.45	0.22	ng/g	☼	07/24/20 22:12	1
6:2 Fluorotelomer sulfonic acid	**1.6**	**J**	2.2	1.8	0.67	ng/g	☼	07/24/20 22:12	1
8:2 Fluorotelomer sulfonic acid	**2.3**	**J**	3.4	1.8	0.67	ng/g	☼	07/24/20 22:12	1
4:2 Fluorotelomer sulfonic acid	0.67	U	2.2	1.8	0.67	ng/g	☼	07/24/20 22:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*88*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
M2-8:2 FTS	*92*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
M2-6:2 FTS	*88*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C5 PFHxA	*88*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C4 PFHpA	*88*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C8 PFOA	*90*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C9 PFNA	*98*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C6 PFDA	*90*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C7 PFUnA	*88*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C2-PFDoDA	*90*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C2 PFTeDA	*87*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C3 PFBS	*87*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C3 PFHxS	*93*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C8 PFOS	*101*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
d3-NMeFOSAA	*40*	*Q*	*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
d5-NEtFOSAA	*51*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C8 FOSA	*84*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*
13C4 PFBA	*85*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*

Client Sample ID: SB-1-1-1.45

Date Collected: 07/21/20 08:25
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-13

Matrix: Solid
Percent Solids: 87.2

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	*86*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:12*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanesulfonic acid	**220**	**D M**	6.7	4.5	2.2	ng/g	☼	07/27/20 16:39	10
Perfluorooctanesulfonic acid	**790**	**D M**	6.7	4.5	2.2	ng/g	☼	07/27/20 16:39	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFHxS	*84*		*50 - 150*	*07/24/20 09:12*	*07/27/20 16:39*	*10*
13C8 PFOS	*88*		*50 - 150*	*07/24/20 09:12*	*07/27/20 16:39*	*10*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**12.8**		1.0		1.0	%		07/23/20 18:43	1
Percent Solids	**87.2**		1.0		1.0	%		07/23/20 18:43	1

Client Sample ID: SB-2-0-0.5

Date Collected: 07/21/20 08:45
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-14

Matrix: Solid
Percent Solids: 95.4

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**1.7**	**M**	0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluoroheptanoic acid	**0.61**		0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorooctanoic acid	**5.4**	**M**	0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorononanoic acid	**3.9**		0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorodecanoic acid	**3.5**	**M**	0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorotridecanoic acid	**3.9**		0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorotetradecanoic acid	0.20	U M	0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorobutanesulfonic acid	0.40	U	2.0	1.6	0.40	ng/g	☼	07/24/20 22:21	1
Perfluorohexanesulfonic acid	**22**	**M**	0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
NEtFOSAA	0.20	U	2.0	0.40	0.20	ng/g	☼	07/24/20 22:21	1
NMeFOSAA	0.20	U	2.0	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluoropentanesulfonic acid	**0.42**	**J**	3.0	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluoroheptanesulfonic acid	**1.1**		0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorononanesulfonic acid	**2.5**		0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorodecanesulfonic acid	**2.4**		0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorooctanesulfonamide	**9.9**		0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorobutanoic acid	**0.87**	**J**	2.0	1.6	0.60	ng/g	☼	07/24/20 22:21	1
Perfluoropentanoic acid	**1.0**	**M**	0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluoroundecanoic acid	**1.1**	**M**	0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
Perfluorododecanoic acid	**0.46**	**J M**	0.60	0.40	0.20	ng/g	☼	07/24/20 22:21	1
6:2 Fluorotelomer sulfonic acid	**1.6**	**J**	2.0	1.6	0.60	ng/g	☼	07/24/20 22:21	1
4:2 Fluorotelomer sulfonic acid	0.60	U	2.0	1.6	0.60	ng/g	☼	07/24/20 22:21	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
M2-8:2 FTS	*93*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
M2-6:2 FTS	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C5 PFHxA	*91*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C8 PFOA	*92*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*

Client Sample ID: SB-2-0-0.5

Date Collected: 07/21/20 08:45
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-14

Matrix: Solid
Percent Solids: 95.4

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C9 PFNA	*102*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C6 PFDA	*90*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C7 PFUnA	*95*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C2-PFDoDA	*89*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C2 PFTeDA	*94*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C3 PFBS	*94*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C3 PFHxS	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C8 PFOS	*103*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
d3-NMeFOSAA	*50*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
d5-NEtFOSAA	*57*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C8 FOSA	*61*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C4 PFBA	*86*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*
13C5 PFPeA	*89*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:21*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**760**	**D**	6.0	4.0	2.0	ng/g	☼	07/27/20 16:48	10
8:2 Fluorotelomer sulfonic acid	**140**	**D**	30	16	6.0	ng/g	☼	07/27/20 16:48	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*76*		*50 - 150*	*07/24/20 09:12*	*07/27/20 16:48*	*10*
13C8 PFOS	*88*		*50 - 150*	*07/24/20 09:12*	*07/27/20 16:48*	*10*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**4.6**		1.0		1.0	%		07/23/20 18:43	1
Percent Solids	**95.4**		1.0		1.0	%		07/23/20 18:43	1

Client Sample ID: SB-2-1-1.5

Date Collected: 07/21/20 08:55
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-15

Matrix: Solid
Percent Solids: 90.8

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**5.6**		0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluoroheptanoic acid	**2.6**	**M**	0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorooctanoic acid	**68**	**M**	0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorononanoic acid	**11**		0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorodecanoic acid	**1.7**	**M**	0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorotridecanoic acid	**0.47**	**J**	0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorotetradecanoic acid	0.21	U	0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorobutanesulfonic acid	**0.71**	**J**	2.1	1.7	0.43	ng/g	☼	07/24/20 22:30	1
NEtFOSAA	0.21	U	2.1	0.43	0.21	ng/g	☼	07/24/20 22:30	1
NMeFOSAA	0.21	U	2.1	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluoropentanesulfonic acid	**1.1**	**J**	3.2	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluoroheptanesulfonic acid	**25**		0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorononanesulfonic acid	**0.93**		0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorodecanesulfonic acid	**0.71**		0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorooctanesulfonamide	**9.6**		0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorobutanoic acid	**1.2**	**J**	2.1	1.7	0.64	ng/g	☼	07/24/20 22:30	1
Perfluoropentanoic acid	**3.2**		0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1

Client Sample ID: SB-2-1-1.5

Date Collected: 07/21/20 08:55
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-15

Matrix: Solid
Percent Solids: 90.8

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluoroundecanoic acid	0.21	U M	0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
Perfluorododecanoic acid	0.21	U M	0.64	0.43	0.21	ng/g	☼	07/24/20 22:30	1
6:2 Fluorotelomer sulfonic acid	**29**		2.1	1.7	0.64	ng/g	☼	07/24/20 22:30	1
4:2 Fluorotelomer sulfonic acid	0.64	U	2.1	1.7	0.64	ng/g	☼	07/24/20 22:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*104*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
M2-8:2 FTS	*94*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
M2-6:2 FTS	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C5 PFHxA	*101*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C4 PFHpA	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C8 PFOA	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C9 PFNA	*119*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C6 PFDA	*95*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C7 PFUnA	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C2-PFDoDA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C2 PFTeDA	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C3 PFBS	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C3 PFHxS	*100*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C8 PFOS	*107*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
d3-NMeFOSAA	*54*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
d5-NEtFOSAA	*64*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C8 FOSA	*82*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C4 PFBA	*93*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*
13C5 PFPeA	*94*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:30*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanesulfonic acid	**150**	**D M**	6.4	4.3	2.1	ng/g	☼	07/27/20 16:57	10
8:2 Fluorotelomer sulfonic acid	**280**	**D**	32	17	6.4	ng/g	☼	07/27/20 16:57	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*84*		*50 - 150*	*07/24/20 09:12*	*07/27/20 16:57*	*10*
13C3 PFHxS	*90*		*50 - 150*	*07/24/20 09:12*	*07/27/20 16:57*	*10*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**1500**	**D M**	64	43	21	ng/g	☼	07/28/20 02:28	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOS	*104*		*50 - 150*	*07/24/20 09:12*	*07/28/20 02:28*	*100*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**9.2**		1.0		1.0	%		07/23/20 18:43	1
Percent Solids	**90.8**		1.0		1.0	%		07/23/20 18:43	1

Client Sample ID: SB-3-0-0.5

Date Collected: 07/21/20 09:10
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-16

Matrix: Solid
Percent Solids: 94.1

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**2.0**	**M**	0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluoroheptanoic acid	**1.1**		0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorooctanoic acid	**3.8**	**M**	0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorononanoic acid	**1.7**		0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorodecanoic acid	**2.7**		0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorotridecanoic acid	**0.67**		0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorotetradecanoic acid	0.21	U	0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorobutanesulfonic acid	0.42	U	2.1	1.7	0.42	ng/g	☼	07/24/20 22:39	1
Perfluorohexanesulfonic acid	**11**	**M**	0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
NEtFOSAA	0.21	U	2.1	0.42	0.21	ng/g	☼	07/24/20 22:39	1
NMeFOSAA	0.21	U	2.1	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluoropentanesulfonic acid	**0.26**	**J M**	3.1	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluoroheptanesulfonic acid	**0.75**		0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorononanesulfonic acid	**1.9**		0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorodecanesulfonic acid	**2.7**		0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorooctanesulfonamide	**25**		0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorobutanoic acid	**0.91**	**J**	2.1	1.7	0.63	ng/g	☼	07/24/20 22:39	1
Perfluoropentanoic acid	**1.5**		0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluoroundecanoic acid	**0.65**	**M**	0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
Perfluorododecanoic acid	**0.30**	**J M**	0.63	0.42	0.21	ng/g	☼	07/24/20 22:39	1
6:2 Fluorotelomer sulfonic acid	**5.8**		2.1	1.7	0.63	ng/g	☼	07/24/20 22:39	1
8:2 Fluorotelomer sulfonic acid	**36**		3.1	1.7	0.63	ng/g	☼	07/24/20 22:39	1
4:2 Fluorotelomer sulfonic acid	0.63	U	2.1	1.7	0.63	ng/g	☼	07/24/20 22:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*100*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
M2-8:2 FTS	*100*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
M2-6:2 FTS	*110*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C5 PFHxA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C4 PFHpA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C8 PFOA	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C9 PFNA	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C6 PFDA	*91*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C7 PFUnA	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C2-PFDoDA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C2 PFTeDA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C3 PFBS	*95*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C3 PFHxS	*101*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C8 PFOS	*101*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
d3-NMeFOSAA	*52*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
d5-NEtFOSAA	*62*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C8 FOSA	*64*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C4 PFBA	*88*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*
13C5 PFPeA	*88*		*50 - 150*	*07/24/20 09:12*	*07/24/20 22:39*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**430**	**D M**	6.3	4.2	2.1	ng/g	☼	07/27/20 17:06	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOS	*86*		*50 - 150*	*07/24/20 09:12*	*07/27/20 17:06*	*10*

Client Sample ID: SB-3-0-0.5
Lab Sample ID: 410-8511-16

Date Collected: 07/21/20 09:10
Matrix: Solid
Date Received: 07/22/20 11:06
Percent Solids: 94.1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**5.9**		1.0		1.0	%		07/23/20 18:43	1
Percent Solids	**94.1**		1.0		1.0	%		07/23/20 18:43	1

Client Sample ID: SB-3-1-1.4
Lab Sample ID: 410-8511-17

Date Collected: 07/21/20 09:18
Matrix: Solid
Date Received: 07/22/20 11:06
Percent Solids: 90.7

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**1.8**	**M**	0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluoroheptanoic acid	**2.0**		0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorooctanoic acid	**10**	**M**	0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorononanoic acid	**8.1**		0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorodecanoic acid	**0.93**	**M**	0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorotridecanoic acid	0.22	U	0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorotetradecanoic acid	0.22	U	0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorobutanesulfonic acid	0.44	U	2.2	1.8	0.44	ng/g	☼	07/27/20 19:40	1
Perfluorohexanesulfonic acid	**17**	**M**	0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
NEtFOSAA	0.22	U	2.2	0.44	0.22	ng/g	☼	07/27/20 19:40	1
NMeFOSAA	0.22	U	2.2	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluoropentanesulfonic acid	0.22	U	3.3	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluoroheptanesulfonic acid	**3.5**		0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorononanesulfonic acid	**0.51**	**J**	0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorodecanesulfonic acid	**0.48**	**J**	0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorooctanesulfonamide	**6.1**		0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorobutanoic acid	**1.0**	**J**	2.2	1.8	0.66	ng/g	☼	07/27/20 19:40	1
Perfluoropentanoic acid	**2.4**		0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluoroundecanoic acid	0.22	U	0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
Perfluorododecanoic acid	0.22	U	0.66	0.44	0.22	ng/g	☼	07/27/20 19:40	1
6:2 Fluorotelomer sulfonic acid	**11**		2.2	1.8	0.66	ng/g	☼	07/27/20 19:40	1
4:2 Fluorotelomer sulfonic acid	0.66	U	2.2	1.8	0.66	ng/g	☼	07/27/20 19:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*118*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
M2-8:2 FTS	*119*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
M2-6:2 FTS	*113*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C5 PFHxA	*112*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C4 PFHpA	*112*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C8 PFOA	*111*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C9 PFNA	*131*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C6 PFDA	*117*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C7 PFUnA	*117*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C2-PFDoDA	*113*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C2 PFTeDA	*111*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C3 PFBS	*107*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C3 PFHxS	*116*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C8 PFOS	*110*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
d3-NMeFOSAA	*77*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
d5-NEtFOSAA	*86*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C8 FOSA	*108*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*
13C4 PFBA	*106*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:40*	*1*

Client Sample ID: SB-3-1-1.4

Date Collected: 07/21/20 09:18
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-17

Matrix: Solid
Percent Solids: 90.7

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	103		50 - 150	07/27/20 08:21	07/27/20 19:40	1

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
8:2 Fluorotelomer sulfonic acid	**180**	**D**	33	18	6.6	ng/g	☼	07/28/20 20:45	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	101		50 - 150	07/27/20 08:21	07/28/20 20:45	10

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**1500**	**D M**	66	44	22	ng/g	☼	07/29/20 12:25	100

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	78		50 - 150	07/27/20 08:21	07/29/20 12:25	100

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**9.3**		1.0		1.0	%		07/23/20 16:48	1
Percent Solids	**90.7**		1.0		1.0	%		07/23/20 16:48	1

Client Sample ID: SB-4-0-0.5

Date Collected: 07/21/20 09:30
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-18

Matrix: Solid
Percent Solids: 90.4

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**0.69**	**M**	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluoroheptanoic acid	**0.40**	**J**	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorooctanoic acid	**1.2**	**M**	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorononanoic acid	**5.2**		0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorodecanoic acid	**0.76**	**M**	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorotridecanoic acid	0.21	U M	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorotetradecanoic acid	0.21	U	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorobutanesulfonic acid	0.42	U	2.1	1.7	0.42	ng/g	☼	07/24/20 23:06	1
Perfluorohexanesulfonic acid	**3.0**	**M**	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
NEtFOSAA	0.21	U	2.1	0.42	0.21	ng/g	☼	07/24/20 23:06	1
NMeFOSAA	0.21	U	2.1	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluoropentanesulfonic acid	0.21	U	3.2	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluoroheptanesulfonic acid	**0.53**	**J**	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorononanesulfonic acid	**0.24**	**J**	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorodecanesulfonic acid	**0.25**	**J**	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorooctanesulfonamide	**0.32**	**J**	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorobutanoic acid	**0.68**	**J**	2.1	1.7	0.63	ng/g	☼	07/24/20 23:06	1
Perfluoropentanoic acid	**0.67**		0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluoroundecanoic acid	**0.31**	**J M**	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
Perfluorododecanoic acid	0.21	U	0.63	0.42	0.21	ng/g	☼	07/24/20 23:06	1
6:2 Fluorotelomer sulfonic acid	0.63	U	2.1	1.7	0.63	ng/g	☼	07/24/20 23:06	1
8:2 Fluorotelomer sulfonic acid	0.63	U	3.2	1.7	0.63	ng/g	☼	07/24/20 23:06	1
4:2 Fluorotelomer sulfonic acid	0.63	U	2.1	1.7	0.63	ng/g	☼	07/24/20 23:06	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	95		50 - 150	07/24/20 09:12	07/24/20 23:06	1

Client Sample ID: SB-4-0-0.5

Date Collected: 07/21/20 09:30
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-18

Matrix: Solid
Percent Solids: 90.4

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	90		50 - 150	07/24/20 09:12	07/24/20 23:06	1
M2-6:2 FTS	99		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C5 PFHxA	89		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C4 PFHpA	87		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C8 PFOA	91		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C9 PFNA	91		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C6 PFDA	87		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C7 PFUnA	89		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C2-PFDoDA	88		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C2 PFTeDA	89		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C3 PFBS	92		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C3 PFHxS	99		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C8 PFOS	98		50 - 150	07/24/20 09:12	07/24/20 23:06	1
d3-NMeFOSAA	45	Q	50 - 150	07/24/20 09:12	07/24/20 23:06	1
d5-NEtFOSAA	61		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C8 FOSA	76		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C4 PFBA	84		50 - 150	07/24/20 09:12	07/24/20 23:06	1
13C5 PFPeA	85		50 - 150	07/24/20 09:12	07/24/20 23:06	1

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**130**	**D M**	6.3	4.2	2.1	ng/g	☼	07/27/20 17:24	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	84		50 - 150	07/24/20 09:12	07/27/20 17:24	10

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**9.6**		1.0		1.0	%		07/23/20 18:43	1
Percent Solids	**90.4**		1.0		1.0	%		07/23/20 18:43	1

Client Sample ID: SB-4-1-1.4

Date Collected: 07/21/20 09:35
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-19

Matrix: Solid
Percent Solids: 84.9

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**0.84**		0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluoroheptanoic acid	**0.61**	**J**	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorooctanoic acid	**13**	**M**	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorononanoic acid	**2.2**		0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorodecanoic acid	0.22	U	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorotridecanoic acid	0.22	U	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorotetradecanoic acid	0.22	U	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorobutanesulfonic acid	0.44	U	2.2	1.8	0.44	ng/g	☼	07/24/20 23:16	1
Perfluorohexanesulfonic acid	**37**	**M**	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorooctanesulfonic acid	**29**	**M**	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
NEtFOSAA	0.22	U	2.2	0.44	0.22	ng/g	☼	07/24/20 23:16	1
NMeFOSAA	0.22	U	2.2	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluoropentanesulfonic acid	0.22	U	3.3	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluoroheptanesulfonic acid	**1.3**		0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1

Client Sample ID: SB-4-1-1.4
Date Collected: 07/21/20 09:35
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-19
Matrix: Solid
Percent Solids: 84.9

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorononanesulfonic acid	0.22	U	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorodecanesulfonic acid	0.22	U	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorooctanesulfonamide	0.22	U	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorobutanoic acid	0.67	U	2.2	1.8	0.67	ng/g	☼	07/24/20 23:16	1
Perfluoropentanoic acid	**1.0**		0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluoroundecanoic acid	0.22	U	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
Perfluorododecanoic acid	0.22	U	0.67	0.44	0.22	ng/g	☼	07/24/20 23:16	1
6:2 Fluorotelomer sulfonic acid	0.67	U	2.2	1.8	0.67	ng/g	☼	07/24/20 23:16	1
8:2 Fluorotelomer sulfonic acid	0.67	U	3.3	1.8	0.67	ng/g	☼	07/24/20 23:16	1
4:2 Fluorotelomer sulfonic acid	0.67	U	2.2	1.8	0.67	ng/g	☼	07/24/20 23:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*107*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
M2-8:2 FTS	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
M2-6:2 FTS	*106*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C5 PFHxA	*103*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C4 PFHpA	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C8 PFOA	*103*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C9 PFNA	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C6 PFDA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C7 PFUnA	*104*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C2-PFDoDA	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C2 PFTeDA	*93*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C3 PFBS	*98*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C3 PFHxS	*106*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C8 PFOS	*104*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
d3-NMeFOSAA	*67*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
d5-NEtFOSAA	*77*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C8 FOSA	*93*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C4 PFBA	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*
13C5 PFPeA	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:16*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**15.1**		1.0		1.0	%		07/23/20 18:43	1
Percent Solids	**84.9**		1.0		1.0	%		07/23/20 18:43	1

Client Sample ID: FD-07212020
Date Collected: 07/21/20 00:00
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-20
Matrix: Solid
Percent Solids: 95.7

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	**1.8**		0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluoroheptanoic acid	**0.61**	**M**	0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorooctanoic acid	**5.1**	**M**	0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorononanoic acid	**3.8**		0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorodecanoic acid	**3.7**	**M**	0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorotridecanoic acid	**3.8**		0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorotetradecanoic acid	0.20	U	0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorobutanesulfonic acid	0.39	U	2.0	1.6	0.39	ng/g	☼	07/24/20 23:25	1

Client Sample ID: FD-07212020
Lab Sample ID: 410-8511-20
Date Collected: 07/21/20 00:00
Matrix: Solid
Date Received: 07/22/20 11:06
Percent Solids: 95.7

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanesulfonic acid	**23**	**M**	0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
NEtFOSAA	**0.28**	**J**	2.0	0.39	0.20	ng/g	☼	07/24/20 23:25	1
NMeFOSAA	0.20	U	2.0	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluoropentanesulfonic acid	**0.46**	**J**	3.0	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluoroheptanesulfonic acid	**1.1**		0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorononanesulfonic acid	**2.6**		0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorodecanesulfonic acid	**2.2**		0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorooctanesulfonamide	**10**		0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorobutanoic acid	**0.81**	**J**	2.0	1.6	0.59	ng/g	☼	07/24/20 23:25	1
Perfluoropentanoic acid	**1.0**		0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluoroundecanoic acid	**0.97**	**M**	0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
Perfluorododecanoic acid	**0.48**	**J M**	0.59	0.39	0.20	ng/g	☼	07/24/20 23:25	1
6:2 Fluorotelomer sulfonic acid	**1.7**	**J**	2.0	1.6	0.59	ng/g	☼	07/24/20 23:25	1
4:2 Fluorotelomer sulfonic acid	0.59	U	2.0	1.6	0.59	ng/g	☼	07/24/20 23:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*90*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
M2-8:2 FTS	*90*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
M2-6:2 FTS	*92*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C5 PFHxA	*84*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C4 PFHpA	*88*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C8 PFOA	*85*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C9 PFNA	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C6 PFDA	*89*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C7 PFUnA	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C2-PFDoDA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C2 PFTeDA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C3 PFBS	*87*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C3 PFHxS	*92*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C8 PFOS	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
d3-NMeFOSAA	*51*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
d5-NEtFOSAA	*62*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C8 FOSA	*71*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C4 PFBA	*83*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*
13C5 PFPeA	*86*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:25*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 - DL

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**810**	**D M**	5.9	3.9	2.0	ng/g	☼	07/27/20 17:33	10
8:2 Fluorotelomer sulfonic acid	**130**	**D**	30	16	5.9	ng/g	☼	07/27/20 17:33	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-8:2 FTS	*69*		*50 - 150*	*07/24/20 09:12*	*07/27/20 17:33*	*10*
13C8 PFOS	*80*		*50 - 150*	*07/24/20 09:12*	*07/27/20 17:33*	*10*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**4.3**		1.0		1.0	%		07/23/20 18:43	1
Percent Solids	**95.7**		1.0		1.0	%		07/23/20 18:43	1

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: IDW-SO-1

Date Collected: 07/21/20 13:05
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-21

Matrix: Solid
Percent Solids: 95.9

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluoroheptanoic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorooctanoic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorononanoic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorodecanoic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorotridecanoic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorotetradecanoic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorobutanesulfonic acid	0.38	U	1.9	1.5	0.38	ng/g	☼	07/24/20 23:34	1
Perfluorohexanesulfonic acid	0.19	U M	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorooctanesulfonic acid	0.19	U M	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
NEtFOSAA	0.19	U	1.9	0.38	0.19	ng/g	☼	07/24/20 23:34	1
NMeFOSAA	0.19	U	1.9	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluoropentanesulfonic acid	0.19	U	2.9	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluoroheptanesulfonic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorononanesulfonic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorodecanesulfonic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorooctanesulfonamide	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorobutanoic acid	0.57	U	1.9	1.5	0.57	ng/g	☼	07/24/20 23:34	1
Perfluoropentanoic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluoroundecanoic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
Perfluorododecanoic acid	0.19	U	0.57	0.38	0.19	ng/g	☼	07/24/20 23:34	1
6:2 Fluorotelomer sulfonic acid	0.57	U	1.9	1.5	0.57	ng/g	☼	07/24/20 23:34	1
8:2 Fluorotelomer sulfonic acid	0.57	U	2.9	1.5	0.57	ng/g	☼	07/24/20 23:34	1
4:2 Fluorotelomer sulfonic acid	0.57	U	1.9	1.5	0.57	ng/g	☼	07/24/20 23:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*106*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
M2-8:2 FTS	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
M2-6:2 FTS	*113*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C5 PFHxA	*102*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C4 PFHpA	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C8 PFOA	*105*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C9 PFNA	*101*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C6 PFDA	*98*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C7 PFUnA	*103*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C2-PFDoDA	*103*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C2 PFTeDA	*94*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C3 PFBS	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C3 PFHxS	*105*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C8 PFOS	*102*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
d3-NMeFOSAA	*80*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
d5-NEtFOSAA	*90*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C8 FOSA	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C4 PFBA	*100*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*
13C5 PFPeA	*101*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:34*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**4.1**		1.0		1.0	%		07/23/20 18:43	1
Percent Solids	**95.9**		1.0		1.0	%		07/23/20 18:43	1

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: IDW-SO-2

Date Collected: 07/21/20 13:10
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-22

Matrix: Solid
Percent Solids: 95.4

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluoroheptanoic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorooctanoic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorononanoic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorodecanoic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorotridecanoic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorotetradecanoic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorobutanesulfonic acid	0.39	U	1.9	1.6	0.39	ng/g	☼	07/24/20 23:43	1
Perfluorohexanesulfonic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorooctanesulfonic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
NEtFOSAA	0.19	U	1.9	0.39	0.19	ng/g	☼	07/24/20 23:43	1
NMeFOSAA	0.19	U	1.9	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluoropentanesulfonic acid	0.19	U	2.9	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluoroheptanesulfonic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorononanesulfonic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorodecanesulfonic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorooctanesulfonamide	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorobutanoic acid	0.58	U	1.9	1.6	0.58	ng/g	☼	07/24/20 23:43	1
Perfluoropentanoic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluoroundecanoic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
Perfluorododecanoic acid	0.19	U	0.58	0.39	0.19	ng/g	☼	07/24/20 23:43	1
6:2 Fluorotelomer sulfonic acid	0.58	U	1.9	1.6	0.58	ng/g	☼	07/24/20 23:43	1
8:2 Fluorotelomer sulfonic acid	0.58	U	2.9	1.6	0.58	ng/g	☼	07/24/20 23:43	1
4:2 Fluorotelomer sulfonic acid	0.58	U	1.9	1.6	0.58	ng/g	☼	07/24/20 23:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*103*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
M2-8:2 FTS	*103*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
M2-6:2 FTS	*104*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C5 PFHxA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C4 PFHpA	*97*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C8 PFOA	*103*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C9 PFNA	*104*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C6 PFDA	*94*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C7 PFUnA	*104*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C2-PFDoDA	*100*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C2 PFTeDA	*101*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C3 PFBS	*100*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C3 PFHxS	*101*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C8 PFOS	*105*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
d3-NMeFOSAA	*100*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
d5-NEtFOSAA	*108*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C8 FOSA	*104*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C4 PFBA	*101*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*
13C5 PFPeA	*100*		*50 - 150*	*07/24/20 09:12*	*07/24/20 23:43*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Percent Moisture	**4.6**		1.0		1.0	%		07/23/20 16:48	1
Percent Solids	**95.4**		1.0		1.0	%		07/23/20 16:48	1

Isotope Dilution Summary

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (50-150)	M282FTS (50-150)	M262FTS (50-150)	13C5PHA (50-150)	C4PFHA (50-150)	C8PFOA (50-150)	C9PFNA (50-150)	C6PFDA (50-150)
410-8511-12	SB-1-0-0.5	106	99	108	99	97	101	120	98
410-8511-12 - DL	SB-1-0-0.5								
410-8511-12 MS	SB-1-0-0.5	100	98	95	91	91	93	105	91
410-8511-12 MSD	SB-1-0-0.5	103	99	102	91	93	95	111	98
410-8511-13	SB-1-1-1.45	88	92	88	88	88	90	98	90
410-8511-13 - DL	SB-1-1-1.45								
410-8511-14	SB-2-0-0.5	97	93	96	91	89	92	102	90
410-8511-14 - DL	SB-2-0-0.5		76						
410-8511-15	SB-2-1-1.5	104	94	99	101	97	97	119	95
410-8511-15 - DL	SB-2-1-1.5		84						
410-8511-15 - DL2	SB-2-1-1.5								
410-8511-16	SB-3-0-0.5	100	100	110	96	96	99	99	91
410-8511-16 - DL	SB-3-0-0.5								
410-8511-17	SB-3-1-1.4	118	119	113	112	112	111	131	117
410-8511-17 - DL	SB-3-1-1.4		101						
410-8511-17 - DL2	SB-3-1-1.4								
410-8511-18	SB-4-0-0.5	95	90	99	89	87	91	91	87
410-8511-18 - DL	SB-4-0-0.5								
410-8511-19	SB-4-1-1.4	107	99	106	103	99	103	99	96
410-8511-20	FD-07212020	90	90	92	84	88	85	99	89
410-8511-20 - DL	FD-07212020		69						
410-8511-21	IDW-SO-1	106	99	113	102	99	105	101	98
410-8511-22	IDW-SO-2	103	103	104	96	97	103	104	94
LCS 410-25969/2-B	Lab Control Sample	94	98	98	89	94	94	92	92
LCS 410-26607/2-B	Lab Control Sample	105	108	105	102	103	100	120	107
LCSD 410-26607/3-B	Lab Control Sample Dup	125	123	127	122	122	118	125	121
MB 410-25969/1-B	Method Blank	102	90	103	93	95	94	98	88
MB 410-26607/1-B	Method Blank	111	106	108	106	109	107	103	98

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	13C7PUA (50-150)	PFDoDA (50-150)	PFTDA (50-150)	C3PFBS (50-150)	C3PFHS (50-150)	C8PFOS (50-150)	d3NMFOS (50-150)	d5NEFOS (50-150)
410-8511-12	SB-1-0-0.5	100	91	103	99	100	117	58	66
410-8511-12 - DL	SB-1-0-0.5						108		
410-8511-12 MS	SB-1-0-0.5	94	92	97	93	95	105	55	58
410-8511-12 MSD	SB-1-0-0.5	104	97	106	97	96	110	59	69
410-8511-13	SB-1-1-1.45	88	90	87	87	93	101	40 Q	51
410-8511-13 - DL	SB-1-1-1.45					84	88		
410-8511-14	SB-2-0-0.5	95	89	94	94	96	103	50	57
410-8511-14 - DL	SB-2-0-0.5						88		
410-8511-15	SB-2-1-1.5	99	96	99	96	100	107	54	64
410-8511-15 - DL	SB-2-1-1.5					90			
410-8511-15 - DL2	SB-2-1-1.5						104		
410-8511-16	SB-3-0-0.5	97	96	96	95	101	101	52	62
410-8511-16 - DL	SB-3-0-0.5						86		
410-8511-17	SB-3-1-1.4	117	113	111	107	116	110	77	86
410-8511-17 - DL	SB-3-1-1.4								
410-8511-17 - DL2	SB-3-1-1.4						78		
410-8511-18	SB-4-0-0.5	89	88	89	92	99	98	45 Q	61
410-8511-18 - DL	SB-4-0-0.5						84		

Isotope Dilution Summary

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	13C7PUA (50-150)	PFDoDA (50-150)	PFTDA (50-150)	C3PFBS (50-150)	C3PFHS (50-150)	C8PFOS (50-150)	d3NMFOS (50-150)	d5NEFOS (50-150)
410-8511-19	SB-4-1-1.4	104	97	93	98	106	104	67	77
410-8511-20	FD-07212020	97	96	96	87	92	97	51	62
410-8511-20 - DL	FD-07212020						80		
410-8511-21	IDW-SO-1	103	103	94	96	105	102	80	90
410-8511-22	IDW-SO-2	104	100	101	100	101	105	100	108
LCS 410-25969/2-B	Lab Control Sample	93	93	96	90	89	94	98	105
LCS 410-26607/2-B	Lab Control Sample	105	109	103	103	103	104	119	118
LCSD 410-26607/3-B	Lab Control Sample Dup	125	123	117	120	121	125	138	141
MB 410-25969/1-B	Method Blank	96	89	92	93	99	95	95	96
MB 410-26607/1-B	Method Blank	105	104	100	103	107	101	114	112

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	PFOSA (50-150)	PFBA (50-150)	PFPeA (50-150)
410-8511-12	SB-1-0-0.5	70	92	93
410-8511-12 - DL	SB-1-0-0.5			
410-8511-12 MS	SB-1-0-0.5	66	88	89
410-8511-12 MSD	SB-1-0-0.5	72	89	91
410-8511-13	SB-1-1-1.45	84	85	86
410-8511-13 - DL	SB-1-1-1.45			
410-8511-14	SB-2-0-0.5	61	86	89
410-8511-14 - DL	SB-2-0-0.5			
410-8511-15	SB-2-1-1.5	82	93	94
410-8511-15 - DL	SB-2-1-1.5			
410-8511-15 - DL2	SB-2-1-1.5			
410-8511-16	SB-3-0-0.5	64	88	88
410-8511-16 - DL	SB-3-0-0.5			
410-8511-17	SB-3-1-1.4	108	106	103
410-8511-17 - DL	SB-3-1-1.4			
410-8511-17 - DL2	SB-3-1-1.4			
410-8511-18	SB-4-0-0.5	76	84	85
410-8511-18 - DL	SB-4-0-0.5			
410-8511-19	SB-4-1-1.4	93	97	99
410-8511-20	FD-07212020	71	83	86
410-8511-20 - DL	FD-07212020			
410-8511-21	IDW-SO-1	97	100	101
410-8511-22	IDW-SO-2	104	101	100
LCS 410-25969/2-B	Lab Control Sample	100	92	91
LCS 410-26607/2-B	Lab Control Sample	113	104	99
LCSD 410-26607/3-B	Lab Control Sample Dup	125	119	116
MB 410-25969/1-B	Method Blank	93	94	94
MB 410-26607/1-B	Method Blank	112	105	101

Surrogate Legend

M242FTS = M2-4:2 FTS
M282FTS = M2-8:2 FTS
M262FTS = M2-6:2 FTS
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA

Isotope Dilution Summary

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (50-150)	M282FTS (50-150)	M262FTS (50-150)	13C5PHA (50-150)	C4PFHA (50-150)	C8PFOA (50-150)	C9PFNA (50-150)	C6PFDA (50-150)
410-8511-1	MW-1	132	108	117	97	103	99	107	98
410-8511-2	MW-2	149	110	123	113	118	110	112	103
410-8511-3	MW-3	140	109	120	100	101	103	105	106
410-8511-3 - DL	MW-3								
410-8511-4	MW-4	126	107	122	111	109	112	108	103
410-8511-4 MS	MW-4	121	94	117	106	108	106	103	93
410-8511-4 MSD	MW-4	112	98	108	102	100	102	102	96
410-8511-5	MW-5	111	103	117	103	104	105	102	101
410-8511-6	MW-6	133	107	109	100	101	103	102	97
410-8511-7	MW-7	128	102	110	102	111	98	106	91
410-8511-8	FD-07202020	138	104	113	96	95	98	97	94
410-8511-8 - DL	FD-07202020								
410-8511-9	RB-07202020	118	117	109	103	106	107	109	108
410-8511-10	RB-07212020	105	121	114	107	109	109	107	113
410-8511-11	IDW-AQ	359 Q	153 Q	329 Q	109	146	112	161 Q	86
LCS 410-25697/2-A	Lab Control Sample	111	99	111	101	103	106	112	97
LCS 410-27247/2-A	Lab Control Sample	125	111	110	106	111	107	114	109
LCSD 410-27247/3-A	Lab Control Sample Dup	117	109	104	103	110	102	106	103
MB 410-25697/1-A	Method Blank	112	109	117	108	113	113	110	105
MB 410-27247/1-A	Method Blank	122	113	126	107	109	110	108	103

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	13C7PUA (50-150)	PFDoDA (50-150)	PFTDA (50-150)	C3PFBS (50-150)	C3PFHS (50-150)	C8PFOS (50-150)	d3NMFOS (50-150)	d5NEFOS (50-150)
410-8511-1	MW-1	105	109	106	120	106	105	120	127
410-8511-2	MW-2	106	109	98	117	109	109	114	118
410-8511-3	MW-3	106	112	106	138	104	102	122	123
410-8511-3 - DL	MW-3					123			
410-8511-4	MW-4	110	105	100	123	116	110	125	125
410-8511-4 MS	MW-4	99	92	87	115	106	104	116	117
410-8511-4 MSD	MW-4	105	96	94	108	103	99	111	119
410-8511-5	MW-5	102	101	101	113	108	102	111	116
410-8511-6	MW-6	101	99	98	122	101	102	110	122
410-8511-7	MW-7	103	100	93	123	100	103	112	125
410-8511-8	FD-07202020	93	86	77	113	96	99	100	111
410-8511-8 - DL	FD-07202020					97			
410-8511-9	RB-07202020	132	115	108	106	105	105	142	178 Q
410-8511-10	RB-07212020	112	108	106	104	109	107	124	123

Isotope Dilution Summary

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	13C7PUA (50-150)	PFDoDA (50-150)	PFTDA (50-150)	C3PFBS (50-150)	C3PFHS (50-150)	C8PFOS (50-150)	d3NMFOS (50-150)	d5NEFOS (50-150)
410-8511-11	IDW-AQ	35 Q	19 Q	71	147	110	107	46 Q	26 Q
LCS 410-25697/2-A	Lab Control Sample	96	102	99	101	102	110	116	112
LCS 410-27247/2-A	Lab Control Sample	108	114	110	108	106	113	126	132
LCSD 410-27247/3-A	Lab Control Sample Dup	110	106	105	102	105	105	123	124
MB 410-25697/1-A	Method Blank	105	109	107	105	113	110	117	117
MB 410-27247/1-A	Method Blank	110	109	109	106	108	103	121	128

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	PFOSA (50-150)	PFBA (50-150)	PFPeA (50-150)
410-8511-1	MW-1	19 Q	94	96
410-8511-2	MW-2	92	105	113
410-8511-3	MW-3	30 Q	101	118
410-8511-3 - DL	MW-3			
410-8511-4	MW-4	111	109	120
410-8511-4 MS	MW-4	101	106	112
410-8511-4 MSD	MW-4	102	100	111
410-8511-5	MW-5	101	103	116
410-8511-6	MW-6	78	101	115
410-8511-7	MW-7	102	95	114
410-8511-8	FD-07202020	90	93	107
410-8511-8 - DL	FD-07202020			
410-8511-9	RB-07202020	114	108	104
410-8511-10	RB-07212020	112	107	104
410-8511-11	IDW-AQ	34 Q	106	126
LCS 410-25697/2-A	Lab Control Sample	98	102	107
LCS 410-27247/2-A	Lab Control Sample	116	108	106
LCSD 410-27247/3-A	Lab Control Sample Dup	117	103	101
MB 410-25697/1-A	Method Blank	108	107	104
MB 410-27247/1-A	Method Blank	110	109	103

Surrogate Legend

M242FTS = M2-4:2 FTS
M282FTS = M2-8:2 FTS
M262FTS = M2-6:2 FTS
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15

Lab Sample ID: MB 410-25697/1-A
Matrix: Water
Analysis Batch: 26285

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25697

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluoroheptanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorooctanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorononanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorodecanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorotridecanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorotetradecanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorobutanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorohexanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorooctanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
NEtFOSAA	0.50	U	3.0	1.0	0.50	ng/L		07/25/20 16:05	1
NMeFOSAA	0.60	U	2.0	1.2	0.60	ng/L		07/25/20 16:05	1
Perfluoropentanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluoroheptanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorononanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorodecanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorooctanesulfonamide	0.757	J M	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorobutanoic acid	2.0	U	5.0	4.0	2.0	ng/L		07/25/20 16:05	1
Perfluoropentanoic acid	0.50	U M	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluoroundecanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
Perfluorododecanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1
6:2 Fluorotelomer sulfonic acid	2.0	U	5.0	4.0	2.0	ng/L		07/25/20 16:05	1
8:2 Fluorotelomer sulfonic acid	1.0	U	3.0	2.0	1.0	ng/L		07/25/20 16:05	1
4:2 Fluorotelomer sulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/25/20 16:05	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*112*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
M2-8:2 FTS	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
M2-6:2 FTS	*117*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C5 PFHxA	*108*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C4 PFHpA	*113*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C8 PFOA	*113*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C9 PFNA	*110*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C6 PFDA	*105*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C7 PFUnA	*105*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C2-PFDoDA	*109*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C2 PFTeDA	*107*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C3 PFBS	*105*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C3 PFHxS	*113*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C8 PFOS	*110*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
d3-NMeFOSAA	*117*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
d5-NEtFOSAA	*117*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C8 FOSA	*108*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C4 PFBA	*107*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*
13C5 PFPeA	*104*		*50 - 150*	*07/23/20 15:32*	*07/25/20 16:05*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: LCS 410-25697/2-A
Matrix: Water
Analysis Batch: 26285

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid	25.6	24.4		ng/L		95	80 - 137
Perfluoroheptanoic acid	25.6	24.5		ng/L		96	80 - 140
Perfluorooctanoic acid	25.6	23.4		ng/L		91	83 - 138
Perfluorononanoic acid	25.6	24.5		ng/L		96	73 - 140
Perfluorodecanoic acid	25.6	23.2		ng/L		91	78 - 137
Perfluorotridecanoic acid	25.6	24.2		ng/L		94	67 - 144
Perfluorotetradecanoic acid	25.6	24.0		ng/L		94	79 - 134
Perfluorobutanesulfonic acid	22.6	22.1		ng/L		98	81 - 133
Perfluorohexanesulfonic acid	24.2	24.3		ng/L		100	71 - 131
Perfluorooctanesulfonic acid	24.5	22.7		ng/L		93	54 - 139
NEtFOSAA	25.6	24.2		ng/L		94	59 - 145
NMeFOSAA	25.6	24.6		ng/L		96	53 - 136
Perfluoropentanesulfonic acid	24.0	25.5		ng/L		106	82 - 132
Perfluoroheptanesulfonic acid	24.4	25.0		ng/L		103	80 - 129
Perfluorononanesulfonic acid	24.6	24.2		ng/L		99	71 - 121
Perfluorodecanesulfonic acid	24.7	26.9		ng/L		109	69 - 124
Perfluorooctanesulfonamide	25.6	21.9		ng/L		86	73 - 121
Perfluorobutanoic acid	25.6	25.1		ng/L		98	84 - 135
Perfluoropentanoic acid	25.6	24.2		ng/L		94	75 - 138
Perfluoroundecanoic acid	25.6	28.0		ng/L		109	70 - 134
Perfluorododecanoic acid	25.6	23.8		ng/L		93	75 - 139
6:2 Fluorotelomer sulfonic acid	24.3	23.2		ng/L		95	51 - 155
8:2 Fluorotelomer sulfonic acid	24.5	20.9		ng/L		85	62 - 133
4:2 Fluorotelomer sulfonic acid	23.9	20.7		ng/L		87	64 - 134

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*111*		*50 - 150*
M2-8:2 FTS	*99*		*50 - 150*
M2-6:2 FTS	*111*		*50 - 150*
13C5 PFHxA	*101*		*50 - 150*
13C4 PFHpA	*103*		*50 - 150*
13C8 PFOA	*106*		*50 - 150*
13C9 PFNA	*112*		*50 - 150*
13C6 PFDA	*97*		*50 - 150*
13C7 PFUnA	*96*		*50 - 150*
13C2-PFDoDA	*102*		*50 - 150*
13C2 PFTeDA	*99*		*50 - 150*
13C3 PFBS	*101*		*50 - 150*
13C3 PFHxS	*102*		*50 - 150*
13C8 PFOS	*110*		*50 - 150*
d3-NMeFOSAA	*116*		*50 - 150*
d5-NEtFOSAA	*112*		*50 - 150*
13C8 FOSA	*98*		*50 - 150*
13C4 PFBA	*102*		*50 - 150*
13C5 PFPeA	*107*		*50 - 150*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: 410-8511-4 MS
Matrix: Water
Analysis Batch: 26285

Client Sample ID: MW-4
Prep Type: Total/NA
Prep Batch: 25697

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid	8.9		22.3	29.3	M	ng/L		92	80 - 137
Perfluoroheptanoic acid	1.4	J	22.3	21.4		ng/L		90	80 - 140
Perfluorooctanoic acid	11	M J1	22.3	28.7	M J1	ng/L		80	83 - 138
Perfluorononanoic acid	0.45	U	22.3	21.4		ng/L		96	73 - 140
Perfluorodecanoic acid	0.45	U	22.3	20.6		ng/L		93	78 - 137
Perfluorotridecanoic acid	0.45	U	22.3	22.9		ng/L		103	67 - 144
Perfluorotetradecanoic acid	0.45	U	22.3	22.1		ng/L		99	79 - 134
Perfluorobutanesulfonic acid	2.3		19.7	21.1		ng/L		96	81 - 133
Perfluorohexanesulfonic acid	19	M	21.1	38.7	M	ng/L		94	71 - 131
Perfluorooctanesulfonic acid	1.0	J M	21.3	19.4	M	ng/L		87	54 - 139
NEtFOSAA	0.45	U	22.3	21.7		ng/L		97	59 - 145
NMeFOSAA	0.54	U	22.3	20.5		ng/L		92	53 - 136
Perfluoropentanesulfonic acid	2.4		20.9	24.3		ng/L		105	82 - 132
Perfluoroheptanesulfonic acid	0.45	U	21.2	20.4		ng/L		96	80 - 129
Perfluorononanesulfonic acid	0.45	U	21.4	21.0		ng/L		98	71 - 121
Perfluorodecanesulfonic acid	0.45	U	21.4	22.8		ng/L		106	69 - 124
Perfluorooctanesulfonamide	0.45	U	22.3	19.5		ng/L		88	73 - 121
Perfluorobutanoic acid	6.0		22.3	26.5		ng/L		92	84 - 135
Perfluoropentanoic acid	6.2		22.3	28.1	M	ng/L		98	75 - 138
Perfluoroundecanoic acid	0.45	U	22.3	23.7		ng/L		107	70 - 134
Perfluorododecanoic acid	0.45	U	22.3	22.8		ng/L		103	75 - 139
6:2 Fluorotelomer sulfonic acid	3.6	J	21.1	22.4		ng/L		89	51 - 155
8:2 Fluorotelomer sulfonic acid	0.90	U	21.3	21.6		ng/L		101	62 - 133
4:2 Fluorotelomer sulfonic acid	0.45	U	20.8	18.1		ng/L		87	64 - 134

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
M2-4:2 FTS	*121*		*50 - 150*
M2-8:2 FTS	*94*		*50 - 150*
M2-6:2 FTS	*117*		*50 - 150*
13C5 PFHxA	*106*		*50 - 150*
13C4 PFHpA	*108*		*50 - 150*
13C8 PFOA	*106*		*50 - 150*
13C9 PFNA	*103*		*50 - 150*
13C6 PFDA	*93*		*50 - 150*
13C7 PFUnA	*99*		*50 - 150*
13C2-PFDoDA	*92*		*50 - 150*
13C2 PFTeDA	*87*		*50 - 150*
13C3 PFBS	*115*		*50 - 150*
13C3 PFHxS	*106*		*50 - 150*
13C8 PFOS	*104*		*50 - 150*
d3-NMeFOSAA	*116*		*50 - 150*
d5-NEtFOSAA	*117*		*50 - 150*
13C8 FOSA	*101*		*50 - 150*
13C4 PFBA	*106*		*50 - 150*
13C5 PFPeA	*112*		*50 - 150*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: 410-8511-4 MSD
Matrix: Water
Analysis Batch: 26285

Client Sample ID: MW-4
Prep Type: Total/NA
Prep Batch: 25697

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid	8.9		23.1	29.7	M	ng/L		90	80 - 137	2	30
Perfluoroheptanoic acid	1.4	J	23.1	23.5	M	ng/L		95	80 - 140	9	30
Perfluorooctanoic acid	11	M J1	23.1	31.6	M	ng/L		90	83 - 138	10	30
Perfluorononanoic acid	0.45	U	23.1	21.4		ng/L		93	73 - 140	0	30
Perfluorodecanoic acid	0.45	U	23.1	22.5		ng/L		97	78 - 137	9	30
Perfluorotridecanoic acid	0.45	U	23.1	23.7		ng/L		103	67 - 144	3	30
Perfluorotetradecanoic acid	0.45	U	23.1	21.5		ng/L		93	79 - 134	3	30
Perfluorobutanesulfonic acid	2.3		20.4	22.4		ng/L		99	81 - 133	6	30
Perfluorohexanesulfonic acid	19	M	21.8	40.1	M	ng/L		98	71 - 131	4	30
Perfluorooctanesulfonic acid	1.0	J M	22.1	19.8	M	ng/L		85	54 - 139	2	30
NEtFOSAA	0.45	U	23.1	22.4		ng/L		97	59 - 145	3	30
NMeFOSAA	0.54	U	23.1	21.7		ng/L		94	53 - 136	6	30
Perfluoropentanesulfonic acid	2.4		21.7	26.3		ng/L		110	82 - 132	8	30
Perfluoroheptanesulfonic acid	0.45	U	22.0	21.8		ng/L		99	80 - 129	7	30
Perfluorononanesulfonic acid	0.45	U	22.2	23.0		ng/L		104	71 - 121	9	30
Perfluorodecanesulfonic acid	0.45	U	22.2	23.5		ng/L		106	69 - 124	3	30
Perfluorooctanesulfonamide	0.45	U	23.1	20.9		ng/L		91	73 - 121	7	30
Perfluorobutanoic acid	6.0		23.1	28.3		ng/L		97	84 - 135	7	30
Perfluoropentanoic acid	6.2		23.1	27.7		ng/L		93	75 - 138	1	30
Perfluoroundecanoic acid	0.45	U	23.1	22.9		ng/L		99	70 - 134	3	30
Perfluorododecanoic acid	0.45	U	23.1	23.3		ng/L		101	75 - 139	2	30
6:2 Fluorotelomer sulfonic acid	3.6	J	21.9	23.7		ng/L		92	51 - 155	6	30
8:2 Fluorotelomer sulfonic acid	0.90	U	22.1	21.5		ng/L		97	62 - 133	0	30
4:2 Fluorotelomer sulfonic acid	0.45	U	21.6	18.8		ng/L		87	64 - 134	4	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
M2-4:2 FTS	*112*		*50 - 150*
M2-8:2 FTS	*98*		*50 - 150*
M2-6:2 FTS	*108*		*50 - 150*
13C5 PFHxA	*102*		*50 - 150*
13C4 PFHpA	*100*		*50 - 150*
13C8 PFOA	*102*		*50 - 150*
13C9 PFNA	*102*		*50 - 150*
13C6 PFDA	*96*		*50 - 150*
13C7 PFUnA	*105*		*50 - 150*
13C2-PFDoDA	*96*		*50 - 150*
13C2 PFTeDA	*94*		*50 - 150*
13C3 PFBS	*108*		*50 - 150*
13C3 PFHxS	*103*		*50 - 150*
13C8 PFOS	*99*		*50 - 150*
d3-NMeFOSAA	*111*		*50 - 150*
d5-NEtFOSAA	*119*		*50 - 150*
13C8 FOSA	*102*		*50 - 150*
13C4 PFBA	*100*		*50 - 150*
13C5 PFPeA	*111*		*50 - 150*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: MB 410-25969/1-B
Matrix: Solid
Analysis Batch: 25943

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25969

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluoroheptanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorooctanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorononanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorodecanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorotridecanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorotetradecanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorobutanesulfonic acid	0.40	U	2.0	1.6	0.40	ng/g		07/24/20 21:27	1
Perfluorohexanesulfonic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorooctanesulfonic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
NEtFOSAA	0.20	U	2.0	0.40	0.20	ng/g		07/24/20 21:27	1
NMeFOSAA	0.20	U	2.0	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluoropentanesulfonic acid	0.20	U	3.0	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluoroheptanesulfonic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorononanesulfonic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorodecanesulfonic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorooctanesulfonamide	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorobutanoic acid	0.60	U	2.0	1.6	0.60	ng/g		07/24/20 21:27	1
Perfluoropentanoic acid	0.20	U M	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluoroundecanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
Perfluorododecanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/24/20 21:27	1
6:2 Fluorotelomer sulfonic acid	0.60	U	2.0	1.6	0.60	ng/g		07/24/20 21:27	1
8:2 Fluorotelomer sulfonic acid	0.60	U	3.0	1.6	0.60	ng/g		07/24/20 21:27	1
4:2 Fluorotelomer sulfonic acid	0.60	U	2.0	1.6	0.60	ng/g		07/24/20 21:27	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*102*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
M2-8:2 FTS	*90*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
M2-6:2 FTS	*103*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C5 PFHxA	*93*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C4 PFHpA	*95*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C8 PFOA	*94*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C9 PFNA	*98*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C6 PFDA	*88*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C7 PFUnA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C2-PFDoDA	*89*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C2 PFTeDA	*92*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C3 PFBS	*93*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C3 PFHxS	*99*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C8 PFOS	*95*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
d3-NMeFOSAA	*95*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
d5-NEtFOSAA	*96*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C8 FOSA	*93*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C4 PFBA	*94*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*
13C5 PFPeA	*94*		*50 - 150*	*07/24/20 09:12*	*07/24/20 21:27*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: LCS 410-25969/2-B
Matrix: Solid
Analysis Batch: 25943

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25969

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid	25.0	24.0		ng/g		96	73 - 145
Perfluoroheptanoic acid	25.0	21.9		ng/g		88	81 - 140
Perfluorooctanoic acid	25.0	21.7		ng/g		87	80 - 140
Perfluorononanoic acid	25.0	24.0		ng/g		96	74 - 141
Perfluorodecanoic acid	25.0	22.1		ng/g		89	79 - 136
Perfluorotridecanoic acid	25.0	23.2		ng/g		93	75 - 147
Perfluorotetradecanoic acid	25.0	23.0		ng/g		92	81 - 137
Perfluorobutanesulfonic acid	22.1	20.8		ng/g		94	80 - 134
Perfluorohexanesulfonic acid	23.6	21.7		ng/g		92	75 - 131
Perfluorooctanesulfonic acid	23.9	21.6		ng/g		90	66 - 140
NEtFOSAA	25.0	23.2		ng/g		93	60 - 143
NMeFOSAA	25.0	24.3		ng/g		97	56 - 142
Perfluoropentanesulfonic acid	23.5	23.7		ng/g		101	78 - 131
Perfluoroheptanesulfonic acid	23.8	24.0		ng/g		101	75 - 131
Perfluorononanesulfonic acid	24.0	23.9		ng/g		100	66 - 131
Perfluorodecanesulfonic acid	24.1	25.6		ng/g		107	59 - 142
Perfluorooctanesulfonamide	25.0	21.8		ng/g		87	66 - 128
Perfluorobutanoic acid	25.0	23.2		ng/g		93	79 - 146
Perfluoropentanoic acid	25.0	23.5		ng/g		94	73 - 140
Perfluoroundecanoic acid	25.0	25.2		ng/g		101	63 - 147
Perfluorododecanoic acid	25.0	21.7		ng/g		87	76 - 142
6:2 Fluorotelomer sulfonic acid	23.7	22.1		ng/g		93	51 - 156
8:2 Fluorotelomer sulfonic acid	24.0	19.6		ng/g		82	61 - 142
4:2 Fluorotelomer sulfonic acid	23.4	22.4		ng/g		96	63 - 132

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*94*		*50 - 150*
M2-8:2 FTS	*98*		*50 - 150*
M2-6:2 FTS	*98*		*50 - 150*
13C5 PFHxA	*89*		*50 - 150*
13C4 PFHpA	*94*		*50 - 150*
13C8 PFOA	*94*		*50 - 150*
13C9 PFNA	*92*		*50 - 150*
13C6 PFDA	*92*		*50 - 150*
13C7 PFUnA	*93*		*50 - 150*
13C2-PFDoDA	*93*		*50 - 150*
13C2 PFTeDA	*96*		*50 - 150*
13C3 PFBS	*90*		*50 - 150*
13C3 PFHxS	*89*		*50 - 150*
13C8 PFOS	*94*		*50 - 150*
d3-NMeFOSAA	*98*		*50 - 150*
d5-NEtFOSAA	*105*		*50 - 150*
13C8 FOSA	*100*		*50 - 150*
13C4 PFBA	*92*		*50 - 150*
13C5 PFPeA	*91*		*50 - 150*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: 410-8511-12 MS
Matrix: Solid
Analysis Batch: 25943

Client Sample ID: SB-1-0-0.5
Prep Type: Total/NA
Prep Batch: 25969

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid	2.4		26.7	28.2		ng/g	☼	96	73 - 145
Perfluoroheptanoic acid	0.50	J	26.7	25.0		ng/g	☼	92	81 - 140
Perfluorooctanoic acid	3.4	M	26.7	27.3	M	ng/g	☼	90	80 - 140
Perfluorononanoic acid	11		26.7	39.7		ng/g	☼	106	74 - 141
Perfluorodecanoic acid	4.3		26.7	28.3		ng/g	☼	90	79 - 136
Perfluorotridecanoic acid	2.0		26.7	26.0	M	ng/g	☼	90	75 - 147
Perfluorotetradecanoic acid	0.21	U	26.7	25.4		ng/g	☼	95	81 - 137
Perfluorobutanesulfonic acid	0.42	U	23.6	22.6		ng/g	☼	96	80 - 134
Perfluorohexanesulfonic acid	35	M	25.3	56.3	M	ng/g	☼	83	75 - 131
Perfluorooctanesulfonic acid	510	E M J1	25.6	523	E M 4	ng/g	☼	68	66 - 140
NEtFOSAA	0.21	U	26.7	25.2		ng/g	☼	94	60 - 143
NMeFOSAA	0.21	U	26.7	23.9		ng/g	☼	89	56 - 142
Perfluoropentanesulfonic acid	0.30	J M	25.1	25.6		ng/g	☼	101	78 - 131
Perfluoroheptanesulfonic acid	3.0		25.4	28.2		ng/g	☼	99	75 - 131
Perfluorononanesulfonic acid	3.2	J1	25.7	37.8	J1	ng/g	☼	135	66 - 131
Perfluorodecanesulfonic acid	3.2		25.7	37.8		ng/g	☼	135	59 - 142
Perfluorooctanesulfonamide	11		26.7	32.7		ng/g	☼	82	66 - 128
Perfluorobutanoic acid	0.99	J	26.7	25.9		ng/g	☼	93	79 - 146
Perfluoropentanoic acid	1.2		26.7	26.6		ng/g	☼	95	73 - 140
Perfluoroundecanoic acid	1.6	M	26.7	28.2	M	ng/g	☼	99	63 - 147
Perfluorododecanoic acid	0.48	J M	26.7	25.2	M	ng/g	☼	93	76 - 142
6:2 Fluorotelomer sulfonic acid	0.64	U	25.3	23.9		ng/g	☼	94	51 - 156
8:2 Fluorotelomer sulfonic acid	1.7	J	25.6	23.1		ng/g	☼	83	61 - 142
4:2 Fluorotelomer sulfonic acid	0.64	U	25.0	21.2		ng/g	☼	85	63 - 132

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
M2-4:2 FTS	*100*		*50 - 150*
M2-8:2 FTS	*98*		*50 - 150*
M2-6:2 FTS	*95*		*50 - 150*
13C5 PFHxA	*91*		*50 - 150*
13C4 PFHpA	*91*		*50 - 150*
13C8 PFOA	*93*		*50 - 150*
13C9 PFNA	*105*		*50 - 150*
13C6 PFDA	*91*		*50 - 150*
13C7 PFUnA	*94*		*50 - 150*
13C2-PFDoDA	*92*		*50 - 150*
13C2 PFTeDA	*97*		*50 - 150*
13C3 PFBS	*93*		*50 - 150*
13C3 PFHxS	*95*		*50 - 150*
13C8 PFOS	*105*		*50 - 150*
d3-NMeFOSAA	*55*		*50 - 150*
d5-NEtFOSAA	*58*		*50 - 150*
13C8 FOSA	*66*		*50 - 150*
13C4 PFBA	*88*		*50 - 150*
13C5 PFPeA	*89*		*50 - 150*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: 410-8511-12 MSD
Matrix: Solid
Analysis Batch: 25943

Client Sample ID: SB-1-0-0.5
Prep Type: Total/NA
Prep Batch: 25969

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid	2.4		25.7	26.6		ng/g	☼	94	73 - 145	6	30
Perfluoroheptanoic acid	0.50	J	25.7	23.6		ng/g	☼	90	81 - 140	6	30
Perfluorooctanoic acid	3.4	M	25.7	26.4	M	ng/g	☼	90	80 - 140	3	30
Perfluorononanoic acid	11		25.7	36.5		ng/g	☼	98	74 - 141	8	30
Perfluorodecanoic acid	4.3		25.7	28.7		ng/g	☼	95	79 - 136	1	30
Perfluorotridecanoic acid	2.0		25.7	25.6	M	ng/g	☼	92	75 - 147	1	30
Perfluorotetradecanoic acid	0.21	U	25.7	23.5		ng/g	☼	91	81 - 137	8	30
Perfluorobutanesulfonic acid	0.42	U	22.7	21.3		ng/g	☼	94	80 - 134	6	30
Perfluorohexanesulfonic acid	35	M	24.3	54.8	M	ng/g	☼	80	75 - 131	3	30
Perfluorooctanesulfonic acid	510	E M J1	24.6	516	E M 4	ng/g	☼	45	66 - 140	1	30
NEtFOSAA	0.21	U	25.7	22.6		ng/g	☼	88	60 - 143	10	30
NMeFOSAA	0.21	U	25.7	23.2		ng/g	☼	90	56 - 142	3	30
Perfluoropentanesulfonic acid	0.30	J M	24.1	26.2		ng/g	☼	107	78 - 131	2	30
Perfluoroheptanesulfonic acid	3.0		24.5	27.2		ng/g	☼	99	75 - 131	4	30
Perfluorononanesulfonic acid	3.2	J1	24.7	36.7	J1	ng/g	☼	136	66 - 131	3	30
Perfluorodecanesulfonic acid	3.2		24.7	37.9		ng/g	☼	140	59 - 142	0	30
Perfluorooctanesulfonamide	11		25.7	31.9		ng/g	☼	83	66 - 128	2	30
Perfluorobutanoic acid	0.99	J	25.7	25.5		ng/g	☼	95	79 - 146	2	30
Perfluoropentanoic acid	1.2		25.7	25.5		ng/g	☼	95	73 - 140	4	30
Perfluoroundecanoic acid	1.6	M	25.7	26.8	M	ng/g	☼	98	63 - 147	5	30
Perfluorododecanoic acid	0.48	J M	25.7	24.7	M	ng/g	☼	94	76 - 142	2	30
6:2 Fluorotelomer sulfonic acid	0.64	U	24.4	22.1		ng/g	☼	91	51 - 156	8	30
8:2 Fluorotelomer sulfonic acid	1.7	J	24.6	23.8		ng/g	☼	90	61 - 142	3	30
4:2 Fluorotelomer sulfonic acid	0.64	U	24.0	20.0		ng/g	☼	83	63 - 132	6	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
M2-4:2 FTS	*103*		*50 - 150*
M2-8:2 FTS	*99*		*50 - 150*
M2-6:2 FTS	*102*		*50 - 150*
13C5 PFHxA	*91*		*50 - 150*
13C4 PFHpA	*93*		*50 - 150*
13C8 PFOA	*95*		*50 - 150*
13C9 PFNA	*111*		*50 - 150*
13C6 PFDA	*98*		*50 - 150*
13C7 PFUnA	*104*		*50 - 150*
13C2-PFDoDA	*97*		*50 - 150*
13C2 PFTeDA	*106*		*50 - 150*
13C3 PFBS	*97*		*50 - 150*
13C3 PFHxS	*96*		*50 - 150*
13C8 PFOS	*110*		*50 - 150*
d3-NMeFOSAA	*59*		*50 - 150*
d5-NEtFOSAA	*69*		*50 - 150*
13C8 FOSA	*72*		*50 - 150*
13C4 PFBA	*89*		*50 - 150*
13C5 PFPeA	*91*		*50 - 150*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: MB 410-26607/1-B
Matrix: Solid
Analysis Batch: 26801

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 26607

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluoroheptanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorooctanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorononanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorodecanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorotridecanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorotetradecanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorobutanesulfonic acid	0.40	U	2.0	1.6	0.40	ng/g		07/27/20 19:04	1
Perfluorohexanesulfonic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorooctanesulfonic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
NEtFOSAA	0.20	U	2.0	0.40	0.20	ng/g		07/27/20 19:04	1
NMeFOSAA	0.20	U	2.0	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluoropentanesulfonic acid	0.20	U	3.0	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluoroheptanesulfonic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorononanesulfonic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorodecanesulfonic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorooctanesulfonamide	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorobutanoic acid	0.60	U	2.0	1.6	0.60	ng/g		07/27/20 19:04	1
Perfluoropentanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluoroundecanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
Perfluorododecanoic acid	0.20	U	0.60	0.40	0.20	ng/g		07/27/20 19:04	1
6:2 Fluorotelomer sulfonic acid	0.60	U	2.0	1.6	0.60	ng/g		07/27/20 19:04	1
8:2 Fluorotelomer sulfonic acid	0.60	U	3.0	1.6	0.60	ng/g		07/27/20 19:04	1
4:2 Fluorotelomer sulfonic acid	0.60	U	2.0	1.6	0.60	ng/g		07/27/20 19:04	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*111*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
M2-8:2 FTS	*106*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
M2-6:2 FTS	*108*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C5 PFHxA	*106*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C4 PFHpA	*109*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C8 PFOA	*107*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C9 PFNA	*103*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C6 PFDA	*98*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C7 PFUnA	*105*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C2-PFDoDA	*104*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C2 PFTeDA	*100*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C3 PFBS	*103*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C3 PFHxS	*107*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C8 PFOS	*101*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
d3-NMeFOSAA	*114*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
d5-NEtFOSAA	*112*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C8 FOSA	*112*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C4 PFBA	*105*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*
13C5 PFPeA	*101*		*50 - 150*	*07/27/20 08:21*	*07/27/20 19:04*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: LCS 410-26607/2-B
Matrix: Solid
Analysis Batch: 26801

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 26607

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid	25.0	23.2		ng/g		93	73 - 145
Perfluoroheptanoic acid	25.0	22.6		ng/g		90	81 - 140
Perfluorooctanoic acid	25.0	22.5		ng/g		90	80 - 140
Perfluorononanoic acid	25.0	20.5		ng/g		82	74 - 141
Perfluorodecanoic acid	25.0	21.9		ng/g		87	79 - 136
Perfluorotridecanoic acid	25.0	23.5		ng/g		94	75 - 147
Perfluorotetradecanoic acid	25.0	23.3		ng/g		93	81 - 137
Perfluorobutanesulfonic acid	22.1	19.7		ng/g		89	80 - 134
Perfluorohexanesulfonic acid	23.6	21.6		ng/g		92	75 - 131
Perfluorooctanesulfonic acid	23.9	21.7		ng/g		91	66 - 140
NEtFOSAA	25.0	23.0		ng/g		92	60 - 143
NMeFOSAA	25.0	23.3		ng/g		93	56 - 142
Perfluoropentanesulfonic acid	23.5	23.3		ng/g		99	78 - 131
Perfluoroheptanesulfonic acid	23.8	22.3		ng/g		94	75 - 131
Perfluorononanesulfonic acid	24.0	24.0		ng/g		100	66 - 131
Perfluorodecanesulfonic acid	24.1	24.5		ng/g		102	59 - 142
Perfluorooctanesulfonamide	25.0	21.6		ng/g		87	66 - 128
Perfluorobutanoic acid	25.0	23.1		ng/g		93	79 - 146
Perfluoropentanoic acid	25.0	24.0		ng/g		96	73 - 140
Perfluoroundecanoic acid	25.0	26.1		ng/g		104	63 - 147
Perfluorododecanoic acid	25.0	22.6		ng/g		90	76 - 142
6:2 Fluorotelomer sulfonic acid	23.7	21.4		ng/g		90	51 - 156
8:2 Fluorotelomer sulfonic acid	24.0	19.5		ng/g		82	61 - 142
4:2 Fluorotelomer sulfonic acid	23.4	21.0		ng/g		90	63 - 132

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*105*		*50 - 150*
M2-8:2 FTS	*108*		*50 - 150*
M2-6:2 FTS	*105*		*50 - 150*
13C5 PFHxA	*102*		*50 - 150*
13C4 PFHpA	*103*		*50 - 150*
13C8 PFOA	*100*		*50 - 150*
13C9 PFNA	*120*		*50 - 150*
13C6 PFDA	*107*		*50 - 150*
13C7 PFUnA	*105*		*50 - 150*
13C2-PFDoDA	*109*		*50 - 150*
13C2 PFTeDA	*103*		*50 - 150*
13C3 PFBS	*103*		*50 - 150*
13C3 PFHxS	*103*		*50 - 150*
13C8 PFOS	*104*		*50 - 150*
d3-NMeFOSAA	*119*		*50 - 150*
d5-NEtFOSAA	*118*		*50 - 150*
13C8 FOSA	*113*		*50 - 150*
13C4 PFBA	*104*		*50 - 150*
13C5 PFPeA	*99*		*50 - 150*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: LCSD 410-26607/3-B
Matrix: Solid
Analysis Batch: 26801

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 26607

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid			25.0	22.8		ng/g		91	73 - 145	2	30
Perfluoroheptanoic acid			25.0	22.5		ng/g		90	81 - 140	0	30
Perfluorooctanoic acid			25.0	22.5		ng/g		90	80 - 140	0	30
Perfluorononanoic acid			25.0	23.3		ng/g		93	74 - 141	13	30
Perfluorodecanoic acid			25.0	21.7		ng/g		87	79 - 136	1	30
Perfluorotridecanoic acid			25.0	23.0		ng/g		92	75 - 147	2	30
Perfluorotetradecanoic acid			25.0	23.0		ng/g		92	81 - 137	1	30
Perfluorobutanesulfonic acid			22.1	19.7		ng/g		89	80 - 134	0	30
Perfluorohexanesulfonic acid			23.6	21.7		ng/g		92	75 - 131	0	30
Perfluorooctanesulfonic acid			23.9	21.1		ng/g		88	66 - 140	3	30
NEtFOSAA			25.0	21.6		ng/g		87	60 - 143	6	30
NMeFOSAA			25.0	22.1		ng/g		88	56 - 142	5	30
Perfluoropentanesulfonic acid			23.5	23.5		ng/g		100	78 - 131	1	30
Perfluoroheptanesulfonic acid			23.8	22.4		ng/g		94	75 - 131	0	30
Perfluorononanesulfonic acid			24.0	23.7		ng/g		99	66 - 131	1	30
Perfluorodecanesulfonic acid			24.1	24.9		ng/g		103	59 - 142	2	30
Perfluorooctanesulfonamide			25.0	22.5		ng/g		90	66 - 128	4	30
Perfluorobutanoic acid			25.0	23.0		ng/g		92	79 - 146	0	30
Perfluoropentanoic acid			25.0	23.9		ng/g		95	73 - 140	1	30
Perfluoroundecanoic acid			25.0	24.0	M	ng/g		96	63 - 147	8	30
Perfluorododecanoic acid			25.0	22.3		ng/g		89	76 - 142	1	30
6:2 Fluorotelomer sulfonic acid			23.7	20.1		ng/g		85	51 - 156	6	30
8:2 Fluorotelomer sulfonic acid			24.0	20.3		ng/g		85	61 - 142	4	30
4:2 Fluorotelomer sulfonic acid			23.4	21.0		ng/g		90	63 - 132	0	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*125*		*50 - 150*
M2-8:2 FTS	*123*		*50 - 150*
M2-6:2 FTS	*127*		*50 - 150*
13C5 PFHxA	*122*		*50 - 150*
13C4 PFHpA	*122*		*50 - 150*
13C8 PFOA	*118*		*50 - 150*
13C9 PFNA	*125*		*50 - 150*
13C6 PFDA	*121*		*50 - 150*
13C7 PFUnA	*125*		*50 - 150*
13C2-PFDoDA	*123*		*50 - 150*
13C2 PFTeDA	*117*		*50 - 150*
13C3 PFBS	*120*		*50 - 150*
13C3 PFHxS	*121*		*50 - 150*
13C8 PFOS	*125*		*50 - 150*
d3-NMeFOSAA	*138*		*50 - 150*
d5-NEtFOSAA	*141*		*50 - 150*
13C8 FOSA	*125*		*50 - 150*
13C4 PFBA	*119*		*50 - 150*
13C5 PFPeA	*116*		*50 - 150*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: MB 410-27247/1-A
Matrix: Water
Analysis Batch: 27503

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27247

Analyte	MB Result	MB Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Perfluorohexanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluoroheptanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorooctanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorononanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorodecanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorotridecanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorotetradecanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorobutanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorohexanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorooctanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
NEtFOSAA	0.50	U	3.0	1.0	0.50	ng/L		07/29/20 16:57	1
NMeFOSAA	0.60	U	2.0	1.2	0.60	ng/L		07/29/20 16:57	1
Perfluoropentanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluoroheptanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorononanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorodecanesulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorooctanesulfonamide	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorobutanoic acid	2.0	U	5.0	4.0	2.0	ng/L		07/29/20 16:57	1
Perfluoropentanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluoroundecanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
Perfluorododecanoic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1
6:2 Fluorotelomer sulfonic acid	2.0	U	5.0	4.0	2.0	ng/L		07/29/20 16:57	1
8:2 Fluorotelomer sulfonic acid	1.0	U	3.0	2.0	1.0	ng/L		07/29/20 16:57	1
4:2 Fluorotelomer sulfonic acid	0.50	U	2.0	1.0	0.50	ng/L		07/29/20 16:57	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*122*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
M2-8:2 FTS	*113*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
M2-6:2 FTS	*126*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C5 PFHxA	*107*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C4 PFHpA	*109*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C8 PFOA	*110*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C9 PFNA	*108*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C6 PFDA	*103*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C7 PFUnA	*110*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C2-PFDoDA	*109*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C2 PFTeDA	*109*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C3 PFBS	*106*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C3 PFHxS	*108*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C8 PFOS	*103*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
d3-NMeFOSAA	*121*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
d5-NEtFOSAA	*128*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C8 FOSA	*110*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C4 PFBA	*109*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*
13C5 PFPeA	*103*		*50 - 150*	*07/28/20 17:20*	*07/29/20 16:57*	*1*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: LCS 410-27247/2-A
Matrix: Water
Analysis Batch: 27503

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27247

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid	25.6	25.6		ng/L		100	80 - 137
Perfluoroheptanoic acid	25.6	24.9		ng/L		97	80 - 140
Perfluorooctanoic acid	25.6	25.2		ng/L		99	83 - 138
Perfluorononanoic acid	25.6	26.6		ng/L		104	73 - 140
Perfluorodecanoic acid	25.6	25.6		ng/L		100	78 - 137
Perfluorotridecanoic acid	25.6	25.8		ng/L		101	67 - 144
Perfluorotetradecanoic acid	25.6	26.7		ng/L		104	79 - 134
Perfluorobutanesulfonic acid	22.6	22.8		ng/L		101	81 - 133
Perfluorohexanesulfonic acid	24.2	24.2		ng/L		100	71 - 131
Perfluorooctanesulfonic acid	24.5	23.9		ng/L		97	54 - 139
NEtFOSAA	25.6	22.7		ng/L		88	59 - 145
NMeFOSAA	25.6	24.1		ng/L		94	53 - 136
Perfluoropentanesulfonic acid	24.0	26.0		ng/L		108	82 - 132
Perfluoroheptanesulfonic acid	24.4	25.4		ng/L		104	80 - 129
Perfluorononanesulfonic acid	24.6	26.0		ng/L		106	71 - 121
Perfluorodecanesulfonic acid	24.7	26.8		ng/L		109	69 - 124
Perfluorooctanesulfonamide	25.6	24.7		ng/L		96	73 - 121
Perfluorobutanoic acid	25.6	26.1		ng/L		102	84 - 135
Perfluoropentanoic acid	25.6	26.7		ng/L		104	75 - 138
Perfluoroundecanoic acid	25.6	29.3		ng/L		114	70 - 134
Perfluorododecanoic acid	25.6	24.9		ng/L		97	75 - 139
6:2 Fluorotelomer sulfonic acid	24.3	24.5		ng/L		101	51 - 155
8:2 Fluorotelomer sulfonic acid	24.5	24.3		ng/L		99	62 - 133
4:2 Fluorotelomer sulfonic acid	23.9	20.0		ng/L		84	64 - 134

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
M2-4:2 FTS	*125*		*50 - 150*
M2-8:2 FTS	*111*		*50 - 150*
M2-6:2 FTS	*110*		*50 - 150*
13C5 PFHxA	*106*		*50 - 150*
13C4 PFHpA	*111*		*50 - 150*
13C8 PFOA	*107*		*50 - 150*
13C9 PFNA	*114*		*50 - 150*
13C6 PFDA	*109*		*50 - 150*
13C7 PFUnA	*108*		*50 - 150*
13C2-PFDoDA	*114*		*50 - 150*
13C2 PFTeDA	*110*		*50 - 150*
13C3 PFBS	*108*		*50 - 150*
13C3 PFHxS	*106*		*50 - 150*
13C8 PFOS	*113*		*50 - 150*
d3-NMeFOSAA	*126*		*50 - 150*
d5-NEtFOSAA	*132*		*50 - 150*
13C8 FOSA	*116*		*50 - 150*
13C4 PFBA	*108*		*50 - 150*
13C5 PFPeA	*106*		*50 - 150*

Method: EPA 537 (Mod) - EPA 537 mod QSM 5.1, Table B-15 (Continued)

Lab Sample ID: LCSD 410-27247/3-A
Matrix: Water
Analysis Batch: 27503

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 27247

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid			25.6	24.7		ng/L		96	80 - 137	4	30
Perfluoroheptanoic acid			25.6	24.1		ng/L		94	80 - 140	3	30
Perfluorooctanoic acid			25.6	24.6		ng/L		96	83 - 138	3	30
Perfluorononanoic acid			25.6	26.5		ng/L		103	73 - 140	1	30
Perfluorodecanoic acid			25.6	26.1		ng/L		102	78 - 137	2	30
Perfluorotridecanoic acid			25.6	26.8		ng/L		105	67 - 144	4	30
Perfluorotetradecanoic acid			25.6	26.5		ng/L		104	79 - 134	1	30
Perfluorobutanesulfonic acid			22.6	22.0		ng/L		97	81 - 133	4	30
Perfluorohexanesulfonic acid			24.2	23.5		ng/L		97	71 - 131	3	30
Perfluorooctanesulfonic acid			24.5	23.8		ng/L		97	54 - 139	0	30
NEtFOSAA			25.6	25.8		ng/L		101	59 - 145	13	30
NMeFOSAA			25.6	24.5		ng/L		96	53 - 136	2	30
Perfluoropentanesulfonic acid			24.0	26.6		ng/L		111	82 - 132	2	30
Perfluoroheptanesulfonic acid			24.4	24.4		ng/L		100	80 - 129	4	30
Perfluorononanesulfonic acid			24.6	27.0		ng/L		110	71 - 121	4	30
Perfluorodecanesulfonic acid			24.7	27.0		ng/L		109	69 - 124	1	30
Perfluorooctanesulfonamide			25.6	23.1		ng/L		90	73 - 121	7	30
Perfluorobutanoic acid			25.6	26.1		ng/L		102	84 - 135	0	30
Perfluoropentanoic acid			25.6	26.3		ng/L		103	75 - 138	1	30
Perfluoroundecanoic acid			25.6	28.5		ng/L		111	70 - 134	3	30
Perfluorododecanoic acid			25.6	26.1		ng/L		102	75 - 139	5	30
6:2 Fluorotelomer sulfonic acid			24.3	24.0		ng/L		99	51 - 155	2	30
8:2 Fluorotelomer sulfonic acid			24.5	24.3		ng/L		99	62 - 133	0	30
4:2 Fluorotelomer sulfonic acid			23.9	20.2		ng/L		85	64 - 134	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
M2-4:2 FTS	*117*		*50 - 150*
M2-8:2 FTS	*109*		*50 - 150*
M2-6:2 FTS	*104*		*50 - 150*
13C5 PFHxA	*103*		*50 - 150*
13C4 PFHpA	*110*		*50 - 150*
13C8 PFOA	*102*		*50 - 150*
13C9 PFNA	*106*		*50 - 150*
13C6 PFDA	*103*		*50 - 150*
13C7 PFUnA	*110*		*50 - 150*
13C2-PFDoDA	*106*		*50 - 150*
13C2 PFTeDA	*105*		*50 - 150*
13C3 PFBS	*102*		*50 - 150*
13C3 PFHxS	*105*		*50 - 150*
13C8 PFOS	*105*		*50 - 150*
d3-NMeFOSAA	*123*		*50 - 150*
d5-NEtFOSAA	*124*		*50 - 150*
13C8 FOSA	*117*		*50 - 150*
13C4 PFBA	*103*		*50 - 150*
13C5 PFPeA	*101*		*50 - 150*

LCMS

Prep Batch: 25697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-1 - RE	MW-1	Total/NA	Water	537 (Mod)	
410-8511-2	MW-2	Total/NA	Water	537 (Mod)	
410-8511-3 - RE	MW-3	Total/NA	Water	537 (Mod)	
410-8511-4	MW-4	Total/NA	Water	537 (Mod)	
410-8511-5	MW-5	Total/NA	Water	537 (Mod)	
410-8511-6	MW-6	Total/NA	Water	537 (Mod)	
410-8511-7	MW-7	Total/NA	Water	537 (Mod)	
410-8511-8	FD-07202020	Total/NA	Water	537 (Mod)	
410-8511-8 - DL	FD-07202020	Total/NA	Water	537 (Mod)	
410-8511-9 - RE	RB-07202020	Total/NA	Water	537 (Mod)	
410-8511-10	RB-07212020	Total/NA	Water	537 (Mod)	
410-8511-11 - RE	IDW-AQ	Total/NA	Water	537 (Mod)	
MB 410-25697/1-A	Method Blank	Total/NA	Water	537 (Mod)	
LCS 410-25697/2-A	Lab Control Sample	Total/NA	Water	537 (Mod)	
410-8511-4 MS	MW-4	Total/NA	Water	537 (Mod)	
410-8511-4 MSD	MW-4	Total/NA	Water	537 (Mod)	

Analysis Batch: 25943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-12	SB-1-0-0.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-13	SB-1-1-1.45	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-14	SB-2-0-0.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-15	SB-2-1-1.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-16	SB-3-0-0.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-18	SB-4-0-0.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-19	SB-4-1-1.4	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-20	FD-07212020	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-21	IDW-SO-1	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-22	IDW-SO-2	Total/NA	Solid	EPA 537 (Mod)	25986
MB 410-25969/1-B	Method Blank	Total/NA	Solid	EPA 537 (Mod)	25986
LCS 410-25969/2-B	Lab Control Sample	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-12 MS	SB-1-0-0.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-12 MSD	SB-1-0-0.5	Total/NA	Solid	EPA 537 (Mod)	25986

Prep Batch: 25969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-12 - DL	SB-1-0-0.5	Total/NA	Solid	537 (Mod)	
410-8511-12	SB-1-0-0.5	Total/NA	Solid	537 (Mod)	
410-8511-13 - DL	SB-1-1-1.45	Total/NA	Solid	537 (Mod)	
410-8511-13	SB-1-1-1.45	Total/NA	Solid	537 (Mod)	
410-8511-14	SB-2-0-0.5	Total/NA	Solid	537 (Mod)	
410-8511-14 - DL	SB-2-0-0.5	Total/NA	Solid	537 (Mod)	
410-8511-15 - DL2	SB-2-1-1.5	Total/NA	Solid	537 (Mod)	
410-8511-15	SB-2-1-1.5	Total/NA	Solid	537 (Mod)	
410-8511-15 - DL	SB-2-1-1.5	Total/NA	Solid	537 (Mod)	
410-8511-16 - DL	SB-3-0-0.5	Total/NA	Solid	537 (Mod)	
410-8511-16	SB-3-0-0.5	Total/NA	Solid	537 (Mod)	
410-8511-18	SB-4-0-0.5	Total/NA	Solid	537 (Mod)	
410-8511-18 - DL	SB-4-0-0.5	Total/NA	Solid	537 (Mod)	
410-8511-19	SB-4-1-1.4	Total/NA	Solid	537 (Mod)	
410-8511-20	FD-07212020	Total/NA	Solid	537 (Mod)	

LCMS (Continued)

Prep Batch: 25969 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-20 - DL	FD-07212020	Total/NA	Solid	537 (Mod)	
410-8511-21	IDW-SO-1	Total/NA	Solid	537 (Mod)	
410-8511-22	IDW-SO-2	Total/NA	Solid	537 (Mod)	
MB 410-25969/1-B	Method Blank	Total/NA	Solid	537 (Mod)	
LCS 410-25969/2-B	Lab Control Sample	Total/NA	Solid	537 (Mod)	
410-8511-12 MS	SB-1-0-0.5	Total/NA	Solid	537 (Mod)	
410-8511-12 MSD	SB-1-0-0.5	Total/NA	Solid	537 (Mod)	

Cleanup Batch: 25986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-12 - DL	SB-1-0-0.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-12	SB-1-0-0.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-13	SB-1-1-1.45	Total/NA	Solid	Extract Aliquot	25969
410-8511-13 - DL	SB-1-1-1.45	Total/NA	Solid	Extract Aliquot	25969
410-8511-14 - DL	SB-2-0-0.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-14	SB-2-0-0.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-15 - DL2	SB-2-1-1.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-15	SB-2-1-1.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-15 - DL	SB-2-1-1.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-16 - DL	SB-3-0-0.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-16	SB-3-0-0.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-18 - DL	SB-4-0-0.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-18	SB-4-0-0.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-19	SB-4-1-1.4	Total/NA	Solid	Extract Aliquot	25969
410-8511-20	FD-07212020	Total/NA	Solid	Extract Aliquot	25969
410-8511-20 - DL	FD-07212020	Total/NA	Solid	Extract Aliquot	25969
410-8511-21	IDW-SO-1	Total/NA	Solid	Extract Aliquot	25969
410-8511-22	IDW-SO-2	Total/NA	Solid	Extract Aliquot	25969
MB 410-25969/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	25969
LCS 410-25969/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	25969
410-8511-12 MS	SB-1-0-0.5	Total/NA	Solid	Extract Aliquot	25969
410-8511-12 MSD	SB-1-0-0.5	Total/NA	Solid	Extract Aliquot	25969

Analysis Batch: 26285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-1 - RE	MW-1	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-2	MW-2	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-3 - RE	MW-3	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-4	MW-4	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-5	MW-5	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-6	MW-6	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-7	MW-7	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-8	FD-07202020	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-9 - RE	RB-07202020	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-10	RB-07212020	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-11 - RE	IDW-AQ	Total/NA	Water	EPA 537 (Mod)	25697
MB 410-25697/1-A	Method Blank	Total/NA	Water	EPA 537 (Mod)	25697
LCS 410-25697/2-A	Lab Control Sample	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-4 MS	MW-4	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-4 MSD	MW-4	Total/NA	Water	EPA 537 (Mod)	25697

LCMS

Prep Batch: 26607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-13 - RE	SB-1-1-1.45	Total/NA	Solid	537 (Mod)	
410-8511-17 - DL2	SB-3-1-1.4	Total/NA	Solid	537 (Mod)	
410-8511-17	SB-3-1-1.4	Total/NA	Solid	537 (Mod)	
410-8511-17 - DL	SB-3-1-1.4	Total/NA	Solid	537 (Mod)	
410-8511-18 - RE	SB-4-0-0.5	Total/NA	Solid	537 (Mod)	
MB 410-26607/1-B	Method Blank	Total/NA	Solid	537 (Mod)	
LCS 410-26607/2-B	Lab Control Sample	Total/NA	Solid	537 (Mod)	
LCSD 410-26607/3-B	Lab Control Sample Dup	Total/NA	Solid	537 (Mod)	

Cleanup Batch: 26619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-13 - RE	SB-1-1-1.45	Total/NA	Solid	Extract Aliquot	26607
410-8511-17 - DL2	SB-3-1-1.4	Total/NA	Solid	Extract Aliquot	26607
410-8511-17 - DL	SB-3-1-1.4	Total/NA	Solid	Extract Aliquot	26607
410-8511-17	SB-3-1-1.4	Total/NA	Solid	Extract Aliquot	26607
410-8511-18 - RE	SB-4-0-0.5	Total/NA	Solid	Extract Aliquot	26607
MB 410-26607/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	26607
LCS 410-26607/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	26607
LCSD 410-26607/3-B	Lab Control Sample Dup	Total/NA	Solid	Extract Aliquot	26607

Analysis Batch: 26801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-12 - DL	SB-1-0-0.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-13 - DL	SB-1-1-1.45	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-13 - RE	SB-1-1-1.45	Total/NA	Solid	EPA 537 (Mod)	26619
410-8511-14 - DL	SB-2-0-0.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-15 - DL	SB-2-1-1.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-15 - DL2	SB-2-1-1.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-16 - DL	SB-3-0-0.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-17	SB-3-1-1.4	Total/NA	Solid	EPA 537 (Mod)	26619
410-8511-18 - DL	SB-4-0-0.5	Total/NA	Solid	EPA 537 (Mod)	25986
410-8511-18 - RE	SB-4-0-0.5	Total/NA	Solid	EPA 537 (Mod)	26619
410-8511-20 - DL	FD-07212020	Total/NA	Solid	EPA 537 (Mod)	25986
MB 410-26607/1-B	Method Blank	Total/NA	Solid	EPA 537 (Mod)	26619
LCS 410-26607/2-B	Lab Control Sample	Total/NA	Solid	EPA 537 (Mod)	26619
LCSD 410-26607/3-B	Lab Control Sample Dup	Total/NA	Solid	EPA 537 (Mod)	26619

Analysis Batch: 27160

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-8 - DL	FD-07202020	Total/NA	Water	EPA 537 (Mod)	25697
410-8511-17 - DL	SB-3-1-1.4	Total/NA	Solid	EPA 537 (Mod)	26619

Prep Batch: 27247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-1	MW-1	Total/NA	Water	537 (Mod)	
410-8511-3	MW-3	Total/NA	Water	537 (Mod)	
410-8511-3 - DL	MW-3	Total/NA	Water	537 (Mod)	
410-8511-9	RB-07202020	Total/NA	Water	537 (Mod)	
410-8511-11	IDW-AQ	Total/NA	Water	537 (Mod)	
MB 410-27247/1-A	Method Blank	Total/NA	Water	537 (Mod)	
LCS 410-27247/2-A	Lab Control Sample	Total/NA	Water	537 (Mod)	

LCMS (Continued)

Prep Batch: 27247 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 410-27247/3-A	Lab Control Sample Dup	Total/NA	Water	537 (Mod)	

Analysis Batch: 27503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-1	MW-1	Total/NA	Water	EPA 537 (Mod)	27247
410-8511-3	MW-3	Total/NA	Water	EPA 537 (Mod)	27247
410-8511-3 - DL	MW-3	Total/NA	Water	EPA 537 (Mod)	27247
410-8511-9	RB-07202020	Total/NA	Water	EPA 537 (Mod)	27247
410-8511-11	IDW-AQ	Total/NA	Water	EPA 537 (Mod)	27247
410-8511-17 - DL2	SB-3-1-1.4	Total/NA	Solid	EPA 537 (Mod)	26619
MB 410-27247/1-A	Method Blank	Total/NA	Water	EPA 537 (Mod)	27247
LCS 410-27247/2-A	Lab Control Sample	Total/NA	Water	EPA 537 (Mod)	27247
LCSD 410-27247/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537 (Mod)	27247

General Chemistry

Analysis Batch: 25728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-17	SB-3-1-1.4	Total/NA	Solid	Moisture	
410-8511-22	IDW-SO-2	Total/NA	Solid	Moisture	

Analysis Batch: 25760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-8511-12	SB-1-0-0.5	Total/NA	Solid	Moisture	
410-8511-13	SB-1-1-1.45	Total/NA	Solid	Moisture	
410-8511-14	SB-2-0-0.5	Total/NA	Solid	Moisture	
410-8511-15	SB-2-1-1.5	Total/NA	Solid	Moisture	
410-8511-16	SB-3-0-0.5	Total/NA	Solid	Moisture	
410-8511-18	SB-4-0-0.5	Total/NA	Solid	Moisture	
410-8511-19	SB-4-1-1.4	Total/NA	Solid	Moisture	
410-8511-20	FD-07212020	Total/NA	Solid	Moisture	
410-8511-21	IDW-SO-1	Total/NA	Solid	Moisture	

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: MW-1
Date Collected: 07/20/20 08:25
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)	RE		25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)	RE	1	26285	07/25/20 16:33	UCD3	ELLE
Total/NA	Prep	537 (Mod)			27247	07/28/20 17:20	QLP7	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	27503	07/29/20 17:33	UCD3	ELLE

Client Sample ID: MW-2
Date Collected: 07/20/20 09:55
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	26285	07/25/20 16:42	UCD3	ELLE

Client Sample ID: MW-3
Date Collected: 07/20/20 10:50
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)	RE		25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)	RE	1	26285	07/25/20 16:51	UCD3	ELLE
Total/NA	Prep	537 (Mod)			27247	07/28/20 17:20	QLP7	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	27503	07/29/20 17:42	UCD3	ELLE
Total/NA	Prep	537 (Mod)	DL		27247	07/28/20 17:20	QLP7	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL	10	27503	07/29/20 19:40	UCD3	ELLE

Client Sample ID: MW-4
Date Collected: 07/20/20 12:10
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	26285	07/25/20 17:00	UCD3	ELLE

Client Sample ID: MW-5
Date Collected: 07/20/20 14:00
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	26285	07/25/20 17:27	UCD3	ELLE

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: MW-6
Date Collected: 07/20/20 14:50
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	26285	07/25/20 17:36	UCD3	ELLE

Client Sample ID: MW-7
Date Collected: 07/20/20 16:00
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	26285	07/25/20 17:45	UCD3	ELLE

Client Sample ID: FD-07202020
Date Collected: 07/20/20 00:00
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	26285	07/25/20 18:03	UCD3	ELLE
Total/NA	Prep	537 (Mod)	DL		25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL	10	27160	07/28/20 15:00	PY4D	ELLE

Client Sample ID: RB-07202020
Date Collected: 07/20/20 16:15
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)	RE		25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)	RE	1	26285	07/25/20 18:12	UCD3	ELLE
Total/NA	Prep	537 (Mod)			27247	07/28/20 17:20	QLP7	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	27503	07/29/20 18:00	UCD3	ELLE

Client Sample ID: RB-07212020
Date Collected: 07/21/20 09:50
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	26285	07/25/20 18:21	UCD3	ELLE

Client Sample ID: IDW-AQ
Date Collected: 07/21/20 12:50
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)	RE		25697	07/23/20 15:32	Z5TV	ELLE
Total/NA	Analysis	EPA 537 (Mod)	RE	1	26285	07/25/20 18:31	UCD3	ELLE

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: IDW-AQ
Date Collected: 07/21/20 12:50
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			27247	07/28/20 17:20	QLP7	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	27503	07/29/20 18:09	UCD3	ELLE

Client Sample ID: SB-1-0-0.5
Date Collected: 07/21/20 08:15
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25760	07/23/20 18:43	OEL4	ELLE

Client Sample ID: SB-1-0-0.5
Date Collected: 07/21/20 08:15
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-12
Matrix: Solid
Percent Solids: 93.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	25943	07/24/20 21:45	PY4D	ELLE
Total/NA	Prep	537 (Mod)	DL		25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL	10	26801	07/27/20 16:30	PY4D	ELLE

Client Sample ID: SB-1-1-1.45
Date Collected: 07/21/20 08:25
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-13
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25760	07/23/20 18:43	OEL4	ELLE

Client Sample ID: SB-1-1-1.45
Date Collected: 07/21/20 08:25
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-13
Matrix: Solid
Percent Solids: 87.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	25943	07/24/20 22:12	PY4D	ELLE
Total/NA	Prep	537 (Mod)	DL		25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL	10	26801	07/27/20 16:39	PY4D	ELLE
Total/NA	Prep	537 (Mod)	RE		26607	07/27/20 08:21	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	RE		26619	07/27/20 08:33	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	RE	1	26801	07/27/20 19:31	PY4D	ELLE

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: SB-2-0-0.5
Date Collected: 07/21/20 08:45
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-14
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25760	07/23/20 18:43	OEL4	ELLE

Client Sample ID: SB-2-0-0.5
Date Collected: 07/21/20 08:45
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-14
Matrix: Solid
Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	25943	07/24/20 22:21	PY4D	ELLE
Total/NA	Prep	537 (Mod)	DL		25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL	10	26801	07/27/20 16:48	PY4D	ELLE

Client Sample ID: SB-2-1-1.5
Date Collected: 07/21/20 08:55
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-15
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25760	07/23/20 18:43	OEL4	ELLE

Client Sample ID: SB-2-1-1.5
Date Collected: 07/21/20 08:55
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-15
Matrix: Solid
Percent Solids: 90.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	25943	07/24/20 22:30	PY4D	ELLE
Total/NA	Prep	537 (Mod)	DL		25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL	10	26801	07/27/20 16:57	PY4D	ELLE
Total/NA	Prep	537 (Mod)	DL2		25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	DL2		25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL2	100	26801	07/28/20 02:28	PY4D	ELLE

Client Sample ID: SB-3-0-0.5
Date Collected: 07/21/20 09:10
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-16
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25760	07/23/20 18:43	OEL4	ELLE

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: SB-3-0-0.5

Lab Sample ID: 410-8511-16
Date Collected: 07/21/20 09:10
Matrix: Solid
Date Received: 07/22/20 11:06
Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	25943	07/24/20 22:39	PY4D	ELLE
Total/NA	Prep	537 (Mod)	DL		25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL	10	26801	07/27/20 17:06	PY4D	ELLE

Client Sample ID: SB-3-1-1.4

Lab Sample ID: 410-8511-17
Date Collected: 07/21/20 09:18
Matrix: Solid
Date Received: 07/22/20 11:06

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25728	07/23/20 16:48	OEL4	ELLE

Client Sample ID: SB-3-1-1.4

Lab Sample ID: 410-8511-17
Date Collected: 07/21/20 09:18
Matrix: Solid
Date Received: 07/22/20 11:06
Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			26607	07/27/20 08:21	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			26619	07/27/20 08:33	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	26801	07/27/20 19:40	PY4D	ELLE
Total/NA	Prep	537 (Mod)	DL		26607	07/27/20 08:21	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		26619	07/27/20 08:33	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL	10	27160	07/28/20 20:45	PY4D	ELLE
Total/NA	Prep	537 (Mod)	DL2		26607	07/27/20 08:21	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	DL2		26619	07/27/20 08:33	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL2	100	27503	07/29/20 12:25	UCD3	ELLE

Client Sample ID: SB-4-0-0.5

Lab Sample ID: 410-8511-18
Date Collected: 07/21/20 09:30
Matrix: Solid
Date Received: 07/22/20 11:06

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25760	07/23/20 18:43	OEL4	ELLE

Client Sample ID: SB-4-0-0.5

Lab Sample ID: 410-8511-18
Date Collected: 07/21/20 09:30
Matrix: Solid
Date Received: 07/22/20 11:06
Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	25943	07/24/20 23:06	PY4D	ELLE

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: SB-4-0-0.5

Lab Sample ID: 410-8511-18
Date Collected: 07/21/20 09:30
Matrix: Solid
Date Received: 07/22/20 11:06
Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)	DL		25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL	10	26801	07/27/20 17:24	PY4D	ELLE
Total/NA	Prep	537 (Mod)	RE		26607	07/27/20 08:21	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	RE		26619	07/27/20 08:33	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	RE	1	26801	07/27/20 19:49	PY4D	ELLE

Client Sample ID: SB-4-1-1.4

Lab Sample ID: 410-8511-19
Date Collected: 07/21/20 09:35
Matrix: Solid
Date Received: 07/22/20 11:06

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25760	07/23/20 18:43	OEL4	ELLE

Client Sample ID: SB-4-1-1.4

Lab Sample ID: 410-8511-19
Date Collected: 07/21/20 09:35
Matrix: Solid
Date Received: 07/22/20 11:06
Percent Solids: 84.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	25943	07/24/20 23:16	PY4D	ELLE

Client Sample ID: FD-07212020

Lab Sample ID: 410-8511-20
Date Collected: 07/21/20 00:00
Matrix: Solid
Date Received: 07/22/20 11:06

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25760	07/23/20 18:43	OEL4	ELLE

Client Sample ID: FD-07212020

Lab Sample ID: 410-8511-20
Date Collected: 07/21/20 00:00
Matrix: Solid
Date Received: 07/22/20 11:06
Percent Solids: 95.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	25943	07/24/20 23:25	PY4D	ELLE
Total/NA	Prep	537 (Mod)	DL		25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot	DL		25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)	DL	10	26801	07/27/20 17:33	PY4D	ELLE

Lab Chronicle

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Client Sample ID: IDW-SO-1
Date Collected: 07/21/20 13:05
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-21
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25760	07/23/20 18:43	OEL4	ELLE

Client Sample ID: IDW-SO-1
Date Collected: 07/21/20 13:05
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-21
Matrix: Solid
Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	25943	07/24/20 23:34	PY4D	ELLE

Client Sample ID: IDW-SO-2
Date Collected: 07/21/20 13:10
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-22
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	25728	07/23/20 16:48	OEL4	ELLE

Client Sample ID: IDW-SO-2
Date Collected: 07/21/20 13:10
Date Received: 07/22/20 11:06

Lab Sample ID: 410-8511-22
Matrix: Solid
Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537 (Mod)			25969	07/24/20 09:12	RDL8	ELLE
Total/NA	Cleanup	Extract Aliquot			25986	07/24/20 09:48	RDL8	ELLE
Total/NA	Analysis	EPA 537 (Mod)		1	25943	07/24/20 23:43	PY4D	ELLE

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

Laboratory: Eurofins Lancaster Laboratories Env, LLC

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: EA Engineering, Science, and Technology
Job ID: 410-8511-1
Project/Site: Montana Air National Guard / 6280606

Method	Method Description	Protocol	Laboratory
EPA 537 (Mod)	EPA 537 mod QSM 5.1, Table B-15	EPA	ELLE
Moisture	Percent Moisture	EPA	ELLE
537 (Mod)	EPA 537 mod QSM 5.1 Table B-15	EPA	ELLE
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE

Protocol References:

EPA = US Environmental Protection Agency
None = None

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Env, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Montana Air National Guard / 6280606

Job ID: 410-8511-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
410-8511-1	MW-1	Water	07/20/20 08:25	07/22/20 11:06	
410-8511-2	MW-2	Water	07/20/20 09:55	07/22/20 11:06	
410-8511-3	MW-3	Water	07/20/20 10:50	07/22/20 11:06	
410-8511-4	MW-4	Water	07/20/20 12:10	07/22/20 11:06	
410-8511-5	MW-5	Water	07/20/20 14:00	07/22/20 11:06	
410-8511-6	MW-6	Water	07/20/20 14:50	07/22/20 11:06	
410-8511-7	MW-7	Water	07/20/20 16:00	07/22/20 11:06	
410-8511-8	FD-07202020	Water	07/20/20 00:00	07/22/20 11:06	
410-8511-9	RB-07202020	Water	07/20/20 16:15	07/22/20 11:06	
410-8511-10	RB-07212020	Water	07/21/20 09:50	07/22/20 11:06	
410-8511-11	IDW-AQ	Water	07/21/20 12:50	07/22/20 11:06	
410-8511-12	SB-1-0-0.5	Solid	07/21/20 08:15	07/22/20 11:06	
410-8511-13	SB-1-1-1.45	Solid	07/21/20 08:25	07/22/20 11:06	
410-8511-14	SB-2-0-0.5	Solid	07/21/20 08:45	07/22/20 11:06	
410-8511-15	SB-2-1-1.5	Solid	07/21/20 08:55	07/22/20 11:06	
410-8511-16	SB-3-0-0.5	Solid	07/21/20 09:10	07/22/20 11:06	
410-8511-17	SB-3-1-1.4	Solid	07/21/20 09:18	07/22/20 11:06	
410-8511-18	SB-4-0-0.5	Solid	07/21/20 09:30	07/22/20 11:06	
410-8511-19	SB-4-1-1.4	Solid	07/21/20 09:35	07/22/20 11:06	
410-8511-20	FD-07212020	Solid	07/21/20 00:00	07/22/20 11:06	
410-8511-21	IDW-SO-1	Solid	07/21/20 13:05	07/22/20 11:06	
410-8511-22	IDW-SO-2	Solid	07/21/20 13:10	07/22/20 11:06	

Environmental Analysis Custody

eurofins | Lancaster Laboratories Environmental

Acct. # _____

410-8511 Chain of Custody

nental use only

COC #610060 1 of 3

Client Information

Client: EA Engineering	Acct. #:
Project Name/#: Montana Air National Guard / 6280606	PWSID #:
Project Manager: Jamie Welsh	P.O. #: 6280606
Sampler: Mike Wright	Quote #:
State where samples were collected: Montana	For Compliance: Yes ☒ No ☐

Matrix: Soil ☐ Sediment ☐ Tissue ☐ | Water ☐ Potable ☐ Ground ☐ NPDES ☐ Surface ☐ | Other: _____

Analysis Requested — Preservation and Filtration Codes

For Lab Use Only
FSC: 26152
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	PFAS in water by LC/MS/MS - DoD	Remarks
MW-1	7/20/20	0825	X		2	X	
MW-2	7/20/20	0955	X		2	X	
MW-3	7/20/20	1050	X		2	X	
MW-4	7/20/20	1210	X		6	X	MS/MSD
MW-5	7/20/20	1400	X		2	X	
MW-6	7/20/20	1450	X		2	X	
MW-7	7/20/20	1600	X		2	X	
FD-07202020	7/20/20		X		2	X	
RB-07202020	7/20/20	1615	X		2	X	
RB-07212020	7/21/20	0950	X		2	X	

Turnaround Time (TAT) Requested (please circle)
Standard (Rush)
(Rush TAT is subject to laboratory approval and surcharge.)

Requested TAT in business days: _____

E-mail address: jwelsh@eaest.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)
Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13
NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	7-21-20	1030			
[signature]	7/21/20	1520			
			[signature]	7/22/20	1106

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt 0.5 °C

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • FOR HELP COMPLETING FORM CHECK OUT https://www.eurofinsus.com/coc
The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0919

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC # 610061

2 of 3

Client Information

Client: SAME | Acct. #: AS

Project Name/#: PAGE 1 | PWSID #:

Project Manager: | P.O. #:

Sampler: | Quote #:

State where samples were collected: | For Compliance: Yes ☐ No ☐

Matrix

Soil ☒ Sediment ☐ Tissue ☐ | Water: Potable ☐ Ground ☒ NPDES ☐ Surface ☐ | Other: _____

Analysis Requested

Preservation and Filtration Codes

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil/Sediment	Water	Other	Total # of Containers	PFAS in water by LC/MS/MS-DoD	PFAS in soil by LC/MS/MS-DoD	Moisture	Remarks
IDW-AQ	7/21/20	1250		X		X		2	X			
SB-1-0-0.5	7/21/20	0915		X	X			6		X	X	MS/MSD
SB-1-1-1.45	7/21/20	0825		X	X			2		X	X	
SB-2-0-0.5	7/21/20	0845		X	X			2		X	X	
SB-2-1-1.5	7/21/20	0855		X	X			2		X	X	
SB-3-0-0.5	7/21/20	0910		X	X			2		X	X	
SB-3-1-1.4	7/21/20	0918		X	X			2		X	X	
SB-4-0-0.5	7/21/20	0930		X	X			2		X	X	
SB-4-1-1.4	7/21/20	0935		X	X			2		X	X	
FD-07212020	7/21/20			X	X			2		X	X	

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Requested TAT in business days: _____

E-mail address: jwelsh@eaest.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	7/21/20	1520			
			[signature]	7/22/20	1106

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt 0.5 °C

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • FOR HELP COMPLETING FORM CHECK OUT https://www.eurofinsus.com/coc

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0919

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____ Group # _____ Sample # _____

COC #610062

3 of 3

Client Information

Client: Sam A S

Project Name/#: PAGE 1

Project Manager:

Sampler:

Acct. #:

PWSID #:

P.O. #:

Quote #:

State where samples were collected:

For Compliance: Yes ☐ No ☐

Matrix

Soil ☒ Sediment ☐ Tissue ☐

Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐

Other: ____

Total # of Containers

Analysis Requested

Preservation and Filtration Codes

PFAS in Soil by LC/MS/MS - DoD

Moisture

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Total # of Containers	PFAS	Moisture
IDW-SO-1	7/21/20	1305		X	X	2	X	X
IDW-SO-2	7/21/20	1310		X	X	2	X	X

For Lab Use Only

FSC: _____

SCR#: _____

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 P=H_3PO_4
F=Field Filtered O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Requested TAT in business days: _____

E-mail address: Jwish@eaest.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP)
Type VI (Raw Data Only)
Type III (Reduced non-CLP)
NJ DKQP
TX TRRP-13
NYSDEC Category A or B
MA MCP
CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	7/24/20	1520			
			[signature]	7/22/20	1106

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt 0.5 °C

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 410-8511-1

Login Number: 8511
List Number: 1
Creator: Miller, Wesley R

List Source: Eurofins Lancaster Laboratories Env

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Is the Field Sampler's name present on COC?	True	
Sample Preservation Verified.	N/A	
Residual Chlorine Checked.	N/A	
Sample custody seals are intact.	N/A	