



**TED STEVENS ANCHORAGE  
INTERNATIONAL AIRPORT  
PFAS SITE INVESTIGATION**

Postmark Bog Development Area

ADEC File Number: TBD

ADEC Hazard Identification Number: TBD

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# TABLE OF CONTENTS

1.0 INTRODUCTION .....	1
1.1 Objectives.....	1
1.2 Site History .....	1
1.3 Project Location .....	1
2.0 FIELD WORK .....	1
2.1 Field Work Narrative.....	1
2.2 PFAS Soil Sampling .....	2
2.3 Petroleum Hydrocarbon Soil Sampling .....	2
2.2 Work Plan Deviations.....	2
3.0 RESULTS AND FINDINGS.....	3
3.1 PFAS Results .....	3
3.2 Hydrocarbon Results.....	4
4.0 Quality Assurance Assessment .....	4
4.1 Data Quality .....	4
4.2 Data Usability .....	5
5.0 INVESTIGATIVE DERIVED WASTE (IDW) MANAGEMENT .....	5
5.1 Soil.....	5
5.2 Decon Water .....	5
5.3 Other IDW .....	6
6.0 DISCUSSION.....	6
6.1 Soil Physical Properties .....	6
6.2 Upper Confidence Limit (UCL).....	6
6.2.1 Data Inputs.....	6
6.2.1 UCL Results.....	7
7.0 CONCLUSIONS.....	9

## ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
ADOT&PF	Alaska Department of Transportation & Public Facilities
ANC	Ted Stevens Anchorage International Airport
AOA	Airport Operations Area
bgs	below ground surface
° C	degrees Celsius
COC	chain of custody
COPC	Contaminant of Potential Concern
CRW	CRW Engineering Group, LLC
DRO	Diesel Range Organics
EPA	Environmental Protection Agency
GRO	Gasoline Range Organics
HDPE	high density polyethylene
mg/Kg	milligram per kilogram
MTG	Migration to Groundwater
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PID	Photo Ionization Detector
PPMV	Parts Per Million by Volume
QEP	Qualified Environmental Professional
QES	Qualified Environmental Sampler
RRO	Residual Range Organics
RSE	Restoration Science & Engineering, LLC
SGS	SGS North America Inc.
TOC	Total Organic Carbon

## 1.0 INTRODUCTION

### 1.1 Objectives

On behalf of the Alaska Department of Transportation & Public Facilities (ADOT&PF) and CRW Engineering Group, LLC (CRW), Restoration Science & Engineering, LLC (RSE) prepared the following subsurface Per- and Polyfluoroalkyl Substances (PFAS) site investigation report at the Postmark Bog Development area (Figures 1). The objectives of this investigation were to determine whether PFAS related compounds are present in soil within the peat-rich subsurface soil at the project area. This investigation was intended to inform Ted Stevens Anchorage International Airport (ANC) engineers and managers of PFAS contamination which may impact future development at the Postmark Bog. Data from this investigation are usable for the intended purpose of comparison to Alaska Department of Environmental Conservation (ADEC) Method 2 Migration to Groundwater (MTG) and Human Health cleanup levels to support Postmark Bog Development decision making.

### 1.2 Site History

Between March 3 and March 5, 2020, RSE collected PFAS soil samples from 43 shallow (< 12 inches) hand dug test holes at the Postmark Bog (RSE 2020A). The soil sample locations were marked by CRW prior to RSE commencing field work. RSE Qualified Environmental Professional (QEP), Kyle Wiseman and RSE Qualified Environmental Sampler (QES), Marc Boas, collected each sample for PFAS compounds in soil, including Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS).

PFAS compounds were detected in all 43 soil samples. Except for soil samples T1-01 and T1-24 all soil samples exceeded ADEC Method 2 MTG cleanup levels for PFOA and/or PFOS. Detectable concentration of PFOA ranged from 0.0017 mg/Kg (at T2-03) to 0.132 mg/Kg (at T1-40). Detectable concentrations of PFOS ranged from 0.00070 mg/Kg (at T1-01) to 35.9 mg/Kg (at T1-40).

The soil samples collected during the March 2020 investigation were collected from ice-rich or wet peat. In some test pits, water was encountered at 10 to 12 inches bgs. The percent solids among the 43 soil samples ranged from 5.4% to 88.1%. Thirty-two soil samples had percent solids < 20%.

### 1.3 Project Location

The Postmark Bog Development area is shown on Figure 1 (Appendix A). The project area is located outside the Airport Operations Area (AOA) near the ANC Fire Station. The project area is accessed from Postmark Road.

Using Google Earth, RSE determined the project area is generally located at (WGS 84):

Latitude 61° 11' 06.61" N  
Longitude 149° 59' 36.3" W

## 2.0 FIELD WORK

### 2.1 Field Work Narrative

On August 6—7 and August 10—11, 2020, RSE collected soil samples from 19 soil boring locations within the Postmark Bog Development area. The ADEC approved work plan suggested 22 soil boring locations. However, soil borings T1-01, T1-09 and T1-25 consisted of mineral soil and were not sampled. RSE QEPs Lisa Koeneman and Kyle Wiseman collected each sample for PFAS compounds in soil in general



accordance with the ADEC approved work plan (RSE 2020B). RSE collected two composite samples for PFAS compounds at all soil boring locations except T1-15 and T2-03. RSE collected one composite sample for petroleum hydrocarbons from the soil interval with the highest field-screening result.

## 2.2 PFAS Soil Sampling

RSE collected two composite samples from soil borings T1-03, T1-05, T1-07, T1-11, T1-13, T1-15, T1-17, T1-19, T1-21, T1-23, T1-27, T1-29, T1-31, T1-33, T1-35, T1-37, T1-39 and T2-01. The first composite sample was collected from 12—66 inches bgs. These soil samples are denoted with the letter “A” after the soil boring ID. The second composite sample was collected from 66—120 inches bgs. These soil samples are denoted with the letter “B” after the soil boring ID.

RSE collected one composite soil sample from the upper 12—66 inches bgs from soil boring locations T1-15 and T2-03 where mineral soil was encountered at approximately 60 inches bgs.

The RSE field team placed all recoverable soil from each composite sample interval into a clean stainless steel bowl. The soil was then thoroughly mixed. Prior to collecting the PFAS soil sample, RSE quickly collected a soil sample for field-screening, and gasoline range organics (GRO) and benzene, toluene, ethylbenzene and total xylenes (collectively referred to as BTEX) laboratory analysis – discussed below. PFAS soil samples were placed into laboratory provided method specific sample containers. Each sample container was labeled with the soil boring and letter denoting the composite interval and placed into a laboratory provided sample cooler.

At the end of each field day RSE transported the sample cooler(s) under chain of custody to SGS North America Inc. (SGS) located in Anchorage. PFAS soil samples were transferred to a network laboratory located in Orlando, Florida. SGS Orlando analyzed the PFAS soil samples using EPA Method 537M.

## 2.3 Petroleum Hydrocarbon Soil Sampling

The RSE field team collected soil samples for petroleum hydrocarbons from each soil interval prior to field-screening. RSE placed hydrocarbon soil samples into laboratory provided method specific containers using a clean stainless steel spoon. RSE added laboratory provided methanol to the container containing the GRO/BTEX sample. Each sample container was labeled with the soil boring and letter denoting the composite interval and placed into a laboratory provided sample cooler. RSE used a Mini Rae Lite photo-ionization detector (PID) calibrated to 100 ppmv isobutylene to measure the headspace in a quart size Ziploc bag for volatile organic compounds.

At the end of each field day RSE transported the sample cooler(s) under chain of custody to SGS located in Anchorage. The sample interval with the highest PID reading was submitted to SGS for analysis. Soil samples T1-03A, T1-05A, T1-07A, T1-11A, T1-13A, T1-15A, T1-17A, T1-19A, T1-21A, T1-23A, T1-27B, T1-29A, T1-31A, T1-33A, T1-35A, T1-37A, T1-39A, T2-01A, T2-01B and T2-03 were analyzed for GRO by AK Method 101, diesel range organics (DRO) by AK Method 102, residual range organics (RRO) by AK Method 103, and BTEX by EPA Method 8021B.

## 2.2 Work Plan Deviations

RSE proposed collecting PFAS and petroleum hydrocarbon samples from peat soil at 22 soil boring locations within the Postmark Bog Development area. Soil boring locations T1-01, T1-09 and T1-25 consisted of mineral soil and were not sampled. At soil boring locations T1-15 and T2-03, mineral soil was

encountered at approximately 60 inches bgs. At these locations only the upper composite interval was sampled.

At certain soil borings a bucket auger was used to collect core samples near the surface rather than the Geoprobe manual slide hammer, hollow probe and disposable cellulose acetate butyrate (CAB) liners. The bucket auger was used when then narrow drive sampler bit would compress the soil around the sample tube rather than capturing the soil sample inside the hollow probe and CAB liner. Also, in certain instances the soil was so wet that the hollow probe and CAB liner did not recover enough soil to collect a sample. In those instances, the bucket auger was also used to capture a larger soil recovery. In all cases, the RSE field team switched over to the Geoprobe manual slide hammer, hollow probe and disposable CAB liner setup within a few feet after starting the soil boring installation.

### 3.0 RESULTS AND FINDINGS

PFAS compounds were detected in 32 of the 36 project primary soil samples and in all five blind duplicate soil samples. Of the regulated PFAS compounds, PFOA was detected in 14 of the primary soil samples (and in four of the blind duplicate soil samples). Twelve of the primary PFOA soil samples and four of the blind duplicate soil samples exceeded the ADEC Method 2 MTG cleanup level of 0.0017 mg/Kg. While PFOS was detected in 28 of the primary soil samples (and in all five of the blind duplicate soil samples). Twenty-five of the primary PFOS soil samples and all five of the blind duplicate soil samples exceeded the ADEC Method 2 MTG cleanup level of 0.0030 mg/Kg. None of the primary or blind duplicate soil samples exceeded the ADEC Human Health cleanup level of 1.6 mg/Kg for PFOA or PFOS.

DRO and RRO were detected in all 20 soil samples (and both blind duplicate samples) sampled for petroleum hydrocarbons. DRO exceeded the ADEC Method 2 MTG cleanup level of 250 mg/Kg in all 22 soil samples. While RRO exceeded the ADEC Method 2 MTG cleanup level of 11000 mg/Kg in seven of the soil samples.

#### 3.1 PFAS Results

Detectable PFOA concentrations range from 0.0011 mg/Kg to 0.0333 mg/Kg. At soil boring locations T1-07 (0.0020 mg/Kg), T1-21 (0.0043 mg/Kg), T1-23 (0.0031 mg/Kg), T1-27 (0.0140 mg/Kg), T1-35 (0.0029 mg/Kg), T1-37 (0.0075 mg/Kg), T1-39 (0.0333\* mg/Kg), T2-01 (0.0017 mg/Kg) and T2-03 (0.0011 mg/Kg) PFOA was detected in the upper composite sample only. At soil boring locations T1-19 (0.0043\* mg/Kg; 0.0052 mg/Kg) and T1-29 (0.0042 mg/Kg; 0.0051 mg/Kg) PFOA was detected in both the upper and lower composite samples. Note that non-detectable results had Limits of Detection (LOD) between 0.0021 mg/Kg and 0.032 mg/Kg – all exceeding the ADEC Method 2 MTG cleanup level but below the ADEC Method 2 Human Health cleanup level.

Detectable PFOS concentrations range from 0.0018 mg/Kg to 1.06 mg/Kg. At soil boring locations T1-05 (0.0898 mg/Kg) and T1-11 (0.0838 mg/Kg) PFOS was detected in the upper composite sample only. At soil borings T1-13 (0.0549 mg/Kg; 0.0568 mg/Kg), T1-15 (0.0083 mg/Kg; NS), T1-19 (0.0909\* mg/Kg; 0.154 mg/Kg), T1-21 (0.0790 mg/Kg; 0.0157 mg/Kg), T1-23 (0.0139 mg/Kg; 0.0019 mg/Kg), T1-27 (0.330 mg/Kg; 0.0351 mg/Kg); T1-29 (0.0847 mg/Kg; 0.111 mg/Kg), T1-33 (0.0025 mg/Kg; 0.0018 mg/Kg), T1-35 (0.0436 mg/Kg; 0.0052 mg/Kg), T1-37 (0.0482 mg/Kg; 0.363 mg/Kg), T1-39 (0.106\* mg/Kg; 0.0743 mg/Kg), T2-01 (0.0743 mg/Kg; 0.0056 mg/Kg), T2-03 (0.095 mg/Kg; NS) PFOS was detected in both the upper and lower composite samples. Note that non-detectable results had LOD between 0.0021 mg/Kg and 0.028 mg/Kg

– most exceeding the ADEC Method 2 MTG cleanup level but below the ADEC Method 2 Human Health cleanup level.

Soil sample results for all 24 PFAS compounds for soil borings T1-03 through T2-03 are shown in Tables 1A–1E (Appendix B). \* denotes that the sample result is from the corresponding blind duplicate. “NS” means not sampled.

Detectable soil sample results for PFOA and PFOS are shown on Figure 2 (Appendix A).

### 3.2 Hydrocarbon Results

GRO was detected in the composite samples at soil borings soils T1-03 (15.7 mg/Kg), T1-07 (22.8 mg/Kg), T1-33 (20.5 mg/Kg) and T1-39 (15.1 mg/Kg). All GRO soil samples are either non-detect or below the ADEC Method 2 MTG cleanup level of 300 mg/Kg.

Detectable DRO concentrations range from 449 mg/Kg to 1700 mg/Kg. DRO was detected in composite samples exceeding the ADEC Method 2 MTG cleanup level of 250 mg/Kg at all soil boring locations. No DRO soil samples exceed the ADEC Method 2 Maximum Allowable Concentration of 12500 mg/Kg.

Detectable RRO concentrations range from 5980 mg/Kg to 18900 mg/Kg. RRO was detected in composite samples exceeding the ADEC Method 2 MTG cleanup level of 11000 mg/Kg at all soil boring locations T1-03 (17000 mg/Kg), T1-07 (13600 mg/Kg), T1-11 (18900 mg/Kg), T1-23 (14900 mg/Kg), T1-31 (15700 mg/Kg), T1-33 (13300 mg/Kg) and T1-39 (14900\* mg/Kg). No RRO soil samples exceed the ADEC Method 2 Maximum Allowable Concentration of 22000 mg/Kg.

Toluene was detected in the composite samples below the ADEC Method 2 MTG cleanup level of 6700 µg/Kg at soil borings soils T1-07 (2160 µg/Kg) and T1-39 (1430 µg/Kg). All other toluene and xylene soil samples are either non-detect with LODs below ADEC Method 2 MTG cleanup level. Note that all non-detectable results for benzene and ethylbenzene and had LODs exceeding their ADEC Method 2 MTG cleanup level but below their ADEC Method 2 Human Health cleanup level.

Soil sample results for all GRO, DRO, RRO and BTEX for soil borings T1-03 through T2-03 are shown in Tables 2A–2B (Appendix B). \* denotes that the sample result is from the corresponding blind duplicate.

Detectable petroleum hydrocarbon soil sample results are shown on Figure 3 (Appendix A).

## 4.0 Quality Assurance Assessment

### 4.1 Data Quality

For all non-detect PFOA and PFOS composite samples, the LOQ exceeded the ADEC Method 2 MTG cleanup levels of 0.0017 mg/Kg and 0.0030 mg/Kg, respectively. In Tables 1A–1E (Appendix B), non-detect samples exceeding their ADEC Method 2 MTG cleanup levels are highlighted blue, italicized, accompanied by a U qualifier and show the LOD. Nearly all PFOA and PFOS samples are outside laboratory control limits because of target (PFOA and PFOS) and non-target (other PFAS compounds) matrix interference. In most cases, soil samples were subject to a 10x dilution factor, reanalyzed and the results confirmed.

The relative percent difference (RPD) between T1-19A and its blind duplicate T1-X for both PFOA (77.42%) and PFOS (97.79%) exceed 50%. The PFOA result in T1-19A was subject to a 10x dilution factor, while the

PFOA result in T1-X had a dilution factor of 1x. The RPD between T1-11A and its blind duplicate T1-XX for PFOS (64.92%) exceeded 50%. Also, the RPD between T1-39A and its blind duplicate T1-XXXX for PFOS (97.96%) exceeded 50%. The PFOS result in T1-XXXX was subject to a 10X dilution factor, while the PFOS result in T1-39A had a dilution factor of 1x. Further, the RPD between T1-39A and its blind duplicate T1-YY for RRO (52.44%) slightly exceeded 50%. All other primary sample and corresponding blind duplicate RPD calculations are < 50%. RPD calculations are shown in Table 3 (Appendix B).

For nearly all non-detect benzene and ethylbenzene composite samples, the LOQ exceeded the ADEC Method 2 MTG cleanup levels of 22 µg/Kg and 130 µg/Kg, respectively. In Tables 2A—2B (Appendix B), non-detect samples exceeding their ADEC Method 2 MTG cleanup levels are highlighted blue, italicized, accompanied by a U qualifier and show the LOD.

The temperature blank contained in the sample cooler associated with SGS Work Order 1204021 measured 11.4 °C when delivered to SGS. RSE collected the soil samples < 8 hours prior to delivering the samples coolers to the lab. While the temperature blank is noted as being > 6 °C, the SGS Lab Receipt Form indicates that “exemption permitted if chilled & < 8 hours ago ...”.

RSE completed the ADEC Laboratory Data Review Checklist for SGS Work Orders 1204021, 1204046, 1204074 and 1204106. SGS Laboratory Soil Sample Data Reports are provided in Appendix E. The ADEC Laboratory Review Checklists are provided in Appendix F.

The data from this investigation is representative of PFAS and petroleum hydrocarbon impacts in soil at the soil boring locations within the Postmark Bog Development area during the site investigation.

#### 4.2 Data Usability

The PFAS soil sample data is complete and meets the expected data quality objectives for PFAS contaminant concentrations in highly organic low dry weight soil. Despite LOQs exceeding ADEC Method 2 MTG cleanup levels, PFAS soil sample results are usable for the intended purpose of comparison to ADEC Method 2 MTG and Human Health cleanup levels for PFOA and PFOS.

Similarly, the hydrocarbon soil sample data is complete and meets expected data quality objectives. The hydrocarbon soil sample results are usable for the intended purpose of comparison to ADEC Method 2 MTG and Human Health cleanup levels for GRO, DRO, RRO and BTEX.

## 5.0 INVESTIGATIVE DERIVED WASTE (IDW) MANAGEMENT

### 5.1 Soil

After sample collection all excess soil was placed back into the soil boring of origin. Petroleum hydrocarbon samples not analyzed because of low PID readings were discarded by SGS.

### 5.2 Decon Water

Decon water IDW was treated using a 5-gallon granular activated carbon (GAC) canister and discharged onsite into the Postmark Bog. The 5-gallon GAC is presently stored at the ANC HazMat Storage Area.

### 5.3 Other IDW

Consumable field items such as plastic bags, nitrile gloves and sample tube liners were placed in a dumpster or other trash bin for disposal. Non-consumables such as stainless-steel spoons and other field equipment was washed using Alconox and hot water at the RSE field equipment room.

## 6.0 DISCUSSION

### 6.1 Soil Physical Properties

Nearly all soil samples are < 30% solids. The soil sample results are reported on a percent solids basis (or “dry” weight) – meaning the laboratory measured the moisture content and calculated the contaminant concentration based on the percent solids rather than reporting the result on a “wet” or “as-is” basis. Data that is not corrected using percent solids is likely biased low because the result may include contamination in the water or other liquid phase in the soil sample.

While low percent solids impact the soil sample results, the data is considered appropriate for its intended use. “Dry” soil bulk density is used in the soil-groundwater partitioning model that is used to determine ADEC Method 2 MTG and ADEC Method 2 Human Health cleanup levels.

### 6.2 Upper Confidence Limit (UCL)

RSE proposed to perform a single-sample hypothesis t-test on both PFOA and PFOS soil sample results to compare the Postmark Bog Development area mean and median values for PFOA and PFOS to ADEC Method 2 MTG and Human Health cleanup levels. However, both data sets contain numerous non-detect (ND) results that exceed the ADEC Method 2 MTG cleanup levels for PFOA and PFOS. The ProUCL Version 5.1 User Guide suggests that all ND data lie below the cleanup standard. Instead, RSE performed an *UCL Statistics for Uncensored Full Data Sets* for normal, gamma, log normal, and non-parametric data sets using ProUCL 5.1 to determine the “Suggested UCL” for both PFOA and PFOS at the Postmark Bog Development area.

#### 6.2.1 Data Inputs

RSE used detectable concentrations for PFOA/PFOS when possible. If the blind duplicate PFOA/PFOS value was greater than the primary sample result, the higher concentration was used. RSE followed the ADEC Technical Memorandum for *Treatment of Non-Detects and Blank Detections in Per- and Polyfluoroalkyl Substances (PFAS) Analysis* (ADEC 2019) when inputting ND results for PFOA and PFOS: J-flagged data was used when the reported concentration was between the LOQ and LOD; and the value equal to the LOD was used when PFOA or PFOS were reported as ND at the LOD. A worksheet showing the data inputs are provided in Appendix D.

### 6.2.1 UCL Results

Table A shows the general statistics for detectable and non-detect PFOA/PFOS results from 36 soil samples collected during this investigation.

Table A – General Statistics on Uncensored PFOA/PFAS Soil Data at the Postmark Bog Development Area

General Statistics on Uncensored Data											
Date/Time of Computation	ProUCL 5.19/21/2020 11:09:49 PM										
<b>User Selected Options</b>											
From File	Postmark Bog UCL_all data w NDs.xls										
Full Precision	OFF										
From File: Postmark Bog UCL_all data w NDs.xls											
General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method											
Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
PFOA	36	0	14	22	61.11%	0.0021	0.032	0.00406	3.2367E-5	0.00569	1.401
PFOS	36	0	28	8	22.22%	0.0021	0.028	0.074	0.0317	0.178	2.404
General Statistics for Raw Data Sets using Detected Data Only											
Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
PFOA	14	0	0.0011	0.0333	0.00644	0.00425	7.0736E-5	0.00841	0.00267	2.903	1.307
PFOS	28	0	0.0018	1.06	0.0935	0.0459	0.0405	0.201	0.056	4.455	2.152
Percentiles using all Detects (Ds) and Non-Detects (NDs)											
Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
PFOA	36	0	0.00205	0.0026	0.00288	0.0047	0.0188	0.021	0.028	0.029	0.0328
PFOS	36	0	0.0024	0.0083	0.00938	0.0263	0.0802	0.0847	0.103	0.206	0.804

Table B suggests that the PFOA data from the Postmark Bog is nonparametric and that the 95% ULC is 0.0188 mg/Kg. The suggested 95% UCL for PFOA is significantly less than the ADEC Method 2 Human Health cleanup level of 1.6 mg/Kg.

Table B – Suggested 95% UCL for PFOA at the Postmark Bog Development Area

UCL Statistics for Uncensored Full Data Sets			
User Selected Options			
Date/Time of Computation	ProUCL 5.19/21/2020 11:30:18 PM		
From File	Postmark Bog UCL_all data w NDs.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
<b>PFOA</b>			
<b>General Statistics</b>			
Total Number of Observations	36	Number of Distinct Observations	28
		Number of Missing Observations	0
Minimum	0.0011	Mean	0.0112
Maximum	0.0333	Median	0.0047
SD	0.0105	Std. Error of Mean	0.00175
Coefficient of Variation	0.932	Skewness	0.795
<b>Nonparametric Distribution Free UCLs</b>			
95% CLT UCL	0.0141	95% Jackknife UCL	0.0142
95% Standard Bootstrap UCL	0.014	95% Bootstrap-t UCL	0.0145
95% Hall's Bootstrap UCL	0.0143	95% Percentile Bootstrap UCL	0.0141
95% BCA Bootstrap UCL	0.0144		
90% Chebyshev(Mean, Sd) UCL	0.0165	95% Chebyshev(Mean, Sd) UCL	0.0188
97.5% Chebyshev(Mean, Sd) UCL	0.0221	99% Chebyshev(Mean, Sd) UCL	0.0286
<b>Suggested UCL to Use</b>			
95% Chebyshev (Mean, Sd) UCL	0.0188		
<p>Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness.</p> <p>These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.</p>			



Table C suggests that the PFOS data from the Postmark Bog is also nonparametric and that the 95% ULC is 0.207 mg/Kg. The suggested 95% UCL for PFOS is significantly less than the ADEC Method 2 Human Health cleanup level of 1.6 mg/Kg.

Table C – Suggested 95% UCL for PFOS at the Postmark Bog Development Area

PFOS			
<b>General Statistics</b>			
Total Number of Observations	36	Number of Distinct Observations	36
		Number of Missing Observations	0
Minimum	0.0018	Mean	0.0765
Maximum	1.06	Median	0.0263
SD	0.18	Std. Error of Mean	0.0299
Coefficient of Variation	2.348	Skewness	5.026
<b>Nonparametric Distribution Free UCLs</b>			
95% CLT UCL	0.126	95% Jackknife UCL	0.127
95% Standard Bootstrap UCL	0.126	95% Bootstrap-t UCL	0.269
95% Hall's Bootstrap UCL	0.324	95% Percentile Bootstrap UCL	0.135
95% BCA Bootstrap UCL	0.16		
90% Chebyshev(Mean, Sd) UCL	0.166	95% Chebyshev(Mean, Sd) UCL	0.207
97.5% Chebyshev(Mean, Sd) UCL	0.263	99% Chebyshev(Mean, Sd) UCL	0.374
<b>Suggested UCL to Use</b>			
95% Chebyshev (Mean, Sd) UCL	0.207		
<p>Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.            Recommendations are based upon data size, data distribution, and skewness.            These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).            However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.</p>			

## 7.0 CONCLUSIONS

Soil sample data suggests PFAS and petroleum hydrocarbon impacts that exceed ADEC Method 2 MTG cleanup levels but below ADEC Method 2 Human Health cleanup levels. PFAS sample data indicates sitewide PFOA and PFOS impacts among the peat soil within the Postmark Bog Development area. PFOS impacts are indicated more frequently than PFOA impacts. PFOS sorbs more readily than PFOA in organic soils (Makselon 2019). RSE used detectable and non-detect PFOA/PFOS data from this investigation to determine the 95% UCL for both PFAS compounds using ProUCL software. In both instances, PFOA and PFOS from this investigation are described as nonparametric. The calculated 95% UCL for PFOA is 0.0188 mg/Kg. While the calculated 95% UCL for PFOS is 0.207 mg/Kg.

PFAS and petroleum hydrocarbon soil sample results are usable for the intended purpose of comparison to ADEC Method 2 MTG and Human Health cleanup levels to support Postmark Bog Development decision making.

This site investigation report was prepared by Lucus Gamble, QEP. Mr. Gamble satisfies the QEP requirements described in 18 AAC 75.



## APPENDICES

### Appendix A – Figures

Figure 1. Vicinity Map

Figure 2. PFAS Soil Sample Location Map

Figure 3. Petroleum Hydrocarbon Soil Sample Location Map

### Appendix B – Tables

Tables 1A—1E: Per- and Polyfluoroalkyl Substances (PFAS) Concentrations on Soil

Tables 2A—2B: Hydrocarbon Concentrations in Soil

Table 3: Relative Percent Difference (RPD) Calculation Worksheet

### Appendix C – Photo Pages

### Appendix D – 95% UCL Calc Worksheets

### Appendix E – SGS North America Inc. Laboratory Soil Sample Data Reports

### Appendix F – ADEC Laboratory Data Review Checklists

### Appendix G – Copies of RSE Field Notes

## REFERENCES

Alaska Department of Environmental Conservation (ADEC), 2019, ADEC Technical Memorandum, Treatment of Non-Detect and Blank Detections in Per- and Polyfluoroalkyl Substances (PFAS) Analysis. April 2019.

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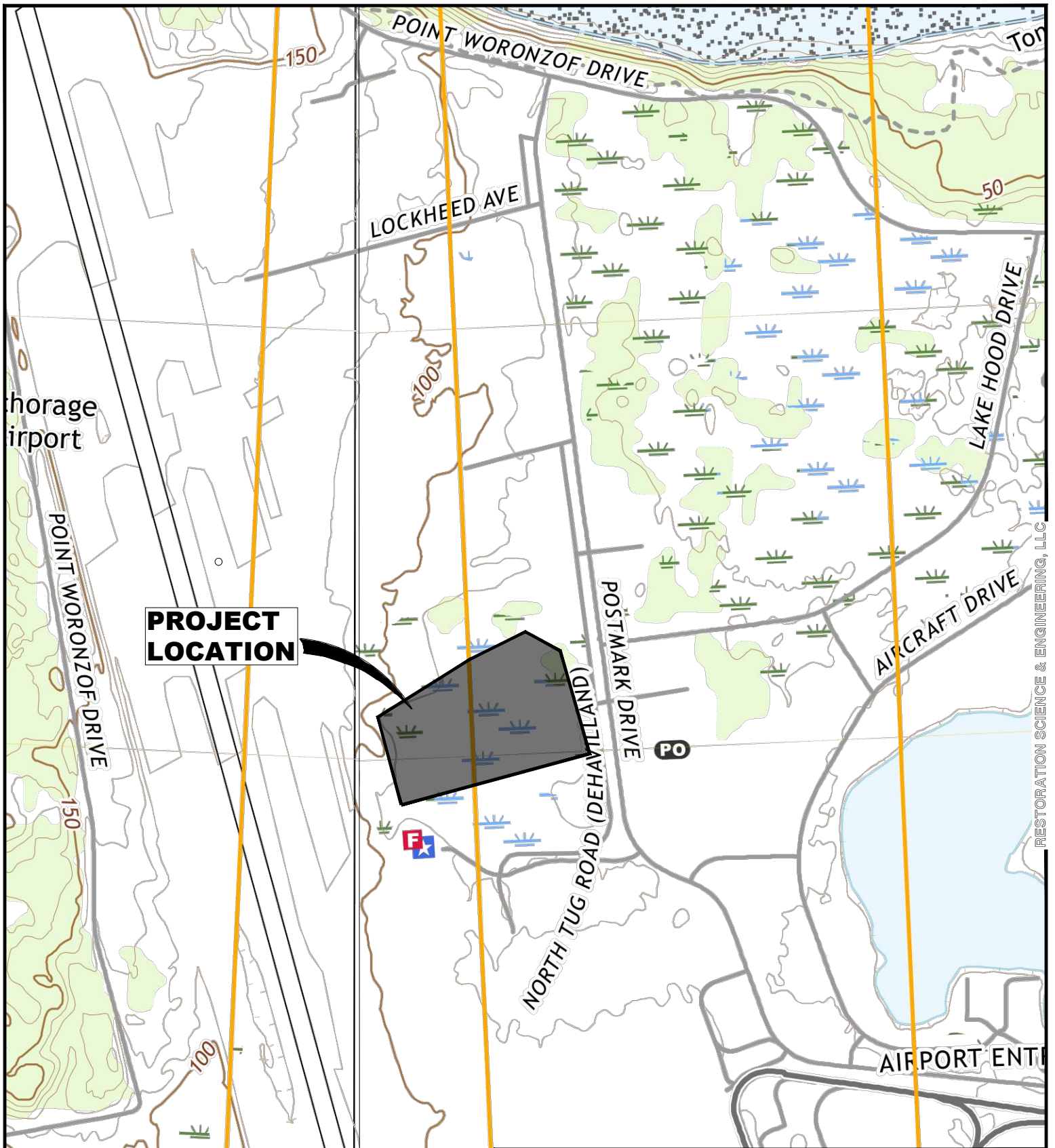
DRAFT

## **Appendix A – Figures**

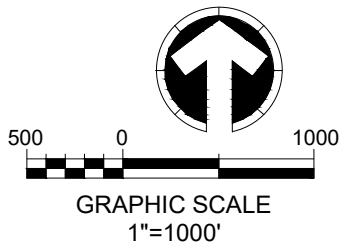
Figure 1. Vicinity Map

Figure 2. PFAS Soil Sample Location Map

Figure 3. Petroleum Hydrocarbon Soil Sample Location Map



COORDINATE SYSTEM: AK83-4F



USGS 7.5 MINUTE TOPOGRAPHIC MAPS  
 PROVIDED BY USGS NATIONAL MAPS DIGITAL  
 DOWNLOADS

### ANC POSTMARK BOG DEVELOPMENT PFAS SOIL INVESTIGATION

VICINITY MAP

ANCHORAGE, ALASKA

JOB NO: 20.2176  
 DATE: 9.22.2020

DRAWN: MSB  
 CHECKED: LG

**RESTORATION**  
 Science & Engineering, LLC  
 911 West 8th Avenue, Suite 100  
 Anchorage, Alaska 99501  
 PH (907) 278-1023 FAX (907) 277-5718

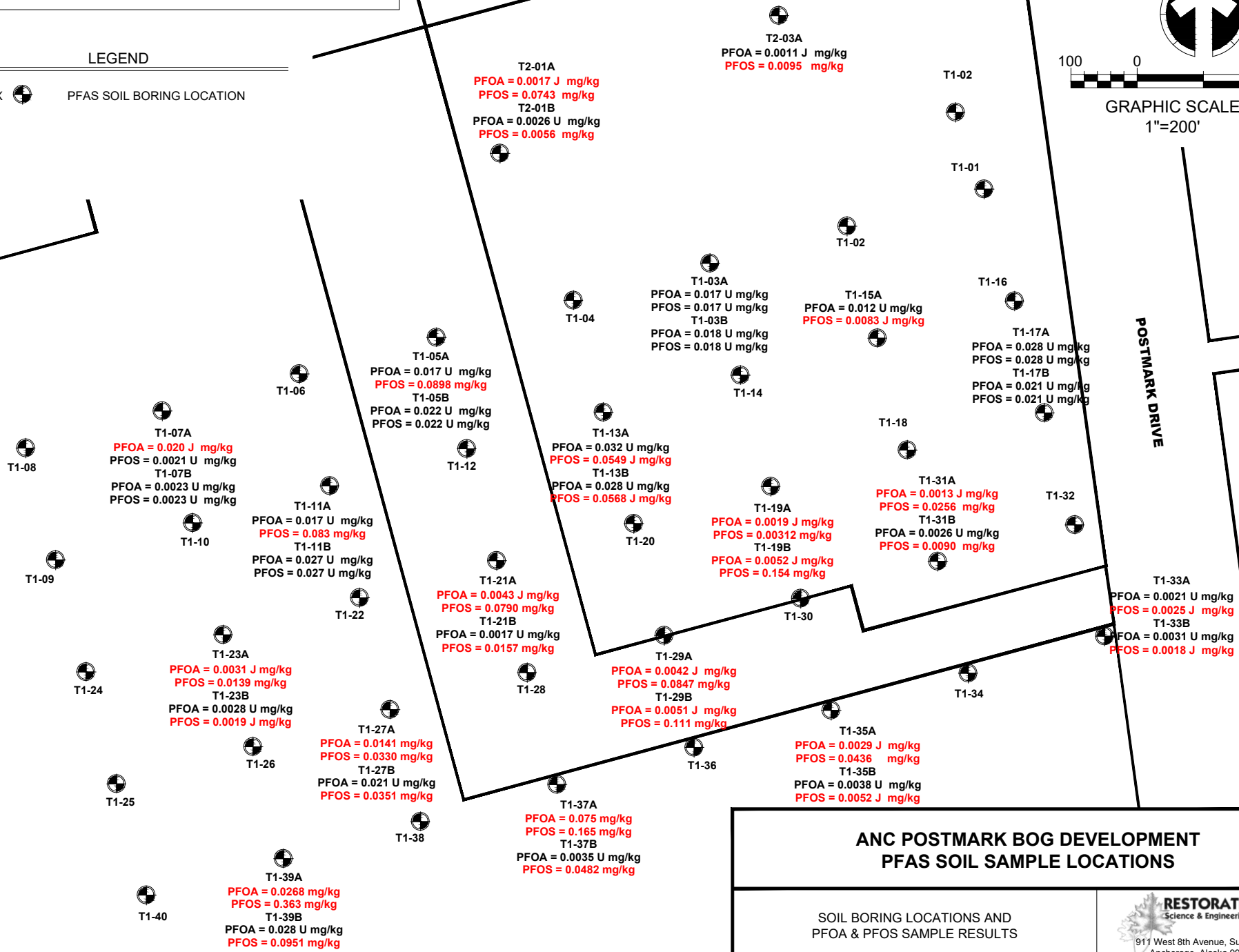
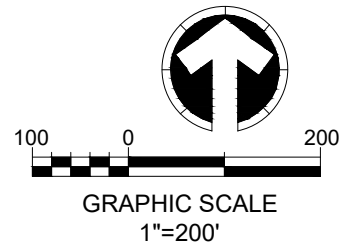
**FIGURE 1**

RESTORATION SCIENCE & ENGINEERING, LLC

**TED STEVENS INTERNATIONAL AIRPORT**

**LEGEND**

T1-XX  PFAS SOIL BORING LOCATION



**ANC POSTMARK BOG DEVELOPMENT  
PFAS SOIL SAMPLE LOCATIONS**

SOIL BORING LOCATIONS AND  
PFOA & PFOS SAMPLE RESULTS

**ANCHORAGE, ALASKA**

JOB NO: 20.2176  
DATE: 9.22.2020

DRAWN: MSB  
CHECKED: LG

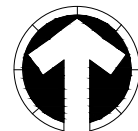
**RESTORATION**  
Science & Engineering, LLC  
911 West 8th Avenue, Suite 100  
Anchorage, Alaska 99501  
PH (907) 278-1023 FAX (907) 277-5718

**FIGURE 2**

**TED STEVENS INTERNATIONAL AIRPORT**

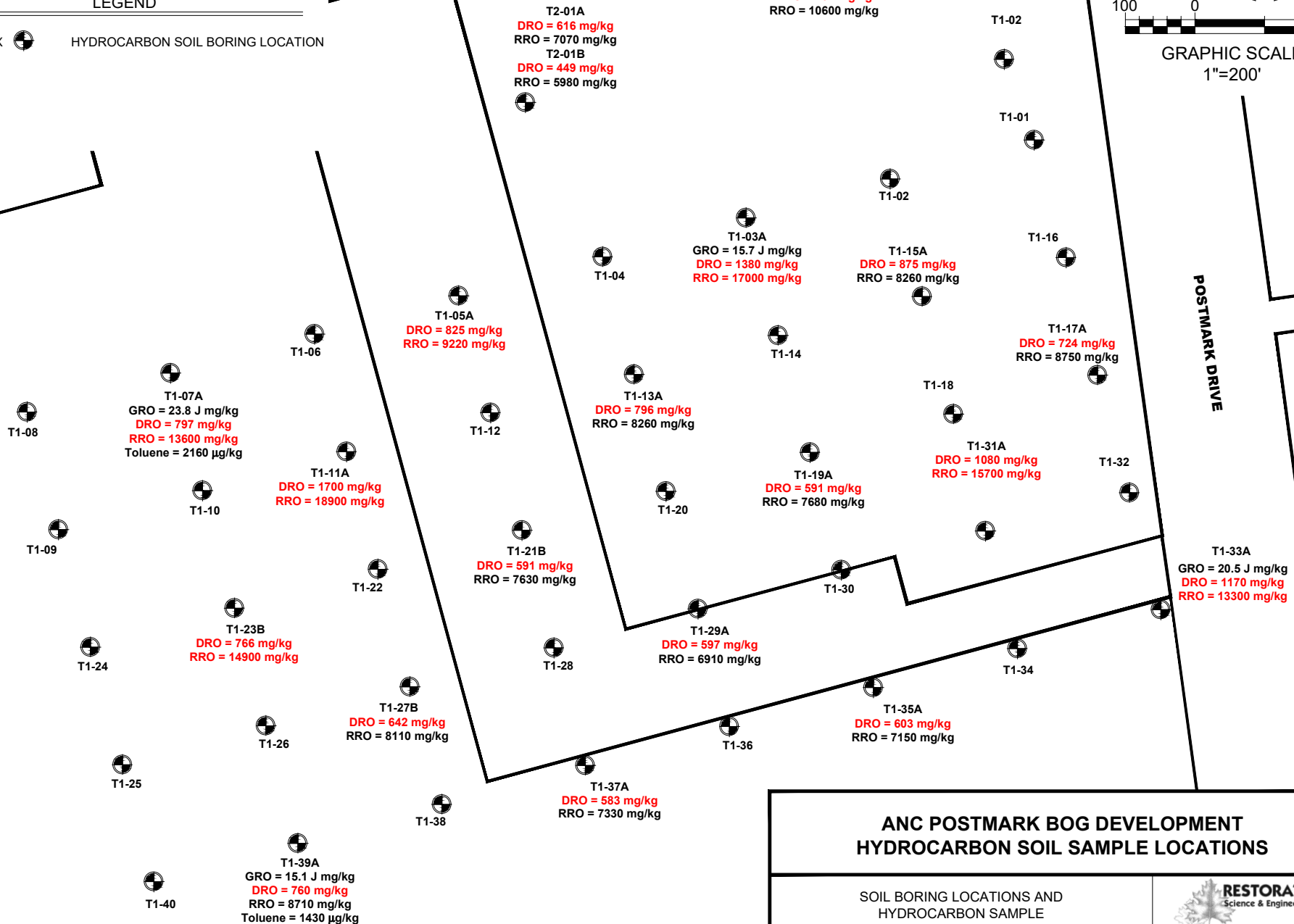
**LEGEND**

T1-XX  HYDROCARBON SOIL BORING LOCATION



GRAPHIC SCALE  
1"=200'

POSTMARK DRIVE



**ANC POSTMARK BOG DEVELOPMENT  
HYDROCARBON SOIL SAMPLE LOCATIONS**

SOIL BORING LOCATIONS AND  
HYDROCARBON SAMPLE  
RESULTS

**ANCHORAGE, ALASKA**



**RESTORATION**  
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JOB NO: 20.2176 DRAWN: MSB  
DATE: 9.22.2020 CHECKED: LG

**FIGURE 3**

DRAFT

## **Appendix B – Tables**

Tables 1A—1E: Per- and Polyfluoroalkyl Substances (PFAS) Concentrations on Soil

Tables 2A—2B: Hydrocarbon Concentrations in Soil

Table 3: Relative Percent Difference (RPD) Calculation Worksheet

**TABLE 1A**  
**CRW ENGINEERING GROUP, LLC**  
**CRW ANC POSTMARK BOG DEVELOPMENT AREA**  
**PFAS CONCENTRATIONS IN SOIL**

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) CONCENTRATIONS IN SOIL										
SAMPLE ID	T1-03A	T1-03B	T1-05A	T1-05B	T1-07A	T1-07B	T1-11A	T1-11B	ADEC TABLE B1 METHOD 2 MIGRATION TO GROUNDWATER CLEANUP LEVELS (mg/Kg)	
DATE	8/7/2020	8/7/2020	8/7/2020	8/7/2020	8/10/2020	8/10/2020	8/7/2020	8/7/2020		
SGS WORK ORDER	1204046	1204046	1204046	1204046	1204074	1204074	1204046	1204046		
UNITS	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg		
DEPTH (IN. BGS)	12 to 66	66 to 120	12 to 66	66 to 120	12 to 66	66 to 120	12 to 66	66 to 120		
PERCENT SOLIDS (%)	28.1	21.9	23.8	21.3	20.3	18.5	24.5	16.5		
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>										
Perfluorobutanoic acid	0.0017 U	0.0018 U	<b>0.0012 J</b>	0.0022 U	0.0021 U	0.023 U	<b>0.0014 J</b>	0.0027 U	<b>0.0017</b>	
Perfluoropentanoic acid	<b>0.00080 J</b>	0.0018 U	<b>0.0048</b>	0.0022 U	<b>0.0040 J</b>	<b>0.0010 J</b>	0.017 U	0.027 U		
Perfluorohexanoic acid	<b>0.00072 J</b>	0.018 U	0.017 U	0.0022 U	<b>0.0039 J</b>	<b>0.0012 J</b>	<b>0.0088 J</b>	0.027 U		
Perfluoroheptanoic acid	0.017 U	0.018 U	0.017 U	0.022 U	<b>0.0025 J</b>	0.0023 U	0.017 U	0.027 U		
Perfluorooctanoic acid (PFOA)	0.017 U	0.018 U	0.017 U	0.022 U	<b>0.0020 J</b>	0.0023 U	0.017 U	0.027 U		
Perfluorononanoic acid	0.017 U	0.018 U	0.017 U	0.022 U	0.0021 U	0.0023 U	0.017 U	0.027 U		
Perfluorodecanoic acid	0.017 U	0.018 U	0.017 U	0.022 U	0.021 U	0.023 U	0.017 U	0.027 U		
Perfluoroundecanoic acid	0.017 U	0.018 U	0.017 U	0.022 U	0.021 U	0.023 U	0.017 U	0.027 U		
Perfluorododecanoic acid	0.017 U	0.018 U	0.017 U	0.022 U	0.021 U	0.023 U	0.017 U	0.027 U		
Perfluorotridecanoic acid	0.017 U	0.018 U	0.017 U	0.022 U	0.021 U	0.0023 U	0.017 U	0.027 U		
Perfluorotetradecanoic acid	0.017 U	0.018 U	0.017 U	0.022 U	0.021 U	0.0023 U	0.017 U	0.027 U		
<b>PERFLUOROALKYL SULFONATES</b>										
Perfluorobutanesulfonic acid	0.0017 U	0.0018 U	<b>0.0012 J</b>	0.0022 U	0.0021 U	0.0023 U	0.017 U	0.027 U		<b>0.0030</b>
Perfluoropentanesulfonic acid	0.0017 U	0.0018 U	<b>0.0015 J</b>	0.0022 U	0.0021 U	0.0023 U	0.017 U	0.027 U		
Perfluorohexanesulfonic acid	<b>0.0010 J</b>	0.018 U	<b>0.0138 J</b>	<b>0.0016 J</b>	0.0021 U	0.0023 U	<b>0.0169 J</b>	0.027 U		
Perfluoroheptanesulfonic acid	0.0017 U	0.018 U	0.017 U	0.0022 U	0.0021 U	0.0023 U	0.017 U	0.027 U		
Perfluorooctanesulfonic acid (PFOS)	0.017 U	0.018 U	<b>0.0898</b>	0.022 U	0.0021 U	0.0023 U	<b>0.0838</b>	0.027 U		
Perfluorononanesulfonic acid	0.017 U	0.018 U	0.017 U	0.022 U	0.0021 U	0.0023 U	0.017 U	0.027 U		
Perfluorodecanesulfonic acid	0.017 U	0.018 U	0.017 U	0.022 U	0.0021 U	0.0023 U	0.017 U	0.027 U		
<b>PERFLUORO OCTANESULFONAMIDES</b>										
PFOSA	0.017 U	0.018 U	0.017 U	0.022 U	0.021 U	0.023 U	0.017 U	0.027 U		
<b>PERFLUOROACTANESULFONAMIDOACETIC ACIDS</b>										
MeFOSAA	0.035 U	0.037 U	0.034 U	0.043 U	0.042 U	0.0045 U	0.035 U	0.053 U		
EtFOSAA	0.035 U	0.037 U	0.034 U	0.043 U	0.042 U	0.0045 U	0.035 U	0.053 U		
<b>FLUOROTELOMER SULFONATES</b>										
4:2 Fluorotelomer sulfonate	0.0017 U	0.018 U	0.017 U	0.0022 U	0.0021 U	0.0023 U	0.017 U	0.027 U		
6:2 Fluorotelomer sulfonate	0.017 U	0.018 U	0.017 U	0.022 U	0.0021 U	0.0023 U	0.017 U	0.027 U		
8:2 Fluorotelomer sulfonate	0.017 U	0.018 U	0.017 U	0.022 U	0.0021 U	0.0023 U	0.017 U	0.027 U		

- NOTES:**
- 1) PFAS analysis by EPA 537M
  - 2) "mg/Kg" means "milligrams per kilogram".
  - 3) **Bold** font indicates the analyte was detected above the laboratory Detection Limit (DL).
  - 4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the DL; the value presented is the limit of detection.
  - 5) J flag indicates the result is an estimated value.
  - 6) Yellow highlighting indicates the analyte was detected above the ADEC Table B1 Cleanup Level.
  - 7) Blue highlighting indicates the analyte was non-detected but the limit of detection was above the ADEC Table B1 Cleanup Level.
  - 8) Soil sample T1-X is a blind duplicate of T1-19A; soil sample T1-XX is a blind duplicate of soil sample T1-11A; soil sample T1-XXX is a blind duplicate of T1-27A; soil sample T1-XXXX is a blind duplicate of T1-39A; soil sample T2-X is a blind duplicate of T2-01A.



**TABLE 1B**  
**CRW ENGINEERING GROUP, LLC**  
**CRW ANC POSTMARK BOG DEVELOPMENT AREA**  
**PFAS CONCENTRATIONS IN SOIL**

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) CONCENTRATIONS IN SOIL											
SAMPLE ID	T1-13A	T1-13B	T1-15A	T1-17A	T1-17B	T1-19A	T1-19B	T1-21A	T1-21B	ADEC TABLE B1 METHOD 2 MIGRATION TO GROUNDWATER CLEANUP LEVELS (mg/Kg)	
DATE	8/7/2020	8/7/2020	8/7/2020	8/7/2020	8/7/2020	8/6/2020	8/6/2020	8/6/2020	8/6/2020		
SGS WORK ORDER	1204046	1204046	1204046	1204046	1204046	1204021	1204021	1204021	1204021		
UNITS	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg		
DEPTH (IN. BGS)	12 to 66	66 to 120	12 to 66	12 to 66	66 to 120	12 to 66	66 to 120	12 to 66	66 to 120		
PERCENT SOLIDS (%)	14.4	17.1	39.3	17.1	19.8	14.6	10.7	18.3	11.8		
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>											
Perfluorobutanoic acid	<b>0.0035 J</b>	<b>0.0025 J</b>	<b>0.00076 J</b>	<i>0.0028 U</i>	<i>0.0021 U</i>	<b>0.0030 J</b>	<b>0.0076 J</b>	<b>0.0048 J</b>	<i>0.0037 U</i>	<b>0.0017</b>	
Perfluoropentanoic acid	<b>0.0146</b>	<b>0.0105</b>	<b>0.0023 J</b>	<i>0.028 U</i>	<i>0.021 U</i>	<b>0.0120</b>	<b>0.0247</b>	<b>0.0174</b>	<b>0.0068 J</b>		
Perfluorohexanoic acid	<b>0.0168 J</b>	<i>0.028 U</i>	<b>0.0030</b>	<i>0.028 U</i>	<i>0.021 U</i>	<b>0.0173</b>	<b>0.0326</b>	<b>0.0220</b>	<b>0.0071 J</b>		
Perfluoroheptanoic acid	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<b>0.0079</b>	<b>0.0158</b>	<b>0.0125</b>	<b>0.0026 J</b>		
Perfluorooctanoic acid (PFOA)	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<b>0.0019 J</b>	<b>0.0052 J</b>	<b>0.0043 J</b>	<i>0.0037 U</i>		
Perfluorononanoic acid	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<b>0.0025 J</b>	<b>0.0015 J</b>	<i>0.0037 U</i>		
Perfluorodecanoic acid	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<i>0.0043 U</i>	<i>0.0025 U</i>	<i>0.0037 U</i>		
Perfluoroundecanoic acid	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<i>0.0043 U</i>	<i>0.0025 U</i>	<i>0.0037 U</i>		
Perfluorododecanoic acid	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<i>0.0043 U</i>	<i>0.0025 U</i>	<i>0.0037 U</i>		
Perfluorotridecanoic acid	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<i>0.0043 U</i>	<i>0.0025 U</i>	<i>0.0037 U</i>		
Perfluorotetradecanoic acid	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<i>0.0043 U</i>	<i>0.0025 U</i>	<i>0.0037 U</i>		
<b>PERFLUOROALKYL SULFONATES</b>											
Perfluorobutanesulfonic acid	<b>0.0028 J</b>	<b>0.0019 J</b>	<i>0.0012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<b>0.0035 J</b>	<b>0.0066 J</b>	<b>0.0050</b>	<i>0.0037 U</i>		<b>0.0030</b>
Perfluoropentanesulfonic acid	<b>0.0031 J</b>	<b>0.0020 J</b>	<i>0.0012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<b>0.0034 J</b>	<b>0.0075 J</b>	<b>0.0055</b>	<i>0.0037 U</i>		
Perfluorohexanesulfonic acid	<b>0.0176 J</b>	<i>0.028 U</i>	<b>0.0030</b>	<i>0.028 U</i>	<i>0.021 U</i>	<b>0.0153</b>	<b>0.0385</b>	<b>0.0347</b>	<b>0.0060 J</b>		
Perfluoroheptanesulfonic acid	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.0012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<i>0.0043 U</i>	<i>0.0025 U</i>	<i>0.0037 U</i>		
Perfluorooctanesulfonic acid (PFOS)	<b>0.0549 J</b>	<b>0.0568 J</b>	<b>0.0083 J</b>	<i>0.028 U</i>	<i>0.021 U</i>	<b>0.0312</b>	<b>0.154</b>	<b>0.0790</b>	<b>0.0157</b>		
Perfluorononanesulfonic acid	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<i>0.0043 U</i>	<i>0.0025 U</i>	<i>0.0037 U</i>		
Perfluorodecanesulfonic acid	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<i>0.0043 U</i>	<i>0.0025 U</i>	<i>0.0037 U</i>		
<b>PERFLUOROCTANESULFONAMIDES</b>											
PFOSA	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<i>0.0043 U</i>	<i>0.0025 U</i>	<i>0.0037 U</i>		
<b>PERFLUOROCTANESULFONAMIDOACETIC ACIDS</b>											
MeFOSAA	<i>0.065 U</i>	<i>0.057 U</i>	<i>0.024 U</i>	<i>0.056 U</i>	<i>0.042 U</i>	<i>0.0068 U</i>	<i>0.0085 U</i>	<i>0.0050 U</i>	<i>0.0074 U</i>		
EtFOSAA	<i>0.065 U</i>	<i>0.057 U</i>	<i>0.024 U</i>	<i>0.056 U</i>	<i>0.042 U</i>	<i>0.0068 U</i>	<i>0.0085 U</i>	<i>0.0050 U</i>	<i>0.0074 U</i>		
<b>FLUOROTELOMER SULFONATES</b>											
4:2 Fluorotelomer sulfonate	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.0012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<i>0.0043 U</i>	<i>0.0025 U</i>	<i>0.0037 U</i>		
6:2 Fluorotelomer sulfonate	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<b>0.0226</b>	<b>0.0384</b>	<b>0.0298</b>	<b>0.0050</b>		
8:2 Fluorotelomer sulfonate	<i>0.032 U</i>	<i>0.028 U</i>	<i>0.012 U</i>	<i>0.028 U</i>	<i>0.021 U</i>	<i>0.0034 U</i>	<b>0.0022 J</b>	<i>0.0025 U</i>	<i>0.0037 U</i>		

**NOTES:**

- 1) PFAS analysis by EPA 537M
- 2) "mg/Kg" means "milligrams per kilogram".
- 3) **Bold** font indicates the analyte was detected above the laboratory Detection Limit (DL).
- 4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the DL; the value presented is the limit of detection.
- 5) J flag indicates the result is an estimated value.
- 6) Yellow highlighting indicates the analyte was detected above the ADEC Table B1 Cleanup Level.
- 7) Blue highlighting indicates the analyte was non-detected but the limit of detection was above the ADEC Table B1 Cleanup Level.
- 8) Soil sample T1-X is a blind duplicate of T1-19A; soil sample T1-XX is a blind duplicate of soil sample T1-11A; soil sample T1-XXX is a blind duplicate of T1-27A; soil sample T1-XXXX is a blind duplicate of T1-39A; soil sample T2-X is a blind duplicate of T2-01A.



**TABLE 1C**  
**CRW ENGINEERING GROUP, LLC**  
**CRW ANC POSTMARK BOG DEVELOPMENT AREA**  
**PFAS CONCENTRATIONS IN SOIL**

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) CONCENTRATIONS IN SOIL										
SAMPLE ID	T1-23A	T1-23B	T1-27A	T1-27B	T1-29A	T1-29B	T1-31A	T1-31B	ADEC TABLE B1 METHOD 2 MIGRATION TO GROUNDWATER CLEANUP LEVELS (mg/Kg)	
DATE	8/10/2020	8/10/2020	8/10/2020	8/10/2020	8/6/2020	8/6/2020	8/6/2020	8/6/2020		
SGS WORK ORDER	1204074	1204074	1204074	1204074	1204021	1204021	1204021	1204021		
UNITS	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg		
DEPTH (IN. BGS)	12 to 66	66 to 120	12 to 66	66 to 120	12 to 66	66 to 120	12 to 66	66 to 120		
PERCENT SOLIDS (%)	20.3	16.3	19.5	18.9	16.2	8.7	17.3	18.3		
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>										
Perfluorobutanoic acid	<b>0.0040 J</b>	<i>0.0028 U</i>	<b>0.0098</b>	<i>0.0021 U</i>	<b>0.0053 J</b>	<b>0.0091 J</b>	<b>0.0015 J</b>	<i>0.0026 U</i>	<b>0.0017</b>	
Perfluoropentanoic acid	<b>0.0187</b>	<b>0.0044 J</b>	<b>0.0313</b>	<i>0.021 U</i>	<b>0.0177</b>	<b>0.0279</b>	<b>0.0050</b>	<b>0.0031 J</b>		
Perfluorohexanoic acid	<b>0.0161</b>	<b>0.0028 J</b>	<b>0.0472</b>	<i>0.021 U</i>	<b>0.0275</b>	<b>0.0379</b>	<b>0.0072</b>	<b>0.0034 J</b>		
Perfluoroheptanoic acid	<b>0.0089</b>	<b>0.0015 J</b>	<b>0.0198</b>	<i>0.021 U</i>	<b>0.0112</b>	<b>0.0156</b>	<b>0.0051</b>	<b>0.0022 J</b>		
Perfluorooctanoic acid (PFOA)	<b>0.0031 J</b>	<i>0.0028 U</i>	<b>0.0141</b>	<i>0.021 U</i>	<b>0.0042 J</b>	<b>0.0051 J</b>	<b>0.0013 J</b>	<i>0.0026 U</i>		
Perfluorononanoic acid	<i>0.0022 U</i>	<i>0.028 U</i>	<i>0.023 U</i>	<i>0.021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
Perfluorodecanoic acid	<i>0.022 U</i>	<i>0.028 U</i>	<i>0.023 U</i>	<i>0.021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
Perfluoroundecanoic acid	<i>0.022 U</i>	<i>0.028 U</i>	<i>0.023 U</i>	<i>0.021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
Perfluorododecanoic acid	<i>0.022 U</i>	<i>0.028 U</i>	<i>0.023 U</i>	<i>0.021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
Perfluorotridecanoic acid	<i>0.022 U</i>	<i>0.028 U</i>	<i>0.023 U</i>	<i>0.021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
Perfluorotetradecanoic acid	<i>0.022 U</i>	<i>0.028 U</i>	<i>0.023 U</i>	<i>0.021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
<b>PERFLUOROALKYL SULFONATES</b>										
Perfluorobutanesulfonic acid	<b>0.0027 J</b>	<i>0.0028 U</i>	<b>0.0143</b>	<i>0.0021 U</i>	<b>0.0063</b>	<b>0.0094 J</b>	<i>0.0025 U</i>	<i>0.0026 U</i>		<b>0.0030</b>
Perfluoropentanesulfonic acid	<b>0.0021 J</b>	<i>0.0028 U</i>	<b>0.0134</b>	<i>0.0021 U</i>	<b>0.0066</b>	<b>0.0084 J</b>	<b>0.0014 J</b>	<i>0.0026 U</i>		
Perfluorohexanesulfonic acid	<i>0.0104</i>	<i>0.0028 U</i>	<b>0.0882</b>	<i>0.0056</i>	<b>0.0294</b>	<b>0.0341</b>	<b>0.0080</b>	<b>0.0044 J</b>		
Perfluoroheptanesulfonic acid	<i>0.0022 U</i>	<i>0.0028 U</i>	<b>0.0079</b>	<i>0.0021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
Perfluorooctanesulfonic acid (PFOS)	<b>0.0139</b>	<b>0.0019 J</b>	<b>0.330</b>	<b>0.0351</b>	<b>0.0847</b>	<b>0.111</b>	<b>0.0256</b>	<b>0.0090</b>		
Perfluorononanesulfonic acid	<i>0.0022 U</i>	<i>0.0028 U</i>	<i>0.0023 U</i>	<i>0.0021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
Perfluorodecanesulfonic acid	<i>0.0022 U</i>	<i>0.0028 U</i>	<i>0.0023 U</i>	<i>0.0021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
<b>PERFLUOROCTANESULFONAMIDES</b>										
PFOSA	<i>0.022 U</i>	<i>0.028 U</i>	<i>0.023 U</i>	<i>0.021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
<b>PERFLUOROACTANESULFONAMIDOACETIC ACIDS</b>										
MeFOSAA	<i>0.0044 U</i>	<i>0.0056 U</i>	<i>0.045 U</i>	<i>0.041 U</i>	<i>0.0055 U</i>	<i>0.011 U</i>	<i>0.0049 U</i>	<i>0.0051 U</i>		
EtFOSAA	<i>0.0044 U</i>	<i>0.0056 U</i>	<i>0.045 U</i>	<i>0.041 U</i>	<i>0.0055 U</i>	<i>0.011 U</i>	<i>0.0049 U</i>	<i>0.0051 U</i>		
<b>FLUOROTELOMER SULFONATES</b>										
4:2 Fluorotelomer sulfonate	<i>0.0022 U</i>	<i>0.0028 U</i>	<i>0.0023 U</i>	<i>0.021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		
6:2 Fluorotelomer sulfonate	<b>0.0139</b>	<i>0.0028 U</i>	<b>0.0658</b>	<b>0.0030</b>	<b>0.0237</b>	<b>0.0106 J</b>	<i>0.0025 U</i>	<b>0.0028 J</b>		
8:2 Fluorotelomer sulfonate	<i>0.0022 U</i>	<i>0.028 U</i>	<i>0.023 U</i>	<i>0.021 U</i>	<i>0.0028 U</i>	<i>0.0056 U</i>	<i>0.0025 U</i>	<i>0.0026 U</i>		

**NOTES:**

- 1) PFAS analysis by EPA 537M
- 2) "mg/Kg" means "milligrams per kilogram".
- 3) **Bold** font indicates the analyte was detected above the laboratory Detection Limit (DL).
- 4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the DL; the value presented is the limit of detection.
- 5) J flag indicates the result is an estimated value.
- 6) Yellow highlighting indicates the analyte was detected above the ADEC Table B1 Cleanup Level.
- 7) Blue highlighting indicates the analyte was non-detected but the limit of detection was above the ADEC Table B1 Cleanup Level.
- 8) Soil sample T1-X is a blind duplicate of T1-19A; soil sample T1-XX is a blind duplicate of soil sample T1-11A; soil sample T1-XXX is a blind duplicate of T1-27A; soil sample T1-XXXX is a blind duplicate of T1-39A; soil sample T2-X is a blind duplicate of T2-01A.

**TABLE 1D**  
**CRW ENGINEERING GROUP, LLC**  
**CRW ANC POSTMARK BOG DEVELOPMENT AREA**  
**PFAS CONCENTRATIONS IN SOIL**

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) CONCENTRATIONS IN SOIL												
SAMPLE ID	T1-33A	T1-33B	T1-35A	T1-35B	T1-37A	T1-37B	T1-39A	T1-39B	T2-01A	T2-01B	T2-03A	ADEC TABLE B1 METHOD 2 MIGRATION TO GROUNDWATER CLEANUP LEVELS (mg/Kg)
DATE	8/6/2020	8/6/2020	8/6/2020	8/6/2020	8/6/2020	8/6/2020	8/10/2020	8/10/2020	8/11/2020	8/11/2020	8/11/2020	
SGS WORK ORDER	1204021	1204021	1204021	1204021	1204021	1204021	1204074	1204074	1204107	1204107	1204107	
UNITS	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
DEPTH (IN. BGS)	12 to 66	66 to 120	12 to 66	66 to 120	12 to 66	66 to 120	12 to 66	66 to 120	12 to 66	66 to 120	12 to 66	
PERCENT SOLIDS (%)	21.5	16.3	24.9	12.4	27.4	13.5	23.1	15.1	20.9	16.6	28.5	
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>												
Perfluorobutanoic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0020 J	0.0035 U	0.0119	0.0197	0.0022 U	0.0026 U	0.0015 U	<b>0.0017</b>
Perfluoropentanoic acid	0.0010 J	0.0014 J	0.0012 J	0.0038 U	0.0063	0.0054 J	0.0302	0.0298 J	0.022 U	0.0026 U	0.00085 J	
Perfluorohexanoic acid	0.0014 J	0.0031 U	0.0016 J	0.0038 U	0.0196	0.0150	0.0671	0.0427 J	0.022 U	0.0026 U	0.0011 J	
Perfluoroheptanoic acid	0.0012 J	0.0031 U	0.0025 J	0.0038 U	0.0109	0.0042 J	0.0211	0.028 U	0.022 U	0.0026 U	0.0012 J	
Perfluorooctanoic acid (PFOA)	0.0021 U	0.0031 U	0.0029 J	0.0038 U	0.0075	0.0035 U	0.0268	0.028 U	0.0017 J	0.0026 U	0.0011 J	
Perfluorononanoic acid	0.0021 U	0.0031 U	0.0022 J	0.0038 U	0.0028 J	0.0035 U	0.019 U	0.028 U	0.022 U	0.0026 U	0.015 U	
Perfluorodecanoic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0018 U	0.0035 U	0.019 U	0.028 U	0.022 U	0.026 U	0.015 U	
Perfluoroundecanoic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0018 U	0.0035 U	0.019 U	0.028 U	0.022 U	0.0026 U	0.015 U	
Perfluorododecanoic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0018 U	0.0035 U	0.019 U	0.028 U	0.022 U	0.0026 U	0.015 U	
Perfluorotridecanoic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0018 U	0.0035 U	0.019 U	0.028 U	0.022 U	0.026 U	0.015 U	
Perfluorotetradecanoic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0018 U	0.0035 U	0.019 U	0.028 U	0.022 U	0.026 U	0.015 U	
<b>PERFLUOROALKYL SULFONATES</b>												
Perfluorobutanesulfonic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0011 J	0.0035 U	0.0371	0.0283 J	0.0022 U	0.0026 U	0.0015 U	<b>0.0030</b>
Perfluoropentanesulfonic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0032 J	0.0035 U	0.0324	0.028 U	0.0022 U	0.0026 U	0.0015 U	
Perfluorohexanesulfonic acid	0.0021 J	0.0031 U	0.0102	0.0038 U	0.0327	0.0079	0.263	0.0450	0.0063	0.0026 U	0.0055	
Perfluoroheptanesulfonic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0041	0.0035 U	0.0151	0.0068	0.0022 U	0.0026 U	0.0015 U	
Perfluorooctanesulfonic acid (PFOS)	0.0025 J	0.0018 J	0.0436	0.0052 J	0.165	0.0482	0.363	0.0951	0.0743	0.0056	0.0095	
Perfluorononanesulfonic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0018 U	0.0035 U	0.0019 U	0.0028 U	0.0022 U	0.0026 U	0.0015 U	
Perfluorodecanesulfonic acid	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0018 U	0.0035 U	0.0019 U	0.0028 U	0.0022 U	0.0026 U	0.0015 U	
<b>PERFLUOROCTANESULFONAMIDES</b>												
PFOSA	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0018 U	0.0035 U	0.019 U	0.028 U	0.022 U	0.026 U	0.015 U	
<b>PERFLUOROACTANESULFONAMIDOACETIC ACIDS</b>												
MeFOSAA	0.0042 U	0.0061 U	0.0039 U	0.0075 U	0.0036 U	0.0070 U	0.038 U	0.056 U	0.044 U	0.052 U	0.029 U	
EtFOSAA	0.0042 U	0.0061 U	0.0039 U	0.0075 U	0.0036 U	0.0070 U	0.038 U	0.056 U	0.044 U	0.052 U	0.029 U	
<b>FLUOROTELOMER SULFONATES</b>												
4:2 Fluorotelomer sulfonate	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0018 U	0.0035 U	0.0019 U	0.028 U	0.022 U	0.0026 U	0.0015 U	
6:2 Fluorotelomer sulfonate	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0311	0.0067	0.215	0.0637	0.0022 U	0.0026 U	0.0015 U	
8:2 Fluorotelomer sulfonate	0.0021 U	0.0031 U	0.0019 U	0.0038 U	0.0018 J	0.0035 U	0.019 U	0.028 U	0.022 U	0.0026 U	0.015 U	

**NOTES:**

- 1) PFAS analysis by EPA 537M
- 2) "mg/Kg" means "milligrams per kilogram".
- 3) **Bold** font indicates the analyte was detected above the laboratory Detection Limit (DL).
- 4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the DL; the value presented is the limit of detection.
- 5) J flag indicates the result is an estimated value.
- 6) Yellow highlighting indicates the analyte was detected above the ADEC Table B1 Cleanup Level.
- 7) Blue highlighting indicates the analyte was non-detected but the limit of detection was above the ADEC Table B1 Cleanup Level.
- 8) Soil sample T1-X is a blind duplicate of T1-19A; soil sample T1-XX is a blind duplicate of soil sample T1-11A; soil sample T1-XXX is a blind duplicate of T1-27A; soil sample T1-XXXX is a blind duplicate of T1-39A; soil sample T2-X is a blind duplicate of T2-01A.

**TABLE 1E**  
**CRW ENGINEERING GROUP, LLC**  
**CRW ANC POSTMARK BOG DEVELOPMENT AREA**  
**PFAS CONCENTRATIONS IN SOIL**

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) CONCENTRATIONS IN SOIL						ADEC TABLE B1 METHOD 2 MIGRATION TO GROUNDWATER CLEANUP LEVELS (mg/Kg)
SAMPLE ID	T1-X	T1-XX	T1-XXX	T1-XXXX	T2-X	
DATE	8/6/2020	8/7/2020	8/10/2020	8/10/2020	8/11/2020	
SGS WORK ORDER	1204021	1204046	1204074	1204074	1204107	
UNITS	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	
DEPTH (IN. BGS)	12 to 66	12 to 66	12 to 66	12 to 66	12 to 66	
PERCENT SOLIDS (%)	14.8	22.8	21.7	19.3	23.9	
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>						
Perfluorobutanoic acid	<b>0.0051 J</b>	<b>0.0014 J</b>	<b>0.0076</b>	<b>0.0138</b>	<i>0.0017 U</i>	
Perfluoropentanoic acid	<b>0.0181</b>	<i>0.017 U</i>	<b>0.0239</b>	<b>0.0380</b>	<b>0.0014 J</b>	
Perfluorohexanoic acid	<b>0.0267</b>	<b>0.0079 J</b>	<b>0.0345</b>	<b>0.0744</b>	<b>0.0022 J</b>	
Perfluoroheptanoic acid	<b>0.0135</b>	<i>0.017 U</i>	<b>0.0136</b>	<b>0.0249</b>	<b>0.0015 J</b>	
Perfluorooctanoic acid (PFOA)	<b>0.0043 J</b>	<i>0.017 U</i>	<b>0.0086</b>	<b>0.0333</b>	<b>0.0017 J</b>	<b>0.0017</b>
Perfluorononanoic acid	<i>0.0033 U</i>	<i>0.017 U</i>	<b>0.0023 J</b>	<i>0.021 U</i>	<b>0.0012 J</b>	
Perfluorodecanoic acid	<i>0.0033 U</i>	<i>0.017 U</i>	<i>0.022 U</i>	<i>0.021 U</i>	<i>0.017 U</i>	
Perfluoroundecanoic acid	<i>0.0033 U</i>	<i>0.017 U</i>	<i>0.022 U</i>	<i>0.021 U</i>	<i>0.017 U</i>	
Perfluorododecanoic acid	<i>0.0033 U</i>	<i>0.017 U</i>	<i>0.022 U</i>	<i>0.021 U</i>	<i>0.017 U</i>	
Perfluorotridecanoic acid	<i>0.0033 U</i>	<i>0.017 U</i>	<i>0.022 U</i>	<i>0.021 U</i>	<i>0.017 U</i>	
Perfluorotetradecanoic acid	<i>0.0033 U</i>	<i>0.017 U</i>	<i>0.022 U</i>	<i>0.021 U</i>	<i>0.017 U</i>	
<b>PERFLUOROALKYL SULFONATES</b>						
Perfluorobutanesulfonic acid	<b>0.0053 J</b>	<i>0.017 U</i>	<b>0.0103</b>	<b>0.0361</b>	<i>0.0017 U</i>	
Perfluoropentanesulfonic acid	<b>0.0056 J</b>	<i>0.017 U</i>	<b>0.0092</b>	<b>0.0341</b>	<i>0.0017 U</i>	
Perfluorohexanesulfonic acid	<b>0.0317</b>	<b>0.0145 J</b>	<b>0.0552</b>	<b>0.289</b>	<b>0.0069</b>	
Perfluoroheptanesulfonic acid	<i>0.0033 U</i>	<i>0.017 U</i>	<b>0.0047</b>	<b>0.0298</b>	<i>0.0017 U</i>	
Perfluorooctanesulfonic acid (PFOS)	<b>0.0909</b>	<b>0.0412</b>	<b>0.242</b>	<b>1.06</b>	<b>0.0777</b>	<b>0.0030</b>
Perfluorononanesulfonic acid	<i>0.0033 U</i>	<i>0.017 U</i>	<i>0.0022 U</i>	<b>0.0039 J</b>	<i>0.0017 U</i>	
Perfluorodecanesulfonic acid	<i>0.0033 U</i>	<i>0.017 U</i>	<i>0.0022 U</i>	<i>0.0021 U</i>	<i>0.0017 U</i>	
<b>PERFLUOROACTANESULFONAMIDES</b>						
PFOSA	<i>0.0033 U</i>	<i>0.017 U</i>	<i>0.022 U</i>	<i>0.021 U</i>	<i>0.017 U</i>	
<b>PERFLUOROACTANESULFONAMIDOACETIC ACIDS</b>						
MeFOSAA	<i>0.0066 U</i>	<i>0.034 U</i>	<i>0.044 U</i>	<i>0.042 U</i>	<i>0.035 U</i>	
EtFOSAA	<i>0.0066 U</i>	<i>0.034 U</i>	<i>0.044 U</i>	<i>0.042 U</i>	<i>0.035 U</i>	
<b>FLUOROTELOMER SULFONATES</b>						
4:2 Fluorotelomer sulfonate	<i>0.0033 U</i>	<i>0.017 U</i>	<i>0.0022 U</i>	<i>0.0021 U</i>	<i>0.0017 U</i>	
6:2 Fluorotelomer sulfonate	<b>0.0389</b>	<i>0.017 U</i>	<b>0.0375</b>	<b>0.248</b>	<i>0.0017 U</i>	
8:2 Fluorotelomer sulfonate	<b>0.0019 J</b>	<i>0.017 U</i>	<i>0.0022 U</i>	<b>0.0089</b>	<i>0.017 U</i>	

**NOTES:**

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- 4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the DL; the value presented is the limit of detection.
- 5) J flag indicates the result is an estimated value.
- 6) Yellow highlighting indicates the analyte was detected above the ADEC Table B1 Cleanup Level.
- 7) Blue highlighting indicates the analyte was non-detected but the limit of detection was above the ADEC Table B1 Cleanup Level.
- 8) Soil sample T1-X is a blind duplicate of T1-19A; soil sample T1-XX is a blind duplicate of soil sample T1-11A; soil sample T1-XXX is a blind duplicate of T1-27A; soil sample T1-XXXX is a blind duplicate of T1-39A; soil sample T2-X is a blind duplicate of T2-01A.

**TABLE 2A**  
**CRW ENGINEERING GROUP, LLC**  
**CRW ANC POSTMARK BOG DEVELOPMENT AREA**  
**HYDROCARBON CONCENTRATIONS IN SOIL**

HYDROCARBON CONCENTRATIONS IN SOIL											ADEC TABLE B1 METHOD 2 MIGRATION TO GROUNDWATER CLEANUP LEVELS
SAMPLE ID	T1-03A	T1-05A	T1-07A	T1-11A	T1-13A	T1-15A	T1-17A	T1-19A	T1-21B	T1-23B	
DATE	8/7/2020	8/7/2020	8/10/2020	8/7/2020	8/7/2020	8/7/2020	8/7/2020	8/6/2020	8/7/2020	8/10/2020	
SGS WORK ORDER	1204046	1204046	1204074	1204046	1204046	1204046	1204046	1204021	1204021	1204074	
DEPTH (IN. BGS)	12 to 66	12 to 66	12 to 66	12 to 66	12 to 66	12 to 66	12 to 66	12 to 66	66 to 120	66 to 120	
PID (PPMV)	1.2	1.2	4.2	2.8	0.9	0.7	0.7	0.3	1.3	1.0	
PERCENT SOLIDS (%)	27.9	21.4	20.3	22.4	14.4	46.8	21.2	14.2	13.9	22.2	
<b>PETROLUUM HYDROCARBONS</b>											
Gasoline Range Organics (mg/Kg)	<b>15.7 J</b>	<i>23.9 U</i>	<b>22.8 J</b>	<i>24.0 U</i>	<i>39.8 U</i>	<i>13.3 U</i>	<i>32.0 U</i>	<i>40.9 U</i>	<i>36.6 U</i>	<i>41.1 U</i>	<b>300</b>
Diesel Range Organics (mg/Kg)	<b>1380</b>	<b>825</b>	<b>797</b>	<b>1700</b>	<b>796</b>	<b>875</b>	<b>724</b>	<b>682</b>	<b>591</b>	<b>766</b>	<b>250</b>
Residual Range Organics (mg/Kg)	<b>17000</b>	<b>9220</b>	<b>13600</b>	<b>18900</b>	<b>9240</b>	<b>8260</b>	<b>8750</b>	<b>7680</b>	<b>7630</b>	<b>14900</b>	<b>11000</b>
<b>VOLATILE ORGANIC COMPOUNDS</b>											
Benzene (µg/Kg)	<i>109 U</i>	<i>120 U</i>	<i>130 U</i>	<i>120 U</i>	<i>199 U</i>	<i>66.5 U</i>	<i>160 U</i>	<i>205 U</i>	<i>184 U</i>	<i>207 U</i>	<b>22</b>
Ethylbenzene (µg/Kg)	<i>218 U</i>	<i>239 U</i>	<i>260 U</i>	<i>240 U</i>	<i>398 U</i>	<i>133 U</i>	<i>320 U</i>	<i>409 U</i>	<i>367 U</i>	<i>414 U</i>	<b>130</b>
o-Xylene (µg/Kg)	<i>218 U</i>	<i>239 U</i>	<i>260 U</i>	<i>240 U</i>	<i>398 U</i>	<i>133 U</i>	<i>320 U</i>	<i>409 U</i>	<i>367 U</i>	<i>414 U</i>	
P & M-Xylene (µg/Kg)	<i>437 U</i>	<i>477 U</i>	<i>520 U</i>	<i>481 U</i>	<i>795 U</i>	<i>267 U</i>	<i>640 U</i>	<i>820 U</i>	<i>735 U</i>	<i>830 U</i>	
Toluene (µg/Kg)	<i>218 U</i>	<i>239 U</i>	<b>2160</b>	<i>240 U</i>	<i>398 U</i>	<i>133 U</i>	<i>320 U</i>	<i>409 U</i>	<i>367 U</i>	<i>414 U</i>	<b>6700</b>
Total Xylenes (µg/Kg)	<i>655 U</i>	<i>715 U</i>	<i>780 U</i>	<i>720 U</i>	<i>1190 U</i>	<i>400 U</i>	<i>960 U</i>	<i>1225 U</i>	<i>1100 U</i>	<i>1240 U</i>	<b>1500</b>
<b>TOTAL ORGANIC CARBON</b>											
TOC (%)	<b>33.8</b>	<b>33</b>	<b>37.9</b>	<b>40.3</b>	<b>37.4</b>	<b>25.0</b>	<b>34.4</b>	<b>37.7</b>	<b>36.3</b>	<b>34.9</b>	

**NOTES:**

- 1) GRO analysis by AK 101; DRO analysis by AK 102; RRO analysis by AK 103; BTEX analysis by EPA 8021B; TOC analysis by 9060A.
- 2) "mg/Kg" means "milligrams per kilogram".
- 3) **Bold** font indicates the analyte was detected above the laboratory Detection Limit (DL).
- 4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the DL; the value presented is the limit of detection.
- 5) J flag indicates the result is an estimated value.
- 6) Yellow highlighting indicates the analyte was detected above the ADEC Table B1 Cleanup Level.
- 7) Blue highlighting indicates the analyte was non-detected but the limit of detection was above the ADEC Table B1 Cleanup Level.
- 8) Soil sample T1-Y is a blind duplicate of T1-19A; soil sample T1-YY is a blind duplicate of T1-39A.

**TABLE 2B**  
**CRW ENGINEERING GROUP, LLC**  
**CRW ANC POSTMARK BOG DEVELOPMENT AREA**  
**HYDROCARBON CONCENTRATIONS IN SOIL**

HYDROCARBON CONCENTRATIONS IN SOIL													
SAMPLE ID	T1-27B	T1-29A	T1-31A	T1-33A	T1-35A	T1-37A	T1-39A	T2-01A	T2-01B	T2-03A	T1-Y	T1-YY	ADEC TABLE B1 METHOD 2 MIGRATION TO GROUNDWATER CLEANUP LEVELS
DATE	8/10/2020	8/6/2020	8/6/2020	8/6/2020	8/6/2020	8/6/2020	8/10/2020	8/11/2020	8/11/2020	8/11/2020	8/6/2020	8/10/2020	
SGS WORK ORDER	1204074	1204021	1204021	1204021	1204021	1204021	1204074	1204107	1204107	1204107	1204021	1204074	
DEPTH (IN. BGS)	66 to 120	12 to 66	12 to 66	12 to 66	12 to 66	12 to 66	12 to 66	12 to 66	66 to 120	12 to 66	12 to 66	12 to 66	
PID (PPMV)	1.0	1.8	0.9	0.9	1.1	2.0	3.7	0.4	0.5	0.4	0.3	3.7	
PERCENT SOLIDS (%)	15.9	14.4	17.4	27.3	23.9	26.1	19.1	22.5	23.1	27.2	14.3	21.7	
<b>PETROLEUM HYDROCARBONS</b>													
Gasoline Range Organics (mg/Kg)	46.4 U	33.0 U	32.5 U	20.5 J	57.0 U	37.1 U	15.1 J	22.8 U	25.8 U	21.9 U	23.8 U	14.8 J	300
Diesel Range Organics (mg/Kg)	<b>642</b>	<b>597</b>	<b>1080</b>	<b>1170</b>	<b>603</b>	<b>583</b>	<b>760</b>	<b>616</b>	<b>449</b>	<b>702</b>	<b>690</b>	<b>1250</b>	250
Residual Range Organics (mg/Kg)	<b>8110</b>	<b>6910</b>	<b>15700</b>	<b>13300</b>	<b>7150</b>	<b>7330</b>	<b>8710</b>	<b>7070</b>	<b>5980</b>	<b>10600</b>	<b>8090</b>	<b>14900</b>	11000
<b>VOLATILE ORGANIC COMPOUNDS</b>													
Benzene (µg/Kg)	232 U	165 U	238 U	111 U	284 U	186 U	119 U	114 U	129 U	109 U	119 U	114 U	22
Ethylbenzene (µg/Kg)	464 U	330 U	478 U	222 U	570 U	372 U	238 U	228 U	258 U	219 U	238 U	227 U	130
o-Xylene (µg/Kg)	464 U	330 U	478 U	222 U	570 U	372 U	238 U	228 U	258 U	219 U	238 U	227 U	
P & M-Xylene (µg/Kg)	930 U	660 U	955 U	444 U	1135 U	745 U	476 U	455 U	515 U	437 U	475 U	454 U	
Toluene (µg/Kg)	464 U	330 U	478 U	222 U	570 U	372 U	<b>1430</b>	228 U	258 U	219 U	238 U	<b>971</b>	6700
Total Xylenes (µg/Kg)	1390 U	990 U	1430 U	665 U	1705 U	1115 U	715 U	685 U	775 U	655 U	710 U	680 U	1500
<b>TOTAL ORGANIC CARBON</b>													
TOC (%)	45.1	38.4	36.4	33.2	36.9	32.1	37.1	36.0	35.7	42.6	37.2	41.8	

**NOTES:**

- 1) GRO analysis by AK 101; DRO analysis by AK 102; RRO analysis by AK 103; BTEX analysis by EPA 8021B; TOC analysis by 9060A.
- 2) "mg/Kg" means "milligrams per kilogram".
- 3) **Bold** font indicates the analyte was detected above the laboratory Detection Limit (DL).
- 4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the DL; the value presented is the limit of detection.
- 5) J flag indicates the result is an estimated value.
- 6) Yellow highlighting indicates the analyte was detected above the ADEC Table B1 Cleanup Level.
- 7) Blue highlighting indicates the analyte was non-detected but the limit of detection was above the ADEC Table B1 Cleanup Level.
- 8) Soil sample T1-Y is a blind duplicate of T1-19A; soil sample T1-YY is a blind duplicate of T1-39A.

**TABLE 3**  
**CRW ENGINEERING GROUP, LLC**  
**CRW ANC POSTMARK BOG DEVELOPMENT AREA**  
**RELATIVE PERCENT DIFFERENCE CALCULATIONS**

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) RPDs		
CONTAMINANT	PFOA (mg/Kg)	PFOS (mg/Kg)
T1-19A	0.0019	0.0312
T1-X	0.0043	0.0909
<i>RPD (%)</i>	<i>77.42%</i>	<i>97.79%</i>
T1-11A	ND	0.0808
T1-XX	ND	0.0412
<i>RPD (%)</i>	<i>--</i>	<i>64.92%</i>
T1-27A	0.0141	0.330
T1-XXX	0.0086	0.242
<i>RPD (%)</i>	<i>48.46%</i>	<i>30.77%</i>
T1-39A	0.0268	0.363
T1-XXXX	0.0333	1.06
<i>RPD (%)</i>	<i>21.63%</i>	<i>97.96%</i>
T2-01A	0.017	0.0743
T2-X	0.017	0.0777
<i>RPD (%)</i>	<i>0.00%</i>	<i>4.47%</i>

HYDROCARBON RPDs			
CONTAMINANT	DRO (mg/kg)	RRO (mg/Kg)	TOLUENE (µg/Kg)
T1-19A	682	7680	ND
T1-Y	690	8090	ND
<i>RPD (%)</i>	<i>1.17%</i>	<i>5.20%</i>	<i>--</i>
T1-39A	760	8710	1430
T1-YY	1250	14900	971
<i>RPD (%)</i>	<i>48.76%</i>	<i>52.44%</i>	<i>38.23%</i>

NOTES:

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**Appendix C – Photo Pages**





Typical field equipment and sampling setup at the Postmark Bog



Typical sampling recovery using the drive hammer and PFAS-free liners



Generally, soil samples had low % solids. However, drier soil persisted near established vegetation

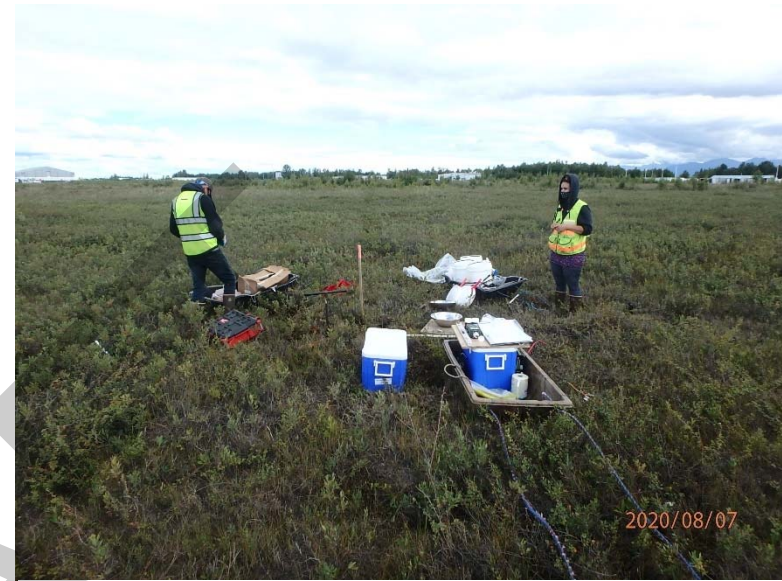


PFAS-free liner with highly compacted peat. Notice the slight bulge





A bucket auger was used at this location because of too compaction issues using the drive sampler



Typical field equipment mobilization and sampling setup at the Postmark Bog



Depending upon material wetness, RSE sometimes sampled using a bucket auger



IDW decon water treatment using a 5-gallon GAC and onsite disposal

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**Appendix D – 95% UCL Calc Worksheets**

	A	B	C	D
1	PFOA	D_PFOA	PFOS	D_PFOS
2	0.017	0	0.017	0
3	0.018	0	0.018	0
4	0.017	0	0.0898	1
5	0.022	0	0.022	0
6	0.002	1	0.0021	0
7	0.0023	0	0.0023	0
8	0.017	0	0.0838	1
9	0.027	0	0.027	0
10	0.032	0	0.0549	1
11	0.028	0	0.0568	1
12	0.012	0	0.0083	1
13	0.028	0	0.028	0
14	0.021	0	0.021	0
15	0.0043	1	0.0909	1
16	0.0052	1	0.0154	1
17	0.0043	1	0.079	1
18	0.0037	0	0.0157	1
19	0.0031	1	0.0139	1
20	0.0028	0	0.0019	1
21	0.0141	1	0.33	1
22	0.021	0	0.0351	1
23	0.0042	1	0.0847	1
24	0.0051	1	0.111	1
25	0.0013	1	0.0256	1
26	0.0026	0	0.009	1
27	0.0021	0	0.0025	1
28	0.0031	0	0.0018	1
29	0.0029	1	0.0436	1
30	0.0038	0	0.0052	1
31	0.0075	1	0.165	1
32	0.0035	0	0.0482	1
33	0.0333	1	1.06	1
34	0.028	0	0.0951	1
35	0.0017	1	0.0743	1
36	0.0026	0	0.0056	1
37	0.0011	1	0.0095	1

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				<b>General Statistics on Uncensored Data</b>									
2	Date/Time of Computation			ProUCL 5.19/21/2020 11:09:49 PM									
3	<b>User Selected Options</b>												
4	From File			Postmark Bog UCL_all data w NDs.xls									
5	Full Precision			OFF									
6													
7	From File: Postmark Bog UCL_all data w NDs.xls												
8													
9	<b>General Statistics for Censored Data Set (with NDs) using Kaplan Meier Method</b>												
10													
11	<b>Variable</b>	<b>NumObs</b>	<b># Missing</b>	<b>Num Ds</b>	<b>NumNDs</b>	<b>% NDs</b>	<b>Min ND</b>	<b>Max ND</b>	<b>KM Mean</b>	<b>KM Var</b>	<b>KM SD</b>	<b>KM CV</b>	
12	PFOA	36	0	14	22	61.11%	0.0021	0.032	0.00406	3.2367E-5	0.00569	1.401	
13	PFOS	36	0	28	8	22.22%	0.0021	0.028	0.074	0.0317	0.178	2.404	
14													
15	<b>General Statistics for Raw Data Sets using Detected Data Only</b>												
16													
17	<b>Variable</b>	<b>NumObs</b>	<b># Missing</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Median</b>	<b>Var</b>	<b>SD</b>	<b>MAD/0.675</b>	<b>Skewness</b>	<b>CV</b>	
18	PFOA	14	0	0.0011	0.0333	0.00644	0.00425	7.0736E-5	0.00841	0.00267	2.903	1.307	
19	PFOS	28	0	0.0018	1.06	0.0935	0.0459	0.0405	0.201	0.056	4.455	2.152	
20													
21	<b>Percentiles using all Detects (Ds) and Non-Detects (NDs)</b>												
22													
23	<b>Variable</b>	<b>NumObs</b>	<b># Missing</b>	<b>10%ile</b>	<b>20%ile</b>	<b>25%ile(Q1)</b>	<b>50%ile(Q2)</b>	<b>75%ile(Q3)</b>	<b>80%ile</b>	<b>90%ile</b>	<b>95%ile</b>	<b>99%ile</b>	
24	PFOA	36	0	0.00205	0.0026	0.00288	0.0047	0.0188	0.021	0.028	0.029	0.0328	
25	PFOS	36	0	0.0024	0.0083	0.00938	0.0263	0.0802	0.0847	0.103	0.206	0.804	

A	B	C	D	E	F	G	H	I	J	K	L
1	<b>UCL Statistics for Uncensored Full Data Sets</b>										
2											
3	User Selected Options										
4	Date/Time of Computation		ProUCL 5.19/21/2020 11:30:18 PM								
5	From File		Postmark Bog UCL_all data w NDs.xls								
6	Full Precision		OFF								
7	Confidence Coefficient		95%								
8	Number of Bootstrap Operations		2000								
9											
10											
11	<b>PFOA</b>										
12											
13	<b>General Statistics</b>										
14	Total Number of Observations			36		Number of Distinct Observations			28		
15						Number of Missing Observations			0		
16	Minimum			0.0011		Mean			0.0112		
17	Maximum			0.0333		Median			0.0047		
18	SD			0.0105		Std. Error of Mean			0.00175		
19	Coefficient of Variation			0.932		Skewness			0.795		
20											
21	<b>Normal GOF Test</b>										
22	Shapiro Wilk Test Statistic			0.813		<b>Shapiro Wilk GOF Test</b>					
23	5% Shapiro Wilk Critical Value			0.935		Data Not Normal at 5% Significance Level					
24	Lilliefors Test Statistic			0.273		<b>Lilliefors GOF Test</b>					
25	5% Lilliefors Critical Value			0.145		Data Not Normal at 5% Significance Level					
26	<b>Data Not Normal at 5% Significance Level</b>										
27											
28	<b>Assuming Normal Distribution</b>										
29	<b>95% Normal UCL</b>				<b>95% UCLs (Adjusted for Skewness)</b>						
30	95% Student's-t UCL			0.0142		95% Adjusted-CLT UCL (Chen-1995)			0.0144		
31						95% Modified-t UCL (Johnson-1978)			0.0142		
32											
33	<b>Gamma GOF Test</b>										
34	A-D Test Statistic			1.7		<b>Anderson-Darling Gamma GOF Test</b>					
35	5% A-D Critical Value			0.774		Data Not Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic			0.209		<b>Kolmogorov-Smirnov Gamma GOF Test</b>					
37	5% K-S Critical Value			0.151		Data Not Gamma Distributed at 5% Significance Level					
38	<b>Data Not Gamma Distributed at 5% Significance Level</b>										
39											
40	<b>Gamma Statistics</b>										
41	k hat (MLE)			1.128		k star (bias corrected MLE)			1.053		
42	Theta hat (MLE)			0.00996		Theta star (bias corrected MLE)			0.0107		
43	nu hat (MLE)			81.24		nu star (bias corrected)			75.8		
44	MLE Mean (bias corrected)			0.0112		MLE Sd (bias corrected)			0.011		
45						Approximate Chi Square Value (0.05)			56.75		
46	Adjusted Level of Significance			0.0428		Adjusted Chi Square Value			56		
47											
48	<b>Assuming Gamma Distribution</b>										
49	95% Approximate Gamma UCL (use when n>=50))			0.015		95% Adjusted Gamma UCL (use when n<50)			0.0152		
50											
51	<b>Lognormal GOF Test</b>										
52	Shapiro Wilk Test Statistic			0.899		<b>Shapiro Wilk Lognormal GOF Test</b>					
53	5% Shapiro Wilk Critical Value			0.935		Data Not Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic			0.167		<b>Lilliefors Lognormal GOF Test</b>					



A	B	C	D	E	F	G	H	I	J	K	L
55	5% Lilliefors Critical Value			0.145	Data Not Lognormal at 5% Significance Level						
56	<b>Data Not Lognormal at 5% Significance Level</b>										
57											
58	<b>Lognormal Statistics</b>										
59	Minimum of Logged Data			-6.812	Mean of logged Data			-4.993			
60	Maximum of Logged Data			-3.402	SD of logged Data			1.065			
61											
62	<b>Assuming Lognormal Distribution</b>										
63	95% H-UCL			0.0186	90% Chebyshev (MVUE) UCL			0.019			
64	95% Chebyshev (MVUE) UCL			0.0223	97.5% Chebyshev (MVUE) UCL			0.0269			
65	99% Chebyshev (MVUE) UCL			0.0359							
66											
67	<b>Nonparametric Distribution Free UCL Statistics</b>										
68	<b>Data do not follow a Discernible Distribution (0.05)</b>										
69											
70	<b>Nonparametric Distribution Free UCLs</b>										
71	95% CLT UCL			0.0141	95% Jackknife UCL			0.0142			
72	95% Standard Bootstrap UCL			0.014	95% Bootstrap-t UCL			0.0145			
73	95% Hall's Bootstrap UCL			0.0143	95% Percentile Bootstrap UCL			0.0141			
74	95% BCA Bootstrap UCL			0.0144							
75	90% Chebyshev(Mean, Sd) UCL			0.0165	95% Chebyshev(Mean, Sd) UCL			0.0188			
76	97.5% Chebyshev(Mean, Sd) UCL			0.0221	99% Chebyshev(Mean, Sd) UCL			0.0286			
77											
78	<b>Suggested UCL to Use</b>										
79	95% Chebyshev (Mean, Sd) UCL			0.0188							
80											
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.										
82	Recommendations are based upon data size, data distribution, and skewness.										
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).										
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.										
85											
86											
87	<b>PFOS</b>										
88											
89	<b>General Statistics</b>										
90	Total Number of Observations			36	Number of Distinct Observations			36			
91					Number of Missing Observations			0			
92	Minimum			0.0018	Mean			0.0765			
93	Maximum			1.06	Median			0.0263			
94	SD			0.18	Std. Error of Mean			0.0299			
95	Coefficient of Variation			2.348	Skewness			5.026			
96											
97	<b>Normal GOF Test</b>										
98	Shapiro Wilk Test Statistic			0.398	<b>Shapiro Wilk GOF Test</b>						
99	5% Shapiro Wilk Critical Value			0.935	Data Not Normal at 5% Significance Level						
100	Lilliefors Test Statistic			0.348	<b>Lilliefors GOF Test</b>						
101	5% Lilliefors Critical Value			0.145	Data Not Normal at 5% Significance Level						
102	<b>Data Not Normal at 5% Significance Level</b>										
103											
104	<b>Assuming Normal Distribution</b>										
105	<b>95% Normal UCL</b>					<b>95% UCLs (Adjusted for Skewness)</b>					
106	95% Student's-t UCL			0.127	95% Adjusted-CLT UCL (Chen-1995)			0.153			
107					95% Modified-t UCL (Johnson-1978)			0.131			
108											

A	B	C	D	E	F	G	H	I	J	K	L
109	<b>Gamma GOF Test</b>										
110	A-D Test Statistic			1.17		<b>Anderson-Darling Gamma GOF Test</b>					
111	5% A-D Critical Value			0.806		Data Not Gamma Distributed at 5% Significance Level					
112	K-S Test Statistic			0.159		<b>Kolmogorov-Smirnov Gamma GOF Test</b>					
113	5% K-S Critical Value			0.155		Data Not Gamma Distributed at 5% Significance Level					
114	<b>Data Not Gamma Distributed at 5% Significance Level</b>										
115	<b>Gamma Statistics</b>										
117	k hat (MLE)			0.565		k star (bias corrected MLE)			0.537		
118	Theta hat (MLE)			0.135		Theta star (bias corrected MLE)			0.143		
119	nu hat (MLE)			40.71		nu star (bias corrected)			38.65		
120	MLE Mean (bias corrected)			0.0765		MLE Sd (bias corrected)			0.104		
121						Approximate Chi Square Value (0.05)					25.41
122	Adjusted Level of Significance			0.0428		Adjusted Chi Square Value					24.92
123	<b>Assuming Gamma Distribution</b>										
125	95% Approximate Gamma UCL (use when n>=50))			0.116		95% Adjusted Gamma UCL (use when n<50)			0.119		
126	<b>Lognormal GOF Test</b>										
128	Shapiro Wilk Test Statistic			0.967		<b>Shapiro Wilk Lognormal GOF Test</b>					
129	5% Shapiro Wilk Critical Value			0.935		Data appear Lognormal at 5% Significance Level					
130	Lilliefors Test Statistic			0.0796		<b>Lilliefors Lognormal GOF Test</b>					
131	5% Lilliefors Critical Value			0.145		Data appear Lognormal at 5% Significance Level					
132	<b>Data appear Lognormal at 5% Significance Level</b>										
133	<b>Lognormal Statistics</b>										
135	Minimum of Logged Data			-6.32		Mean of logged Data			-3.673		
136	Maximum of Logged Data			0.0583		SD of logged Data			1.501		
137	<b>Assuming Lognormal Distribution</b>										
139	95% H-UCL			0.168		90% Chebyshev (MVUE) UCL			0.145		
140	95% Chebyshev (MVUE) UCL			0.177		97.5% Chebyshev (MVUE) UCL			0.222		
141	99% Chebyshev (MVUE) UCL			0.31							
142	<b>Nonparametric Distribution Free UCL Statistics</b>										
143	<b>Data appear to follow a Discernible Distribution at 5% Significance Level</b>										
144	<b>Nonparametric Distribution Free UCLs</b>										
147	95% CLT UCL			0.126		95% Jackknife UCL			0.127		
148	95% Standard Bootstrap UCL			0.126		95% Bootstrap-t UCL			0.269		
149	95% Hall's Bootstrap UCL			0.324		95% Percentile Bootstrap UCL			0.135		
150	95% BCA Bootstrap UCL			0.16							
151	90% Chebyshev(Mean, Sd) UCL			0.166		95% Chebyshev(Mean, Sd) UCL			0.207		
152	97.5% Chebyshev(Mean, Sd) UCL			0.263		99% Chebyshev(Mean, Sd) UCL			0.374		
153	<b>Suggested UCL to Use</b>										
155	95% Chebyshev (Mean, Sd) UCL			0.207							
156	<b>Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.</b>										
157	Recommendations are based upon data size, data distribution, and skewness.										
158	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).										
159	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.										
160											
161											

DRAFT

**Appendix E – SGS North America Inc. Laboratory Soil Sample Data Reports**



## Laboratory Report of Analysis

To: Restoration Science & Eng  
911 West 8th Ave Suite 100  
Anchorage, AK 99501

Report Number: **1204021**

Client Project: **20-2176 CRW Postmark Bog V2**

Dear Kyle Wiseman,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Chuck at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,  
SGS North America Inc.

---

Chuck Homestead  
Project Manager  
Charles.Homestead@sgs.com

Date

## Case Narrative

SGS Client: **Restoration Science & Eng**  
SGS Project: **1204021**  
Project Name/Site: **20-2176 CRW Postmark Bog V2**  
Project Contact: **Kyle Wiseman**

Refer to sample receipt form for information on sample condition.

### **T1-19A (1204021001) PS**

EPA 537 PFAS was analyzed by SGS of Orlando, FL.

### **T1-31A (1204021007) PS**

AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. The analyte associated with this sample was not detected above the LOQ.

### **T1-33A (1204021009) PS**

AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. The analyte associated with this sample was not detected above the LOQ.

DRAFT

\*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

Print Date: 09/09/2020 1:17:15PM

## Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCC/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

### Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
T1-19A	1204021001	08/06/2020	08/06/2020	Soil/Solid (dry weight)
T1-19B	1204021002	08/06/2020	08/06/2020	Solid/Soil (Wet Weight)
T1-21A	1204021003	08/06/2020	08/06/2020	Solid/Soil (Wet Weight)
T1-21B	1204021004	08/06/2020	08/06/2020	Soil/Solid (dry weight)
T1-29A	1204021005	08/06/2020	08/06/2020	Soil/Solid (dry weight)
T1-29B	1204021006	08/06/2020	08/06/2020	Solid/Soil (Wet Weight)
T1-31A	1204021007	08/06/2020	08/06/2020	Soil/Solid (dry weight)
T1-31B	1204021008	08/06/2020	08/06/2020	Solid/Soil (Wet Weight)
T1-33A	1204021009	08/06/2020	08/06/2020	Soil/Solid (dry weight)
T1-X	1204021010	08/06/2020	08/06/2020	Solid/Soil (Wet Weight)
T1-33B	1204021011	08/06/2020	08/06/2020	Soil/Solid (dry weight)
T1-35A	1204021012	08/06/2020	08/06/2020	Soil/Solid (dry weight)
T1-35B	1204021013	08/06/2020	08/06/2020	Soil/Solid (dry weight)
T1-37A	1204021014	08/06/2020	08/06/2020	Soil/Solid (dry weight)
T1-37B	1204021015	08/06/2020	08/06/2020	Solid/Soil (Wet Weight)
T1-Y	1204021016	08/06/2020	08/06/2020	Soil/Solid (dry weight)
Trip Blank	1204021017	08/06/2020	08/06/2020	Soil/Solid (dry weight)

Method

AK101  
 SW8021B  
 AK102  
 AK103  
 SM21 2540G  
 SW9060A-Mod

Method Description

AK101/8021 Combo. (S)  
 AK101/8021 Combo. (S)  
 Diesel/Residual Range Organics  
 Diesel/Residual Range Organics  
 Percent Solids SM2540G  
 Total Organic Carbon-M in Soil

### Detectable Results Summary

Client Sample ID: **T1-19A**  
 Lab Sample ID: 1204021001  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	682	mg/kg
Residual Range Organics	7680	mg/kg
Total Organic Carbon	37.7	%

**Waters Department**

Client Sample ID: **T1-21B**  
 Lab Sample ID: 1204021004  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	591	mg/kg
Residual Range Organics	7630	mg/kg
Total Organic Carbon	36.3	%

**Waters Department**

Client Sample ID: **T1-29A**  
 Lab Sample ID: 1204021005  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	597	mg/kg
Residual Range Organics	6910	mg/kg
Total Organic Carbon	38.4	%

**Waters Department**

Client Sample ID: **T1-31A**  
 Lab Sample ID: 1204021007  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1080	mg/kg
Residual Range Organics	15700	mg/kg
Gasoline Range Organics	32.5J	mg/Kg
Total Organic Carbon	36.4	%

**Volatile Fuels**

**Waters Department**

Client Sample ID: **T1-33A**  
 Lab Sample ID: 1204021009  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1170	mg/kg
Residual Range Organics	13300	mg/kg
Gasoline Range Organics	20.5J	mg/Kg
Total Organic Carbon	33.2	%

**Volatile Fuels**

**Waters Department**

Client Sample ID: **T1-35A**  
 Lab Sample ID: 1204021012  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	603	mg/kg
Residual Range Organics	7150	mg/kg
Total Organic Carbon	36.9	%

**Waters Department**

Client Sample ID: **T1-37A**  
 Lab Sample ID: 1204021014  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	583	mg/kg
Residual Range Organics	7330	mg/kg
Total Organic Carbon	32.1	%

**Waters Department**

Client Sample ID: **T1-Y**  
 Lab Sample ID: 1204021016  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	690	mg/kg
Residual Range Organics	8090	mg/kg
Total Organic Carbon	37.2	%

**Waters Department**

## Results of T1-19A

Client Sample ID: **T1-19A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021001  
 Lab Project ID: 1204021

Collection Date: 08/06/20 14:55  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):14.2  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	682	140	43.2	mg/kg	1		08/25/20 01:50
<b>Surrogates</b>							
5a Androstane (surr)	96	50-150		%	1		08/25/20 01:50

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 01:50  
 Container ID: 1204021001-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.208 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	7680	698	300	mg/kg	1		08/25/20 01:50
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	94.3	50-150		%	1		08/25/20 01:50

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 01:50  
 Container ID: 1204021001-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.208 g  
 Prep Extract Vol: 5 mL



**Results of T1-19A**

Client Sample ID: **T1-19A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204021001  
Lab Project ID: 1204021

Collection Date: 08/06/20 14:55  
Received Date: 08/06/20 17:24  
Matrix: Soil/Solid (dry weight)  
Solids (%):14.2  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	40.9 U	81.8	24.5	mg/Kg	1		08/11/20 19:57

**Surrogates**

4-Bromofluorobenzene (surr)	93.8	50-150		%	1		08/11/20 19:57
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: AK101  
Analyst: ALJ  
Analytical Date/Time: 08/11/20 19:57  
Container ID: 1204021001-B

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/06/20 14:55  
Prep Initial Wt./Vol.: 16.979 g  
Prep Extract Vol: 39.5617 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	205 U	409	131	ug/kg	1		08/11/20 19:57
Ethylbenzene	409 U	818	255	ug/kg	1		08/11/20 19:57
o-Xylene	409 U	818	255	ug/kg	1		08/11/20 19:57
P & M -Xylene	820 U	1640	491	ug/kg	1		08/11/20 19:57
Toluene	409 U	818	255	ug/kg	1		08/11/20 19:57
Xylenes (total)	1225 U	2450	746	ug/kg	1		08/11/20 19:57

**Surrogates**

1,4-Difluorobenzene (surr)	94.4	72-119		%	1		08/11/20 19:57
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: SW8021B  
Analyst: ALJ  
Analytical Date/Time: 08/11/20 19:57  
Container ID: 1204021001-B

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/06/20 14:55  
Prep Initial Wt./Vol.: 16.979 g  
Prep Extract Vol: 39.5617 mL

## Results of T1-19A

Client Sample ID: **T1-19A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021001  
 Lab Project ID: 1204021

Collection Date: 08/06/20 14:55  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):14.2  
 Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	37.7	1.41	0.422	%	1		08/15/20 11:38

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Analyst: EWW  
 Analytical Date/Time: 08/15/20 11:38  
 Container ID: 1204021001-A

Prep Batch: WXX13402  
 Prep Method: METHOD  
 Prep Date/Time: 08/15/20 10:30  
 Prep Initial Wt./Vol.: 124.8 mg  
 Prep Extract Vol: 1 mL

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## Results of T1-21B

Client Sample ID: **T1-21B**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021004  
 Lab Project ID: 1204021

Collection Date: 08/06/20 12:45  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):13.9  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	591	143	44.4	mg/kg	1		08/25/20 02:00
<b>Surrogates</b>							
5a Androstane (surr)	99.9	50-150		%	1		08/25/20 02:00

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 02:00  
 Container ID: 1204021004-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.156 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	7630	715	308	mg/kg	1		08/25/20 02:00
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	95.5	50-150		%	1		08/25/20 02:00

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 02:00  
 Container ID: 1204021004-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.156 g  
 Prep Extract Vol: 5 mL



**Results of T1-21B**

Client Sample ID: **T1-21B**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204021004  
Lab Project ID: 1204021

Collection Date: 08/06/20 12:45  
Received Date: 08/06/20 17:24  
Matrix: Soil/Solid (dry weight)  
Solids (%):13.9  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	36.6 U	73.3	22.0	mg/Kg	1		08/11/20 20:15

**Surrogates**

4-Bromofluorobenzene (surr)	98.3	50-150		%	1		08/11/20 20:15
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: AK101  
Analyst: ALJ  
Analytical Date/Time: 08/11/20 20:15  
Container ID: 1204021004-B

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/06/20 12:45  
Prep Initial Wt./Vol.: 21.215 g  
Prep Extract Vol: 43.265 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	184 U	367	117	ug/kg	1		08/11/20 20:15
Ethylbenzene	367 U	733	229	ug/kg	1		08/11/20 20:15
o-Xylene	367 U	733	229	ug/kg	1		08/11/20 20:15
P & M -Xylene	735 U	1470	440	ug/kg	1		08/11/20 20:15
Toluene	367 U	733	229	ug/kg	1		08/11/20 20:15
Xylenes (total)	1100 U	2200	669	ug/kg	1		08/11/20 20:15

**Surrogates**

1,4-Difluorobenzene (surr)	96	72-119		%	1		08/11/20 20:15
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: SW8021B  
Analyst: ALJ  
Analytical Date/Time: 08/11/20 20:15  
Container ID: 1204021004-B

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/06/20 12:45  
Prep Initial Wt./Vol.: 21.215 g  
Prep Extract Vol: 43.265 mL

## Results of T1-21B

Client Sample ID: **T1-21B**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021004  
 Lab Project ID: 1204021

Collection Date: 08/06/20 12:45  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):13.9  
 Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	36.3	1.60	0.480	%	1		08/15/20 11:47

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Analyst: EWW  
 Analytical Date/Time: 08/15/20 11:47  
 Container ID: 1204021004-A

Prep Batch: WXX13402  
 Prep Method: METHOD  
 Prep Date/Time: 08/15/20 10:30  
 Prep Initial Wt./Vol.: 112.4 mg  
 Prep Extract Vol: 1 mL

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## Results of T1-29A

Client Sample ID: **T1-29A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021005  
 Lab Project ID: 1204021

Collection Date: 08/06/20 14:00  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):14.4  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	597	139	43.0	mg/kg	1		08/25/20 02:10
<b>Surrogates</b>							
5a Androstane (surr)	96.7	50-150		%	1		08/25/20 02:10

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 02:10  
 Container ID: 1204021005-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.103 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	6910	694	298	mg/kg	1		08/25/20 02:10
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	100	50-150		%	1		08/25/20 02:10

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 02:10  
 Container ID: 1204021005-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.103 g  
 Prep Extract Vol: 5 mL



Results of T1-29A

Client Sample ID: T1-29A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204021005
Lab Project ID: 1204021

Collection Date: 08/06/20 14:00
Received Date: 08/06/20 17:24
Matrix: Soil/Solid (dry weight)
Solids (%):14.4
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 33.0 U, 65.9, 19.8, mg/Kg, 1, 08/11/20 20:33

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 95.4, 50-150, %, 1, 08/11/20 20:33

Batch Information

Analytical Batch: VFC15277
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/11/20 20:33
Container ID: 1204021005-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/06/20 14:00
Prep Initial Wt./Vol.: 24.117 g
Prep Extract Vol: 45.6537 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 94.6, 72-119, %, 1, 08/11/20 20:33

Batch Information

Analytical Batch: VFC15277
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/11/20 20:33
Container ID: 1204021005-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/06/20 14:00
Prep Initial Wt./Vol.: 24.117 g
Prep Extract Vol: 45.6537 mL

## Results of T1-29A

Client Sample ID: **T1-29A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204021005  
Lab Project ID: 1204021

Collection Date: 08/06/20 14:00  
Received Date: 08/06/20 17:24  
Matrix: Soil/Solid (dry weight)  
Solids (%):14.4  
Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	38.4	1.57	0.470	%	1		08/15/20 11:57

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 11:57  
Container ID: 1204021005-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 111.2 mg  
Prep Extract Vol: 1 mL

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## Results of T1-31A

Client Sample ID: **T1-31A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021007  
 Lab Project ID: 1204021

Collection Date: 08/06/20 10:35  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):17.4  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1080	114	35.4	mg/kg	1		08/25/20 02:20
<b>Surrogates</b>							
5a Androstane (surr)	103	50-150		%	1		08/25/20 02:20

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 02:20  
 Container ID: 1204021007-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.249 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	15700	570	245	mg/kg	1		08/25/20 02:20
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	88.8	50-150		%	1		08/25/20 02:20

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 02:20  
 Container ID: 1204021007-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.249 g  
 Prep Extract Vol: 5 mL



**Results of T1-31A**

Client Sample ID: **T1-31A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204021007  
Lab Project ID: 1204021

Collection Date: 08/06/20 10:35  
Received Date: 08/06/20 17:24  
Matrix: Soil/Solid (dry weight)  
Solids (%):17.4  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	32.5 J	95.5	28.6	mg/Kg	1		08/11/20 20:51

**Surrogates**

4-Bromofluorobenzene (surr)	151 *	50-150		%	1		08/11/20 20:51
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: AK101  
Analyst: ALJ  
Analytical Date/Time: 08/11/20 20:51  
Container ID: 1204021007-B

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/06/20 10:35  
Prep Initial Wt./Vol.: 20.044 g  
Prep Extract Vol: 66.5577 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	239 U	477	153	ug/kg	1		08/11/20 20:51
Ethylbenzene	478 U	955	298	ug/kg	1		08/11/20 20:51
o-Xylene	478 U	955	298	ug/kg	1		08/11/20 20:51
P & M -Xylene	955 U	1910	573	ug/kg	1		08/11/20 20:51
Toluene	478 U	955	298	ug/kg	1		08/11/20 20:51
Xylenes (total)	1430 U	2860	871	ug/kg	1		08/11/20 20:51

**Surrogates**

1,4-Difluorobenzene (surr)	95.2	72-119		%	1		08/11/20 20:51
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: SW8021B  
Analyst: ALJ  
Analytical Date/Time: 08/11/20 20:51  
Container ID: 1204021007-B

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/06/20 10:35  
Prep Initial Wt./Vol.: 20.044 g  
Prep Extract Vol: 66.5577 mL



## Results of T1-31A

Client Sample ID: **T1-31A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204021007  
Lab Project ID: 1204021

Collection Date: 08/06/20 10:35  
Received Date: 08/06/20 17:24  
Matrix: Soil/Solid (dry weight)  
Solids (%):17.4  
Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	36.4	1.54	0.462	%	1		08/15/20 12:08

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 12:08  
Container ID: 1204021007-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 93.4 mg  
Prep Extract Vol: 1 mL

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## Results of T1-33A

Client Sample ID: **T1-33A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021009  
 Lab Project ID: 1204021

Collection Date: 08/06/20 09:15  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):27.3  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1170	73.1	22.7	mg/kg	1		08/25/20 02:30
<b>Surrogates</b>							
5a Androstane (surr)	96.1	50-150		%	1		08/25/20 02:30

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 02:30  
 Container ID: 1204021009-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.077 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	13300	365	157	mg/kg	1		08/25/20 02:30
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	80.2	50-150		%	1		08/25/20 02:30

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 02:30  
 Container ID: 1204021009-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.077 g  
 Prep Extract Vol: 5 mL



Results of T1-33A

Client Sample ID: T1-33A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204021009
Lab Project ID: 1204021

Collection Date: 08/06/20 09:15
Received Date: 08/06/20 17:24
Matrix: Soil/Solid (dry weight)
Solids (%):27.3
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 20.5 J, 44.4, 13.3, mg/Kg, 1, 08/11/20 21:09

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 187 \*, 50-150, %, 1, 08/11/20 21:09

Batch Information

Analytical Batch: VFC15277
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/11/20 21:09
Container ID: 1204021009-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/06/20 09:15
Prep Initial Wt./Vol.: 29.443 g
Prep Extract Vol: 71.4044 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 94.9, 72-119, %, 1, 08/11/20 21:09

Batch Information

Analytical Batch: VFC15277
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/11/20 21:09
Container ID: 1204021009-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/06/20 09:15
Prep Initial Wt./Vol.: 29.443 g
Prep Extract Vol: 71.4044 mL

## Results of T1-33A

Client Sample ID: **T1-33A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021009  
 Lab Project ID: 1204021

Collection Date: 08/06/20 09:15  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):27.3  
 Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	33.2	1.04	0.313	%	1		08/15/20 12:18

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Analyst: EWW  
 Analytical Date/Time: 08/15/20 12:18  
 Container ID: 1204021009-A

Prep Batch: WXX13402  
 Prep Method: METHOD  
 Prep Date/Time: 08/15/20 10:30  
 Prep Initial Wt./Vol.: 87.9 mg  
 Prep Extract Vol: 1 mL

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Results of T1-35A

Client Sample ID: T1-35A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204021012
Lab Project ID: 1204021

Collection Date: 08/06/20 11:40
Received Date: 08/06/20 17:24
Matrix: Soil/Solid (dry weight)
Solids (%):23.9
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane (surr)).

Batch Information

Analytical Batch: XFC15707
Analytical Method: AK102
Analyst: CDM
Analytical Date/Time: 08/25/20 02:40
Container ID: 1204021012-A

Prep Batch: XXX43674
Prep Method: SW3550C
Prep Date/Time: 08/18/20 07:30
Prep Initial Wt./Vol.: 30.082 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62 (surr)).

Batch Information

Analytical Batch: XFC15707
Analytical Method: AK103
Analyst: CDM
Analytical Date/Time: 08/25/20 02:40
Container ID: 1204021012-A

Prep Batch: XXX43674
Prep Method: SW3550C
Prep Date/Time: 08/18/20 07:30
Prep Initial Wt./Vol.: 30.082 g
Prep Extract Vol: 5 mL



Results of T1-35A

Client Sample ID: T1-35A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204021012
Lab Project ID: 1204021

Collection Date: 08/06/20 11:40
Received Date: 08/06/20 17:24
Matrix: Soil/Solid (dry weight)
Solids (%):23.9
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Includes Gasoline Range Organics and Surrogates (4-Bromofluorobenzene).

Batch Information

Analytical Batch: VFC15277
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/11/20 21:27
Container ID: 1204021012-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/06/20 11:40
Prep Initial Wt./Vol.: 10.735 g
Prep Extract Vol: 58.1738 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various aromatic hydrocarbons like Benzene, Ethylbenzene, Xylenes, and Toluene, plus a surrogate.

Batch Information

Analytical Batch: VFC15277
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/11/20 21:27
Container ID: 1204021012-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/06/20 11:40
Prep Initial Wt./Vol.: 10.735 g
Prep Extract Vol: 58.1738 mL

## Results of T1-35A

Client Sample ID: **T1-35A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204021012  
Lab Project ID: 1204021

Collection Date: 08/06/20 11:40  
Received Date: 08/06/20 17:24  
Matrix: Soil/Solid (dry weight)  
Solids (%):23.9  
Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	36.9	1.06	0.319	%	1		08/15/20 12:26

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 12:26  
Container ID: 1204021012-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 98.4 mg  
Prep Extract Vol: 1 mL

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### Results of T1-37A

Client Sample ID: **T1-37A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021014  
 Lab Project ID: 1204021

Collection Date: 08/06/20 13:20  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):26.1  
 Location:

### Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	583	76.0	23.6	mg/kg	1		08/25/20 02:51
<b>Surrogates</b>							
5a Androstane (surr)	91.5	50-150		%	1		08/25/20 02:51

### Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 02:51  
 Container ID: 1204021014-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.257 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	7330	380	164	mg/kg	1		08/25/20 02:51
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	76.7	50-150		%	1		08/25/20 02:51

### Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/25/20 02:51  
 Container ID: 1204021014-A

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/20 07:30  
 Prep Initial Wt./Vol.: 30.257 g  
 Prep Extract Vol: 5 mL



### Results of T1-37A

Client Sample ID: **T1-37A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021014  
 Lab Project ID: 1204021

Collection Date: 08/06/20 13:20  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):26.1  
 Location:

### Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	37.1 U	74.3	22.3	mg/Kg	1		08/11/20 21:46

### Surrogates

4-Bromofluorobenzene (surr)	139	50-150		%	1		08/11/20 21:46
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### Batch Information

Analytical Batch: VFC15277  
 Analytical Method: AK101  
 Analyst: ALJ  
 Analytical Date/Time: 08/11/20 21:46  
 Container ID: 1204021014-B

Prep Batch: VXX36101  
 Prep Method: SW5035A  
 Prep Date/Time: 08/06/20 13:20  
 Prep Initial Wt./Vol.: 15.954 g  
 Prep Extract Vol: 61.7938 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	186 U	371	119	ug/kg	1		08/11/20 21:46
Ethylbenzene	372 U	743	232	ug/kg	1		08/11/20 21:46
o-Xylene	372 U	743	232	ug/kg	1		08/11/20 21:46
P & M -Xylene	745 U	1490	446	ug/kg	1		08/11/20 21:46
Toluene	372 U	743	232	ug/kg	1		08/11/20 21:46
Xylenes (total)	1115 U	2230	677	ug/kg	1		08/11/20 21:46

### Surrogates

1,4-Difluorobenzene (surr)	96.3	72-119		%	1		08/11/20 21:46
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### Batch Information

Analytical Batch: VFC15277  
 Analytical Method: SW8021B  
 Analyst: ALJ  
 Analytical Date/Time: 08/11/20 21:46  
 Container ID: 1204021014-B

Prep Batch: VXX36101  
 Prep Method: SW5035A  
 Prep Date/Time: 08/06/20 13:20  
 Prep Initial Wt./Vol.: 15.954 g  
 Prep Extract Vol: 61.7938 mL

## Results of T1-37A

Client Sample ID: **T1-37A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021014  
 Lab Project ID: 1204021

Collection Date: 08/06/20 13:20  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):26.1  
 Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	32.1	1.89	0.566	%	1		08/15/20 12:36

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Analyst: EWW  
 Analytical Date/Time: 08/15/20 12:36  
 Container ID: 1204021014-A

Prep Batch: WXX13402  
 Prep Method: METHOD  
 Prep Date/Time: 08/15/20 10:30  
 Prep Initial Wt./Vol.: 50.8 mg  
 Prep Extract Vol: 1 mL

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Results of T1-Y

Client Sample ID: T1-Y
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204021016
Lab Project ID: 1204021

Collection Date: 08/06/20 15:00
Received Date: 08/06/20 17:24
Matrix: Soil/Solid (dry weight)
Solids (%):14.3
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15711
Analytical Method: AK102
Analyst: CDM
Analytical Date/Time: 08/31/20 09:06
Container ID: 1204021016-A

Prep Batch: XXX43674
Prep Method: SW3550C
Prep Date/Time: 08/18/20 07:30
Prep Initial Wt./Vol.: 30.402 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15711
Analytical Method: AK103
Analyst: CDM
Analytical Date/Time: 08/31/20 09:06
Container ID: 1204021016-A

Prep Batch: XXX43674
Prep Method: SW3550C
Prep Date/Time: 08/18/20 07:30
Prep Initial Wt./Vol.: 30.402 g
Prep Extract Vol: 5 mL



Results of T1-Y

Client Sample ID: T1-Y
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204021016
Lab Project ID: 1204021

Collection Date: 08/06/20 15:00
Received Date: 08/06/20 17:24
Matrix: Soil/Solid (dry weight)
Solids (%):14.3
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 23.8 U, 47.5, 14.2, mg/Kg, 1, 08/11/20 22:04

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 86, 50-150, %, 1, 08/11/20 22:04

Batch Information

Analytical Batch: VFC15277
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/11/20 22:04
Container ID: 1204021016-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/06/20 15:00
Prep Initial Wt./Vol.: 49.804 g
Prep Extract Vol: 67.6753 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 94.2, 72-119, %, 1, 08/11/20 22:04

Batch Information

Analytical Batch: VFC15277
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/11/20 22:04
Container ID: 1204021016-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/06/20 15:00
Prep Initial Wt./Vol.: 49.804 g
Prep Extract Vol: 67.6753 mL

## Results of T1-Y

Client Sample ID: **T1-Y**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204021016  
 Lab Project ID: 1204021

Collection Date: 08/06/20 15:00  
 Received Date: 08/06/20 17:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):14.3  
 Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	37.2	3.61	1.08	%	1		08/15/20 13:10

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Analyst: EWW  
 Analytical Date/Time: 08/15/20 13:10  
 Container ID: 1204021016-A

Prep Batch: WXX13402  
 Prep Method: METHOD  
 Prep Date/Time: 08/15/20 10:30  
 Prep Initial Wt./Vol.: 48.4 mg  
 Prep Extract Vol: 1 mL

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**Results of Trip Blank**

Client Sample ID: **Trip Blank**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204021017  
Lab Project ID: 1204021

Collection Date: 08/06/20 09:15  
Received Date: 08/06/20 17:24  
Matrix: Soil/Solid (dry weight)  
Solids (%):  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	4.39 U	8.79	2.64	mg/Kg	1		08/11/20 22:22

**Surrogates**

4-Bromofluorobenzene (surr)	115	50-150		%	1		08/11/20 22:22
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: AK101  
Analyst: ALJ  
Analytical Date/Time: 08/11/20 22:22  
Container ID: 1204021017-A

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/06/20 09:15  
Prep Initial Wt./Vol.: 14.223 g  
Prep Extract Vol: 25 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	21.9 U	43.9	14.1	ug/kg	1		08/11/20 22:22
Ethylbenzene	44.0 U	87.9	27.4	ug/kg	1		08/11/20 22:22
o-Xylene	44.0 U	87.9	27.4	ug/kg	1		08/11/20 22:22
P & M -Xylene	88.0 U	176	52.7	ug/kg	1		08/11/20 22:22
Toluene	44.0 U	87.9	27.4	ug/kg	1		08/11/20 22:22
Xylenes (total)	132 U	264	80.2	ug/kg	1		08/11/20 22:22

**Surrogates**

1,4-Difluorobenzene (surr)	94.6	72-119		%	1		08/11/20 22:22
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: SW8021B  
Analyst: ALJ  
Analytical Date/Time: 08/11/20 22:22  
Container ID: 1204021017-A

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/06/20 09:15  
Prep Initial Wt./Vol.: 14.223 g  
Prep Extract Vol: 25 mL



## Method Blank

Blank ID: MB for HBN 1810423 [SPT/11106]  
Blank Lab ID: 1575293

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

## Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

## Batch Information

Analytical Batch: SPT11106  
Analytical Method: SM21 2540G  
Instrument:  
Analyst: H.M  
Analytical Date/Time: 8/17/2020 5:18:00PM

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## Duplicate Sample Summary

Original Sample ID: 1204181008

Duplicate Sample ID: 1575294

QC for Samples:

1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

Analysis Date: 08/17/2020 17:18

Matrix: Soil/Solid (dry weight)

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	83.9	84.0	%	0.12	(< 15 )

## Batch Information

Analytical Batch: SPT11106

Analytical Method: SM21 2540G

Instrument:

Analyst: H.M

DRAFT

Print Date: 09/09/2020 1:17:26PM

## Method Blank

Blank ID: MB for HBN 1810178 [VXX/36101]  
Blank Lab ID: 1574160

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016, 1204021017

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	87	50-150		%

## Batch Information

Analytical Batch: VFC15277  
Analytical Method: AK101  
Instrument: Agilent 7890A PID/FID  
Analyst: ALJ  
Analytical Date/Time: 8/11/2020 5:51:00PM

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 8/11/2020 6:00:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

DRAFT

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204021 [VXX36101]  
 Blank Spike Lab ID: 1574161  
 Date Analyzed: 08/11/2020 16:39

Spike Duplicate ID: LCSD for HBN 1204021 [VXX36101]  
 Spike Duplicate Lab ID: 1574162  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016, 1204021017

## Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	13.3	107	12.5	13.5	108	( 60-120 )	1.10	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene (surr)	1.25	90.3	90	1.25	92	92	( 50-150 )	1.90	

## Batch Information

Analytical Batch: VFC15277  
 Analytical Method: AK101  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ

Prep Batch: VXX36101  
 Prep Method: SW5035A  
 Prep Date/Time: 08/11/2020 06:00  
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

DRAFT

## Method Blank

Blank ID: MB for HBN 1810178 [VXX/36101]  
 Blank Lab ID: 1574160

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016, 1204021017

## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	6.25U	12.5	4.00	ug/kg
Ethylbenzene	12.5U	25.0	7.80	ug/kg
o-Xylene	12.5U	25.0	7.80	ug/kg
P & M -Xylene	25.0U	50.0	15.0	ug/kg
Toluene	12.5U	25.0	7.80	ug/kg
Xylenes (total)	37.5U	75.0	22.8	ug/kg
<b>Surrogates</b>				
1,4-Difluorobenzene (surr)	98.4	72-119		%

## Batch Information

Analytical Batch: VFC15277  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ  
 Analytical Date/Time: 8/11/2020 5:51:00PM

Prep Batch: VXX36101  
 Prep Method: SW5035A  
 Prep Date/Time: 8/11/2020 6:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL

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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204021 [VXX36101]  
 Blank Spike Lab ID: 1574163  
 Date Analyzed: 08/11/2020 17:15

Spike Duplicate ID: LCSD for HBN 1204021 [VXX36101]  
 Spike Duplicate Lab ID: 1574164  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016, 1204021017

## Results by SW8021B

Parameter	Blank Spike (ug/kg)			Spike Duplicate (ug/kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1250	1360	109	1250	1340	107	( 75-125 )	2.20	(< 20 )
Ethylbenzene	1250	1140	91	1250	1130	91	( 75-125 )	0.57	(< 20 )
o-Xylene	1250	1160	93	1250	1140	91	( 75-125 )	1.40	(< 20 )
P & M -Xylene	2500	2280	91	2500	2260	90	( 80-125 )	1.00	(< 20 )
Toluene	1250	1190	96	1250	1200	96	( 70-125 )	0.65	(< 20 )
Xylenes (total)	3750	3440	92	3750	3400	91	( 78-124 )	1.10	(< 20 )
<b>Surrogates</b>									
1,4-Difluorobenzene (surr)	1250	104	104	1250	103	103	( 72-119 )	0.23	

## Batch Information

Analytical Batch: VFC15277  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ

Prep Batch: VXX36101  
 Prep Method: SW5035A  
 Prep Date/Time: 08/11/2020 06:00  
 Spike Init Wt./Vol.: 1250 ug/kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 1250 ug/kg Extract Vol: 25 mL

DRAFT

## Matrix Spike Summary

Original Sample ID: 1204053004  
 MS Sample ID: 1574165 MS  
 MSD Sample ID: 1574166 MSD

Analysis Date: 08/11/2020 18:27  
 Analysis Date: 08/11/2020 18:45  
 Analysis Date: 08/11/2020 19:03  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016, 1204021017

## Results by SW8021B

Parameter	Sample	Matrix Spike (ug/kg)			Spike Duplicate (ug/kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	7.25J	772	843	108	772	848	109	75-125	0.66	(< 20 )
Ethylbenzene	24.6	772	765	96	772	777	98	75-125	1.60	(< 20 )
o-Xylene	47.9	772	762	92	772	766	93	75-125	0.61	(< 20 )
P & M -Xylene	163	1546	1609	94	1546	1630	95	80-125	1.30	(< 20 )
Toluene	115	772	863	97	772	887	100	70-125	2.70	(< 20 )
Xylenes (total)	211	2320	2372	93	2320	2393	94	78-124	1.10	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene (surr)		772	773	100	772	770	100	72-119	0.32	

## Batch Information

Analytical Batch: VFC15277  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ  
 Analytical Date/Time: 8/11/2020 6:45:00PM

Prep Batch: VXX36101  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 8/11/2020 6:00:00AM  
 Prep Initial Wt./Vol.: 84.54g  
 Prep Extract Vol: 25.00mL



## Method Blank

Blank ID: MB for HBN 1810348 [WXX/13402]  
Blank Lab ID: 1574906

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

## Results by SW9060A-Mod

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Organic Carbon	0.0250U	0.0500	0.0150	%

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Instrument: TOC Analyzer 2  
Analyst: EWW  
Analytical Date/Time: 8/15/2020 11:06:25AM

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 8/15/2020 10:30:00AM  
Prep Initial Wt./Vol.: 500 mg  
Prep Extract Vol: 1 mL

DRAFT

## Method Blank

Blank ID: MB for HBN 1810348 [WXX/13402]  
Blank Lab ID: 1574911

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

## Results by SW9060A-Mod

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Organic Carbon	0.0250U	0.0500	0.0150	%

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Instrument: TOC Analyzer 2  
Analyst: EWW  
Analytical Date/Time: 8/15/2020 2:44:42PM

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 8/15/2020 10:30:00AM  
Prep Initial Wt./Vol.: 500 mg  
Prep Extract Vol: 1 mL

DRAFT

Print Date: 09/09/2020 1:17:39PM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204021 [WXX13402]  
 Blank Spike Lab ID: 1574907  
 Date Analyzed: 08/15/2020 11:19

Spike Duplicate ID: LCSD for HBN 1204021 [WXX13402]  
 Spike Duplicate Lab ID: 1574908  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

## Results by SW9060A-Mod

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	3.35	3.23	96	3.35	3.22	96	( 75-125 )	0.31	(< 25 )

## Batch Information

Analytical Batch: **WTC3027**  
 Analytical Method: **SW9060A-Mod**  
 Instrument: **TOC Analyzer 2**  
 Analyst: **EWV**

Prep Batch: **WXX13402**  
 Prep Method: **METHOD**  
 Prep Date/Time: **08/15/2020 10:30**  
 Spike Init Wt./Vol.: 3.35 % Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 3.35 % Extract Vol: 1 mL

DRAFT

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204021 [WXX13402]  
 Blank Spike Lab ID: 1574912  
 Date Analyzed: 08/15/2020 14:59

Spike Duplicate ID: LCSD for HBN 1204021 [WXX13402]  
 Spike Duplicate Lab ID: 1574913  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

## Results by SW9060A-Mod

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	3.35	3.21	96	3.35	3.18	95	( 75-125 )	0.94	(< 25 )

## Batch Information

Analytical Batch: **WTC3027**  
 Analytical Method: **SW9060A-Mod**  
 Instrument: **TOC Analyzer 2**  
 Analyst: **EWV**

Prep Batch: **WXX13402**  
 Prep Method: **METHOD**  
 Prep Date/Time: **08/15/2020 10:30**  
 Spike Init Wt./Vol.: 3.35 % Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 3.35 % Extract Vol: 1 mL

DRAFT

## Matrix Spike Summary

Original Sample ID: 1204021014  
 MS Sample ID: 1574909 MS  
 MSD Sample ID:

Analysis Date: 08/15/2020 12:36  
 Analysis Date: 08/15/2020 12:43  
 Analysis Date:  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

## Results by SW9060A-Mod

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	32.1	7.20	41.0	123				75-125		

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Instrument: TOC Analyzer 2  
 Analyst: EWW  
 Analytical Date/Time: 8/15/2020 12:43:57PM

Prep Batch: WXX13402  
 Prep Method: TOC Soils Prep (S)  
 Prep Date/Time: 8/15/2020 10:30:00AM  
 Prep Initial Wt./Vol.: 53.10mg  
 Prep Extract Vol: 1.00mL

DRAFT

## Matrix Spike Summary

Original Sample ID: 1204046001  
 MS Sample ID: 1574910 MS  
 MSD Sample ID:

Analysis Date: 08/15/2020 13:17  
 Analysis Date: 08/15/2020 13:26  
 Analysis Date:  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204021016

## Results by SW9060A-Mod

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	33.8	4.98	40.5	130 *				75-125		

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Instrument: TOC Analyzer 2  
 Analyst: EWW  
 Analytical Date/Time: 8/15/2020 1:26:17PM

Prep Batch: WXX13402  
 Prep Method: TOC Soils Prep (S)  
 Prep Date/Time: 8/15/2020 10:30:00AM  
 Prep Initial Wt./Vol.: 71.80mg  
 Prep Extract Vol: 1.00mL

DRAFT

## Method Blank

Blank ID: MB for HBN 1810422 [XXX/43674]  
Blank Lab ID: 1575290

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/kg
<b>Surrogates</b>				
5a Androstane (surr)	98.9	60-120		%

## Batch Information

Analytical Batch: XFC15707  
Analytical Method: AK102  
Instrument: Agilent 7890B R  
Analyst: CDM  
Analytical Date/Time: 8/24/2020 11:59:00PM

Prep Batch: XXX43674  
Prep Method: SW3550C  
Prep Date/Time: 8/18/2020 7:30:24AM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 5 mL

DRAFT

Print Date: 09/09/2020 1:17:43PM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204021 [XXX43674]  
 Blank Spike Lab ID: 1575291  
 Date Analyzed: 08/25/2020 00:09

Spike Duplicate ID: LCSD for HBN 1204021  
 [XXX43674]  
 Spike Duplicate Lab ID: 1575292  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

## Results by AK102

Parameter	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	833	632	76	833	636	76	( 75-125 )	0.72	(< 20 )
<b>Surrogates</b>									
5a Androstane (surr)	16.7	98.5	99	16.7	99.7	100	( 60-120 )	1.10	

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK102  
 Instrument: Agilent 7890B R  
 Analyst: CDM

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/2020 07:30  
 Spike Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL

DRAFT



## Method Blank

Blank ID: MB for HBN 1810422 [XXX/43674]  
Blank Lab ID: 1575290

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

## Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	50.0U	100	43.0	mg/kg
<b>Surrogates</b>				
n-Triacontane-d62 (surr)	113	60-120		%

## Batch Information

Analytical Batch: XFC15707  
Analytical Method: AK103  
Instrument: Agilent 7890B R  
Analyst: CDM  
Analytical Date/Time: 8/24/2020 11:59:00PM

Prep Batch: XXX43674  
Prep Method: SW3550C  
Prep Date/Time: 8/18/2020 7:30:24AM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 5 mL

DRAFT

Print Date: 09/09/2020 1:17:48PM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204021 [XXX43674]  
 Blank Spike Lab ID: 1575291  
 Date Analyzed: 08/25/2020 00:09

Spike Duplicate ID: LCSD for HBN 1204021 [XXX43674]  
 Spike Duplicate Lab ID: 1575292  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204021001, 1204021004, 1204021005, 1204021007, 1204021009, 1204021012, 1204021014, 1204021016

## Results by AK103

Parameter	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)			CL	RPD (%)	RPD CL	
	Spike	Result	Rec (%)	Spike	Result	Rec (%)				
Residual Range Organics	833	637	76	833	641	77	( 60-120 )	0.60	(< 20 )	
<b>Surrogates</b>										
n-Triacontane-d62 (surr)	16.7	99.3	99	16.7	106	106	( 60-120 )	6.60		

## Batch Information

Analytical Batch: XFC15707  
 Analytical Method: AK103  
 Instrument: Agilent 7890B R  
 Analyst: CDM

Prep Batch: XXX43674  
 Prep Method: SW3550C  
 Prep Date/Time: 08/18/2020 07:30  
 Spike Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL

DRAFT



SGS North America Inc.  
CHAIN OF CUSTODY RECORD

1204021



www.us.sgs.com

CLIENT: **RSE**  
INSTRUCTIONS: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

CONTACT: Kyle Wiseman  
PHONE #: 278-1023  
PROJECT/ PWSID/ PERMIT#: CPW Postmark- 20-2176  
NAME: BOG V2  
REPORTS TO: RSE  
E-MAIL: kwise@nrc.restorci.com  
Profile #: 3410919M  
QUOTE #: RSE  
INVOICE TO: RSE  
P.O. #:

Section 3  
Section 4  
Section 5

Section 3  
Section 4  
Section 5

Preservative  
Name  
Date  
Analysis\*  
NOTE: \*The following analyses require specific method and/or compound list: BTEX, Metals, PFAS

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX CODE	Comp Grab MI (Multi-incremental)	Section 3	Section 4	Section 5	REMARKS/LOC ID
(1A)	T1-19A	8/6/2020	14:55	SOIL	G	X	X	X	
(2A)	T1-19B	8/6/2020	15:15	SOIL	G	X	X	X	
(3A)	T1-21A	8/6/2020	12:35	SOIL	G	X	X	X	
(4A)	T1-21B	8/6/2020	12:45	SOIL	G	X	X	X	
(5A)	T1-29A	8/6/2020	14:00	SOIL	G	X	X	X	
(6A)	T1-29B	8/6/2020	14:20	SOIL	G	X	X	X	
(7A)	T1-31A	8/6/2020	10:35	SOIL	G	X	X	X	
(8A)	T1-31B	8/6/2020	11:00	SOIL	G	X	X	X	
(9A)	T1-33A	8/6/2020	9:15	SOIL	G	X	X	X	
(10A)	T1-X	8/6/2020	14:57	SOIL	G	X	X	X	

Relinquished By: (1) [Signature]  
Relinquished By: (2) [Signature]  
Relinquished By: (3)  
Relinquished By: (4)

Received By: [Signature]  
Received By: [Signature]  
Received By: [Signature]  
Received For Laboratory By: [Signature]

Temp Blank °C: 11.4 DSD  
or Ambient [ ]  
Chain of Custody Seal: (Circle) INTACT BROKEN  
Delivery Method: Hand Delivery [ ] Commercial Delivery [ ]

http://www.sgs.com/terms-and-conditions



SGS North America Inc.  
CHAIN OF CUSTODY RECORD

1204021



www.us.sgs.com

**CLIENT:** RSE  
**CONTACT:** Kyle Wrenon  
**PHONE #:** 278-1623  
**PROJECT/ PWSID/ PERMIT#:** CRW Postmark Bog VZ  
**E-MAIL:** kwiseman@restorsci.com  
**Profile #:**  
**QUOTE #:**  
**P.O. #:**

**REPORTS TO:** RSE  
**INVOICE TO:** RSE

**RESERVED for lab use**

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX CODE	CONTAINERS						REMARKS/LOC ID	
					Comp Grab	MI (Multi-Incremental)	Analysis*	Section 3	Section 4	Section 5		Section 6
(11A)	T1-33B	8/6/2020	9:45	SOIL	3	X	X	X	X	X	X	DR, PRO, TOC
(12A)	T1-35A	8/6/2020	11:40	SOIL	3	X	X	X	X	X	X	DR, PRO, TOC
(13A)	T1-35B	8/6/2020	11:50	SOIL	3	X	X	X	X	X	X	DR, PRO, TOC
(14A)	T1-37A	8/6/2020	13:20	SOIL	3	X	X	X	X	X	X	DR, PRO, TOC
(15A)	T1-37B	8/6/2020	13:35	SOIL	3	X	X	X	X	X	X	DR, PRO, TOC
(16A)	T1-Y	8/6/2020	15:00	SOIL	2	X	X	X	X	X	X	DR, PRO, TOC
(17A)												

**NOTE:** \*The following analyses require specific method and/or compound list: BTEX, Metals, PFAS

**Instructions:** Sections 1-7 out. Omissions may delay the onset of analysis.

**Section 3** Preservative

**Section 4** DOD Project? Yes No

**Section 5** Relinquished By: (1) [Signature] Date: 8/6/2020 Time: 17:24

**Section 6** Relinquished By: (2)

**Section 7** Relinquished By: (3)

**Section 8** Relinquished By: (4)

**Temp Blank °C:** 1.4 D50  
**or Ambient [ ]**

**Chain of Custody Seal: (Circle)** INTACT **BROKEN** **ABSENT**

**Delivery Method: Hand Delivery [ ] Commercial Delivery [ ]**

**Requested Turnaround Time and/or Special Instructions:**

**Relinquished By: (1)** [Signature] Date: 8/6/2020 Time: 17:24

**Relinquished By: (2)**

**Relinquished By: (3)**

**Relinquished By: (4)** [Signature] Date: 8/6/2020 Time: 17:24

**Received By:**

**Received For Laboratory By:** [Signature]



e-Sample Receipt Form

SGS Workorder #:

1204021



1 2 0 4 0 2 1

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
<b>Chain of Custody / Temperature Requirements</b>		<b>Yes</b> Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	absent
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
<b>Yes</b> **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	No	Cooler ID: 1 @ 11.4 °C Therm. ID: D50
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		
*If >6°C, were samples collected <8 hours ago?	Yes	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
<b>Holding Time / Documentation / Sample Condition Requirements</b>		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples match COC** (i.e., sample IDs, dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
Were proper containers (type/mass/volume/preservative***) used?	Yes	N/A ***Exemption permitted for metals (e.g,200.8/6020A).
<b>Volatile / LL-Hg Requirements</b>		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	Yes	
<b>Note to Client:</b> Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		



### Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1204021001-A	No Preservative Required	OK			
1204021001-B	Methanol field pres. 4 C	OK			
1204021001-C	No Preservative Required	OK			
1204021002-A	No Preservative Required	OK			
1204021003-A	No Preservative Required	OK			
1204021003-B	Methanol field pres. 4 C	OK			
1204021003-C	No Preservative Required	OK			
1204021004-A	No Preservative Required	OK			
1204021004-B	Methanol field pres. 4 C	OK			
1204021004-C	No Preservative Required	OK			
1204021005-A	No Preservative Required	OK			
1204021005-B	Methanol field pres. 4 C	OK			
1204021005-C	No Preservative Required	OK			
1204021006-A	No Preservative Required	OK			
1204021007-A	No Preservative Required	OK			
1204021007-B	2x Methanol field pres. 4 C	OK			
1204021007-C	No Preservative Required	OK			
1204021008-A	No Preservative Required	OK			
1204021008-B	Methanol field pres. 4 C	OK			
1204021008-C	No Preservative Required	OK			
1204021009-A	No Preservative Required	OK			
1204021009-B	2x Methanol field pres. 4 C	OK			
1204021009-C	No Preservative Required	OK			
1204021010-A	No Preservative Required	OK			
1204021011-A	No Preservative Required	OK			
1204021011-B	Methanol field pres. 4 C	OK			
1204021011-C	No Preservative Required	OK			
1204021012-A	No Preservative Required	OK			
1204021012-B	2x Methanol field pres. 4 C	OK			
1204021012-C	No Preservative Required	OK			
1204021013-A	No Preservative Required	OK			
1204021013-B	Methanol field pres. 4 C	OK			
1204021013-C	No Preservative Required	OK			
1204021014-A	No Preservative Required	OK			
1204021014-B	2x Methanol field pres. 4 C	OK			
1204021014-C	No Preservative Required	OK			
1204021015-A	No Preservative Required	OK			
1204021015-B	Methanol field pres. 4 C	OK			
1204021015-C	No Preservative Required	OK			
1204021016-A	No Preservative Required	OK			
1204021016-B	Methanol field pres. 4 C	OK			
1204021017-A	Methanol field pres. 4 C	OK			

DRAFT

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

QN - Insufficient sample quantity provided.

The results set forth herein are provided by SGS North America Inc.

*e-Hardcopy 2.0*  
*Automated Report*

## Technical Report for

**SGS North America, Inc**

**1204021**

**SGS Job Number: FA77717**

**Sampling Date: 08/06/20**

### Report to:

**SGS North America, Inc  
200 W Potter Dr  
Anchorage, AK 99518  
julie.shumway@sgs.com**

**ATTN: Julie Shumway**

**Total number of pages in report: 63**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

A handwritten signature in black ink, appearing to read "Norm Farmer".

**Norm Farmer**  
**Technical Director**

**Client Service contact: Andrea Colby 407-425-6700**

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001)  
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),  
AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Test results relate only to samples analyzed.



# Table of Contents

-1-

<b>Section 1: Sample Summary</b> .....	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary</b> .....	<b>5</b>
<b>Section 3: Summary of Hits</b> .....	<b>11</b>
<b>Section 4: Sample Results</b> .....	<b>15</b>
<b>4.1:</b> FA77717-1: T1-19A .....	16
<b>4.2:</b> FA77717-2: T1-19B .....	18
<b>4.3:</b> FA77717-3: T1-21A .....	20
<b>4.4:</b> FA77717-4: T1-21B .....	22
<b>4.5:</b> FA77717-5: T1-29A .....	24
<b>4.6:</b> FA77717-6: T1-29B .....	26
<b>4.7:</b> FA77717-7: T1-31A .....	28
<b>4.8:</b> FA77717-8: T1-31B .....	30
<b>4.9:</b> FA77717-9: T1-33A .....	32
<b>4.10:</b> FA77717-10: T1-X .....	34
<b>4.11:</b> FA77717-11: T1-33B .....	36
<b>4.12:</b> FA77717-12: T1-35A .....	38
<b>4.13:</b> FA77717-13: T1-35B .....	40
<b>4.14:</b> FA77717-14: T1-37A .....	42
<b>4.15:</b> FA77717-15: T1-37B .....	44
<b>Section 5: Misc. Forms</b> .....	<b>46</b>
<b>5.1:</b> Chain of Custody .....	47
<b>5.2:</b> QC Evaluation: DOD QSM5.x Limits .....	50
<b>Section 6: MS Semi-volatiles - QC Data Summaries</b> .....	<b>53</b>
<b>6.1:</b> Method Blank Summary .....	54
<b>6.2:</b> Blank Spike Summary .....	60
<b>6.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	62



## Sample Summary

SGS North America, Inc

**Job No:** FA77717

1204021

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA77717-1	08/06/20	14:55	08/12/20	SO	Soil	T1-19A
FA77717-2	08/06/20	15:15	08/12/20	SO	Soil	T1-19B
FA77717-3	08/06/20	12:35	08/12/20	SO	Soil	T1-21A
FA77717-4	08/06/20	12:45	08/12/20	SO	Soil	T1-21B
FA77717-5	08/06/20	14:00	08/12/20	SO	Soil	T1-29A
FA77717-6	08/06/20	14:20	08/12/20	SO	Soil	T1-29B
FA77717-7	08/06/20	10:35	08/12/20	SO	Soil	T1-31A
FA77717-8	08/06/20	11:00	08/12/20	SO	Soil	T1-31B
FA77717-9	08/06/20	09:15	08/12/20	SO	Soil	T1-33A
FA77717-10	08/06/20	14:57	08/12/20	SO	Soil	T1-X
FA77717-11	08/06/20	09:45	08/12/20	SO	Soil	T1-33B
FA77717-12	08/06/20	11:40	08/12/20	SO	Soil	T1-35A
FA77717-13	08/06/20	11:50	08/12/20	SO	Soil	T1-35B

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



### Sample Summary (continued)

SGS North America, Inc  
1204021

Job No: FA77717

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FA77717-14	08/06/20	13:20	08/12/20	SO	Soil	T1-37A
FA77717-15	08/06/20	13:35	08/12/20	SO	Soil	T1-37B

DRAFT

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Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** SGS North America, Inc

**Job No:** FA77717

**Site:** 1204021

**Report Date** 8/28/2020 2:12:56

15 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 08/06/2020 and were received at SGS North America Inc - Orlando on 08/12/2020 properly preserved, at 1.4 Deg. C and intact. These Samples received an SGS Orlando job number of FA77717. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Please note, samples were high in moisture and organic material. The matrix resulted in low recoveries for many of the mass labelled isotopes. This was confirmed by the MS and MSD. The laboratory performed an additional extraction step; however, this showed little improvement. The target analyte recoveries in the MS/MSD did yield acceptable recoveries due to recovery correction from the mass labelled isotopes.

### MS Semi-volatiles By Method EPA 537M QSM5.3 B-15

**Matrix:** SO

**Batch ID:** OP81701

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA77717-15MS, FA77717-15MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Duplicate Recovery(s) for Perfluorooctanesulfonic acid are outside control limits. Probable cause is due to matrix interference.

Sample(s) FA77717-1, FA77717-10, FA77717-11, FA77717-12, FA77717-13, FA77717-14, FA77717-15, FA77717-2, FA77717-3, FA77717-4, FA77717-5, FA77717-6, FA77717-7, FA77717-8, FA77717-9 have surrogates outside control limits.

FA77717-1 for 13C2-4:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-1 for 13C6-PFDA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-1 for 13C7-PFUnDA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-1 for d3-MeFOSAA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-1: Confirmation run for ID Standard Recoveries.

FA77717-1 for 13C2-8:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-1 for 13C2-PFDoDA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-1 for 13C2-PFTeDA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-1 for 13C4-PFHpA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-1 for 13C8-FOSA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-1 for 13C8-PFOA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C5-PFHxA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for d3-MeFOSAA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C2-4:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C2-4:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C2-6:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C2-8:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C2-PFDoDA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C2-PFTeDA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C4-PFHpA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C6-PFDA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C8-FOSA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C8-PFOA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C8-PFOS: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2 for 13C9-PFNA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-2: Confirmation run for ID Standard Recoveries.

FA77717-2 for 13C7-PFUnDA: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-3 for 13C2-4:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-3: Confirmation run for ID Standard Recoveries.

FA77717-3 for 13C2-4:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.

FA77717-3 for 13C2-6:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.













FA77717-13 for d3-MeFOSAA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C2-4:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14: Confirmation run for ID Standard Recoveries.  
 FA77717-14 for 13C2-4:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C2-6:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C2-8:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C2-8:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C2-PFDoDA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C2-PFTeDA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C3-PFHxS: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C4-PFHpA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C5-PFHxA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C5-PFPeA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C6-PFDA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C7-PFUnDA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C8-PFNA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C8-PFOA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C8-PFOS: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for 13C9-PFNA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-14 for d3-MeFOSAA: Outside control limits due to matrix interference. Confirmed by reanalysis.  
 FA77717-15 for 13C2-PFTeDA: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C6-PFDA: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C8-FOSA: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C8-PFOA: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C8-PFOS: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C9-PFNA: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for d3-MeFOSAA: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C2-4:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15: Confirmation run for ID Standard Recoveries.  
 FA77717-15 for 13C2-4:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C2-6:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C2-8:2FTS: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C2-PFDoDA: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C4-PFHpA: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C5-PFHxA: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.  
 FA77717-15 for 13C7-PFUnDA: Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.

### General Chemistry By Method SM19 2540G

**Matrix:** SO **Batch ID:** GN85928

Sample(s) FA77700-1DUP were used as the QC samples for Solids, Percent.

**Matrix:** SO **Batch ID:** GN85933

Sample(s) FA77717-1DUP were used as the QC samples for Solids, Percent.

RPD(s) for Duplicate for Solids, Percent are outside control limits for sample GN85933-D1. Probable cause is due to sample non-homogeneity.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

\_\_\_\_\_  
 Ariel Hartney, Client Services (*Signature on file*)

## Summary of Hits

**Job Number:** FA77717  
**Account:** SGS North America, Inc  
**Project:** 1204021  
**Collected:** 08/06/20



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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**FA77717-1 T1-19A**

Perfluorobutanoic acid	0.0030 J	0.0068	0.0034	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid	0.0120	0.0068	0.0034	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid	0.0173	0.0068	0.0034	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid	0.0079	0.0068	0.0034	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanoic acid	0.0019 J	0.0068	0.0034	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid	0.0035 J	0.0068	0.0034	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid	0.0034 J	0.0068	0.0034	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid	0.0153	0.0068	0.0034	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid	0.0312	0.0068	0.0034	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate	0.0226	0.0068	0.0034	mg/kg	EPA 537M QSM5.3 B-15

**FA77717-2 T1-19B**

Perfluorobutanoic acid	0.0076 J	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid	0.0247	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid	0.0326	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid	0.0158	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanoic acid	0.0052 J	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
Perfluorononanoic acid	0.0025 J	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid	0.0066 J	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid	0.0075 J	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid	0.0385	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid	0.154	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate	0.0384	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15
8:2 Fluorotelomer sulfonate	0.0022 J	0.0085	0.0043	mg/kg	EPA 537M QSM5.3 B-15

**FA77717-3 T1-21A**

Perfluorobutanoic acid	0.0048 J	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid	0.0174	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid	0.0220	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid	0.0125	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanoic acid	0.0043 J	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluorononanoic acid	0.0015 J	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid	0.0050	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid	0.0055	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid	0.0347	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid	0.0790	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate	0.0298	0.0050	0.0025	mg/kg	EPA 537M QSM5.3 B-15

**FA77717-4 T1-21B**

Perfluoropentanoic acid	0.0068 J	0.0074	0.0037	mg/kg	EPA 537M QSM5.3 B-15
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## Summary of Hits

**Job Number:** FA77717  
**Account:** SGS North America, Inc  
**Project:** 1204021  
**Collected:** 08/06/20



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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Perfluorohexanoic acid		0.0071 J	0.0074	0.0037	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid		0.0026 J	0.0074	0.0037	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid		0.0060 J	0.0074	0.0037	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid		0.0157	0.0074	0.0037	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate		0.0050 J	0.0074	0.0037	mg/kg	EPA 537M QSM5.3 B-15

### FA77717-5 T1-29A

Perfluorobutanoic acid		0.0053 J	0.0055	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid		0.0177	0.0055	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid		0.0275	0.0055	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid		0.0112	0.0055	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanoic acid		0.0042 J	0.0055	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid		0.0063	0.0055	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid		0.0066	0.0055	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid		0.0294	0.0055	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid		0.0847	0.0055	0.0028	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate		0.0237	0.0055	0.0028	mg/kg	EPA 537M QSM5.3 B-15

### FA77717-6 T1-29B

Perfluorobutanoic acid		0.0091 J	0.011	0.0056	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid		0.0279	0.011	0.0056	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid		0.0379	0.011	0.0056	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid		0.0156	0.011	0.0056	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanoic acid		0.0051 J	0.011	0.0056	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid		0.0094 J	0.011	0.0056	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid		0.0084 J	0.011	0.0056	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid		0.0341	0.011	0.0056	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid		0.111	0.011	0.0056	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate		0.0106 J	0.011	0.0056	mg/kg	EPA 537M QSM5.3 B-15

### FA77717-7 T1-31A

Perfluorobutanoic acid		0.0015 J	0.0049	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid		0.0050	0.0049	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid		0.0072	0.0049	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid		0.0051	0.0049	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanoic acid		0.0013 J	0.0049	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid		0.0014 J	0.0049	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid		0.0080	0.0049	0.0025	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid		0.0256	0.0049	0.0025	mg/kg	EPA 537M QSM5.3 B-15

## Summary of Hits

**Job Number:** FA77717  
**Account:** SGS North America, Inc  
**Project:** 1204021  
**Collected:** 08/06/20



Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method	
<b>FA77717-8</b>	<b>T1-31B</b>						
		Perfluoropentanoic acid	0.0031 J	0.0051	0.0026	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanoic acid	0.0034 J	0.0051	0.0026	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoroheptanoic acid	0.0022 J	0.0051	0.0026	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanesulfonic acid	0.0044 J	0.0051	0.0026	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanesulfonic acid	0.0090	0.0051	0.0026	mg/kg	EPA 537M QSM5.3 B-15
		6:2 Fluorotelomer sulfonate	0.0028 J	0.0051	0.0026	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77717-9</b>	<b>T1-33A</b>						
		Perfluoropentanoic acid <sup>a</sup>	0.0010 J	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanoic acid <sup>a</sup>	0.0014 J	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoroheptanoic acid <sup>a</sup>	0.0012 J	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanesulfonic acid <sup>a</sup>	0.0021 J	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanesulfonic acid <sup>a</sup>	0.0025 J	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77717-10</b>	<b>T1-X</b>						
		Perfluorobutanoic acid	0.0051 J	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoropentanoic acid	0.0181	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanoic acid	0.0267	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoroheptanoic acid	0.0135	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanoic acid	0.0043 J	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorobutanesulfonic acid	0.0053 J	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoropentanesulfonic acid	0.0056 J	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanesulfonic acid	0.0317	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanesulfonic acid	0.0909	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
		6:2 Fluorotelomer sulfonate	0.0389	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
		8:2 Fluorotelomer sulfonate	0.0019 J	0.0066	0.0033	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77717-11</b>	<b>T1-33B</b>						
		Perfluoropentanoic acid	0.0014 J	0.0061	0.0031	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanesulfonic acid	0.0018 J	0.0061	0.0031	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77717-12</b>	<b>T1-35A</b>						
		Perfluoropentanoic acid	0.0012 J	0.0039	0.0019	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanoic acid	0.0016 J	0.0039	0.0019	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoroheptanoic acid	0.0025 J	0.0039	0.0019	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanoic acid	0.0029 J	0.0039	0.0019	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorononanoic acid	0.0022 J	0.0039	0.0019	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanesulfonic acid	0.0102	0.0039	0.0019	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanesulfonic acid	0.0436	0.0039	0.0019	mg/kg	EPA 537M QSM5.3 B-15

## Summary of Hits

**Job Number:** FA77717  
**Account:** SGS North America, Inc  
**Project:** 1204021  
**Collected:** 08/06/20



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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**FA77717-13 T1-35B**

Perfluorooctanesulfonic acid	0.0052 J	0.0075	0.0038	mg/kg	EPA 537M QSM5.3 B-15
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**FA77717-14 T1-37A**

Perfluorobutanoic acid	0.0020 J	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid	0.0063	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid	0.0196	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid	0.0109	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanoic acid	0.0075	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
Perfluorononanoic acid	0.0028 J	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid	0.0011 J	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid	0.0032 J	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid	0.0327	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanesulfonic acid	0.0041	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid	0.165	0.036	0.018	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate	0.0311	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15
8:2 Fluorotelomer sulfonate	0.0018 J	0.0036	0.0018	mg/kg	EPA 537M QSM5.3 B-15

**FA77717-15 T1-37B**

Perfluoropentanoic acid	0.0054 J	0.0070	0.0035	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid	0.0150	0.0070	0.0035	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid	0.0042 J	0.0070	0.0035	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid	0.0079	0.0070	0.0035	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid	0.0482	0.0070	0.0035	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate	0.0067 J	0.0070	0.0035	mg/kg	EPA 537M QSM5.3 B-15

(a) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.

Sample Results

Report of Analysis

DRAFT

# Report of Analysis

<b>Client Sample ID:</b> T1-19A	
<b>Lab Sample ID:</b> FA77717-1	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 14.6
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53202.D	1	08/27/20 10:39	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53070.D	1	08/25/20 15:27	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53071.D	10	08/25/20 15:42	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.01 g	1.0 ml
Run #2	2.01 g	1.0 ml
Run #3	2.01 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0030	0.0068	0.0034	0.0017	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0120	0.0068	0.0034	0.0014	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0173	0.0068	0.0034	0.0014	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0079	0.0068	0.0034	0.0017	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0019	0.0068	0.0034	0.0017	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0035	0.0068	0.0034	0.0017	mg/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.0034	0.0068	0.0034	0.0017	mg/kg	J
355-46-4	Perfluorohexanesulfonic acid	0.0153	0.0068	0.0034	0.0017	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0312	0.0068	0.0034	0.0017	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0068 U	0.017	0.0068	0.0034	mg/kg	
2991-50-6	EtFOSAA	0.0068 U	0.017	0.0068	0.0034	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.1  
4

# Report of Analysis

<b>Client Sample ID:</b> T1-19A	
<b>Lab Sample ID:</b> FA77717-1	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 14.6
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0034 U	0.0068	0.0034	0.0017	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0226	0.0068	0.0034	0.0017	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0034 U	0.0068	0.0034	0.0017	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		66%	54%	50%	50-150%
13C5-PFPeA		59%	52%	51%	50-150%
13C5-PFHxA		54%	49% b	50%	50-150%
13C4-PFHpA		49% b	44% b	48% b	50-150%
13C8-PFOA		49% b	46% b	52%	50-150%
13C9-PFNA		50%	47% b	52%	50-150%
13C6-PFDA		40% b	40% b	49% b	50-150%
13C7-PFUnDA		48% b	46% b	52%	50-150%
13C2-PFDoDA		44% b	45% b	53%	50-150%
13C2-PFTeDA		45% b	46% b	53%	50-150%
13C3-PFBS		60%	50%	52%	50-150%
13C3-PFHxS		56%	53%	57%	50-150%
13C8-PFOS		50%	45% b	54%	50-150%
13C8-FOSA		28% b	32% b	52%	50-150%
d3-MeFOSAA		46% b	49% b	58%	50-150%
13C2-4:2FTS		51%	45% b	49% b	50-150%
13C2-6:2FTS		50%	47% b	54%	50-150%
13C2-8:2FTS		37% b	38% b	47% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



# Report of Analysis

4.2  
4

<b>Client Sample ID:</b> T1-19B	
<b>Lab Sample ID:</b> FA77717-2	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 10.7
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53203.D	1	08/27/20 11:00	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53072.D	1	08/25/20 15:57	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53073.D	10	08/25/20 16:11	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.19 g	1.0 ml
Run #2	2.19 g	1.0 ml
Run #3	2.19 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.0076	0.0085	0.0043	0.0021	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0247	0.0085	0.0043	0.0017	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0326	0.0085	0.0043	0.0017	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0158	0.0085	0.0043	0.0021	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0052	0.0085	0.0043	0.0021	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0025	0.0085	0.0043	0.0021	mg/kg	J
335-76-2	Perfluorodecanoic acid	0.0043 U	0.0085	0.0043	0.0021	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0043 U	0.0085	0.0043	0.0021	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0043 U	0.0085	0.0043	0.0021	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0043 U	0.0085	0.0043	0.0021	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0043 U	0.0085	0.0043	0.0021	mg/kg	

**PERFLUOROALKYLSULFONATES**

375-73-5	Perfluorobutanesulfonic acid	0.0066	0.0085	0.0043	0.0021	mg/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.0075	0.0085	0.0043	0.0021	mg/kg	J
355-46-4	Perfluorohexanesulfonic acid	0.0385	0.0085	0.0043	0.0021	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0043 U	0.0085	0.0043	0.0021	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.154	0.0085	0.0043	0.0021	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0043 U	0.0085	0.0043	0.0021	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0043 U	0.0085	0.0043	0.0021	mg/kg	

**PERFLUOROOCCTANESULFONAMIDES**

754-91-6	PFOSA	0.0043 U	0.0085	0.0043	0.0021	mg/kg	
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**PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0085 U	0.021	0.0085	0.0043	mg/kg	
2991-50-6	EtFOSAA	0.0085 U	0.021	0.0085	0.0043	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-19B	
<b>Lab Sample ID:</b> FA77717-2	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 10.7
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0043 U	0.0085	0.0043	0.0021	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0384	0.0085	0.0043	0.0021	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0022	0.0085	0.0043	0.0021	mg/kg	J

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		60%	45% b	42% b	50-150%
13C5-PFPeA		53%	44% b	42% b	50-150%
13C5-PFHxA		48% b	40% b	42% b	50-150%
13C4-PFHpA		45% b	37% b	40% b	50-150%
13C8-PFOA		46% b	40% b	44% b	50-150%
13C9-PFNA		47% b	41% b	44% b	50-150%
13C6-PFDA		39% b	35% b	42% b	50-150%
13C7-PFUnDA		46% b	40% b	43% b	50-150%
13C2-PFDoDA		45% b	42% b	43% b	50-150%
13C2-PFTeDA		48% b	41% b	43% b	50-150%
13C3-PFBS		52%	42% b	44% b	50-150%
13C3-PFHxS		50%	44% b	46% b	50-150%
13C8-PFOS		45% b	39% b	44% b	50-150%
13C8-FOSA		25% b	27% b	38% b	50-150%
d3-MeFOSAA		43% b	43% b	48% b	50-150%
13C2-4:2FTS		45% b	37% b	39% b	50-150%
13C2-6:2FTS		47% b	41% b	45% b	50-150%
13C2-8:2FTS		40% b	33% b	40% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-21A	
<b>Lab Sample ID:</b> FA77717-3	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 18.3
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53209.D	1	08/27/20 12:29	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53113.D	1	08/26/20 09:21	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53075.D	10	08/25/20 16:41	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.20 g	1.0 ml
Run #2	2.20 g	1.0 ml
Run #3	2.20 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.0048	0.0050	0.0025	0.0012	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0174	0.0050	0.0025	0.00099	mg/kg	
307-24-4	Perfluoroheptanoic acid	0.0220	0.0050	0.0025	0.00099	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0125	0.0050	0.0025	0.0012	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0043	0.0050	0.0025	0.0012	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0015	0.0050	0.0025	0.0012	mg/kg	J
335-76-2	Perfluorodecanoic acid	0.0025 U	0.0050	0.0025	0.0012	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0025 U	0.0050	0.0025	0.0012	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0025 U	0.0050	0.0025	0.0012	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0025 U	0.0050	0.0025	0.0012	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0025 U	0.0050	0.0025	0.0012	mg/kg	

**PERFLUOROALKYLSULFONATES**

375-73-5	Perfluorobutanesulfonic acid	0.0050	0.0050	0.0025	0.0012	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0055	0.0050	0.0025	0.0012	mg/kg	
355-46-4	Perfluoroheptanesulfonic acid	0.0347	0.0050	0.0025	0.0012	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0025 U	0.0050	0.0025	0.0012	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0790	0.0050	0.0025	0.0012	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0025 U	0.0050	0.0025	0.0012	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0025 U	0.0050	0.0025	0.0012	mg/kg	

**PERFLUOROOCCTANESULFONAMIDES**

754-91-6	PFOSA	0.0025 U	0.0050	0.0025	0.0012	mg/kg	
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**PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0050 U	0.012	0.0050	0.0025	mg/kg	
2991-50-6	EtFOSAA	0.0050 U	0.012	0.0050	0.0025	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-21A	
<b>Lab Sample ID:</b> FA77717-3	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 18.3
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0025 U	0.0050	0.0025	0.0012	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0298	0.0050	0.0025	0.0012	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0025 U	0.0050	0.0025	0.0012	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		62%	51%	45% b	50-150%
13C5-PFPeA		52%	45% b	45% b	50-150%
13C5-PFHxA		45% b	39% b	45% b	50-150%
13C4-PFHpA		42% b	35% b	42% b	50-150%
13C8-PFOA		43% b	37% b	46% b	50-150%
13C9-PFNA		44% b	37% b	49% b	50-150%
13C6-PFDA		37% b	33% b	44% b	50-150%
13C7-PFUnDA		43% b	39% b	46% b	50-150%
13C2-PFDoDA		40% b	38% b	46% b	50-150%
13C2-PFTeDA		44% b	37% b	48% b	50-150%
13C3-PFBS		50%	43% b	47% b	50-150%
13C3-PFHxS		49% b	41% b	53%	50-150%
13C8-PFOS		45% b	37% b	47% b	50-150%
13C8-FOSA		18% b	17% b	39% b	50-150%
d3-MeFOSAA		36% b	37% b	51%	50-150%
13C2-4:2FTS		42% b	37% b	42% b	50-150%
13C2-6:2FTS		45% b	40% b	49% b	50-150%
13C2-8:2FTS		38% b	31% b	42% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-21B	
<b>Lab Sample ID:</b> FA77717-4	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 11.8
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53205.D	1	08/27/20 11:30	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53076.D	1	08/25/20 16:56	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53077.D	10	08/25/20 17:10	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.29 g	1.0 ml
Run #2	2.29 g	1.0 ml
Run #3	2.29 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0068	0.0074	0.0037	0.0015	mg/kg	J
307-24-4	Perfluoroheptanoic acid	0.0071	0.0074	0.0037	0.0015	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.0026	0.0074	0.0037	0.0019	mg/kg	J
335-67-1	Perfluorooctanoic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
375-95-1	Perfluorononanoic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
355-46-4	Perfluoroheptanesulfonic acid	0.0060	0.0074	0.0037	0.0019	mg/kg	J
375-92-8	Perfluoroheptanesulfonic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0157	0.0074	0.0037	0.0019	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0074 U	0.019	0.0074	0.0037	mg/kg	
2991-50-6	EtFOSAA	0.0074 U	0.019	0.0074	0.0037	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-21B	
<b>Lab Sample ID:</b> FA77717-4	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 11.8
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0037 U	0.0074	0.0037	0.0019	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0050	0.0074	0.0037	0.0019	mg/kg	J
39108-34-4	8:2 Fluorotelomer sulfonate	0.0037 U	0.0074	0.0037	0.0019	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
	13C4-PFBA	62%	45% b	41% b	50-150%
	13C5-PFPeA	56%	43% b	43% b	50-150%
	13C5-PFHxA	50%	40% b	41% b	50-150%
	13C4-PFHpA	47% b	36% b	40% b	50-150%
	13C8-PFOA	47% b	38% b	43% b	50-150%
	13C9-PFNA	49% b	39% b	43% b	50-150%
	13C6-PFDA	41% b	33% b	41% b	50-150%
	13C7-PFUnDA	50%	37% b	41% b	50-150%
	13C2-PFDoDA	49% b	37% b	41% b	50-150%
	13C2-PFTeDA	39% b	34% b	39% b	50-150%
	13C3-PFBS	56%	42% b	41% b	50-150%
	13C3-PFHxS	54%	43% b	44% b	50-150%
	13C8-PFOS	49% b	38% b	43% b	50-150%
	13C8-FOSA	18% b	22% b	35% b	50-150%
	d3-MeFOSAA	39% b	38% b	44% b	50-150%
	13C2-4:2FTS	49% b	37% b	39% b	50-150%
	13C2-6:2FTS	47% b	40% b	44% b	50-150%
	13C2-8:2FTS	43% b	33% b	39% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-29A	
<b>Lab Sample ID:</b> FA77717-5	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 16.2
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53206.D	1	08/27/20 11:44	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53080.D	1	08/25/20 17:55	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53081.D	10	08/25/20 18:09	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.23 g	1.0 ml
Run #2	2.23 g	1.0 ml
Run #3	2.23 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0053	0.0055	0.0028	0.0014	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0177	0.0055	0.0028	0.0011	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0275	0.0055	0.0028	0.0011	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0112	0.0055	0.0028	0.0014	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0042	0.0055	0.0028	0.0014	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0063	0.0055	0.0028	0.0014	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0066	0.0055	0.0028	0.0014	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0294	0.0055	0.0028	0.0014	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0847	0.0055	0.0028	0.0014	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0055 U	0.014	0.0055	0.0028	mg/kg	
2991-50-6	EtFOSAA	0.0055 U	0.014	0.0055	0.0028	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-29A	
<b>Lab Sample ID:</b> FA77717-5	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 16.2
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0028 U	0.0055	0.0028	0.0014	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0237	0.0055	0.0028	0.0014	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0028 U	0.0055	0.0028	0.0014	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		59%	48% b	43% b	50-150%
13C5-PFPeA		54%	46% b	44% b	50-150%
13C5-PFHxA		48% b	43% b	43% b	50-150%
13C4-PFHpA		44% b	38% b	41% b	50-150%
13C8-PFOA		45% b	41% b	45% b	50-150%
13C9-PFNA		46% b	42% b	46% b	50-150%
13C6-PFDA		38% b	36% b	44% b	50-150%
13C7-PFUnDA		45% b	41% b	45% b	50-150%
13C2-PFDoDA		43% b	40% b	44% b	50-150%
13C2-PFTeDA		42% b	40% b	42% b	50-150%
13C3-PFBS		53%	45% b	44% b	50-150%
13C3-PFHxS		50%	47% b	49% b	50-150%
13C8-PFOS		46% b	39% b	43% b	50-150%
13C8-FOSA		22% b	25% b	41% b	50-150%
d3-MeFOSAA		37% b	41% b	54%	50-150%
13C2-4:2FTS		46% b	40% b	40% b	50-150%
13C2-6:2FTS		46% b	43% b	48% b	50-150%
13C2-8:2FTS		38% b	34% b	42% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



# Report of Analysis

<b>Client Sample ID:</b> T1-29B	
<b>Lab Sample ID:</b> FA77717-6	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 8.7
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53207.D	1	08/27/20 11:59	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53082.D	1	08/25/20 18:24	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53083.D	10	08/25/20 18:39	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.06 g	1.0 ml
Run #2	2.06 g	1.0 ml
Run #3	2.06 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0091	0.011	0.0056	0.0028	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0279	0.011	0.0056	0.0022	mg/kg	
307-24-4	Perfluoroheptanoic acid	0.0379	0.011	0.0056	0.0022	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0156	0.011	0.0056	0.0028	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0051	0.011	0.0056	0.0028	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0056 U	0.011	0.0056	0.0028	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0056 U	0.011	0.0056	0.0028	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0056 U	0.011	0.0056	0.0028	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0056 U	0.011	0.0056	0.0028	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0056 U	0.011	0.0056	0.0028	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0056 U	0.011	0.0056	0.0028	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0094	0.011	0.0056	0.0028	mg/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.0084	0.011	0.0056	0.0028	mg/kg	J
355-46-4	Perfluoroheptanesulfonic acid	0.0341	0.011	0.0056	0.0028	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0056 U	0.011	0.0056	0.0028	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.111	0.011	0.0056	0.0028	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0056 U	0.011	0.0056	0.0028	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0056 U	0.011	0.0056	0.0028	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.0056 U	0.011	0.0056	0.0028	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.011 U	0.028	0.011	0.0056	mg/kg	
2991-50-6	EtFOSAA	0.011 U	0.028	0.011	0.0056	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-29B	
<b>Lab Sample ID:</b> FA77717-6	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 8.7
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0056 U	0.011	0.0056	0.0028	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0106	0.011	0.0056	0.0028	mg/kg	J
39108-34-4	8:2 Fluorotelomer sulfonate	0.0056 U	0.011	0.0056	0.0028	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		52%	36% b	33% b	50-150%
13C5-PFPeA		48% b	35% b	34% b	50-150%
13C5-PFHxA		44% b	33% b	33% b	50-150%
13C4-PFHpA		41% b	31% b	32% b	50-150%
13C8-PFOA		40% b	32% b	34% b	50-150%
13C9-PFNA		42% b	34% b	35% b	50-150%
13C6-PFDA		33% b	27% b	33% b	50-150%
13C7-PFUnDA		40% b	32% b	33% b	50-150%
13C2-PFDoDA		39% b	32% b	34% b	50-150%
13C2-PFTeDA		43% b	34% b	32% b	50-150%
13C3-PFBS		48% b	35% b	32% b	50-150%
13C3-PFHxS		46% b	37% b	35% b	50-150%
13C8-PFOS		40% b	32% b	34% b	50-150%
13C8-FOSA		26% b	26% b	33% b	50-150%
d3-MeFOSAA		36% b	35% b	41% b	50-150%
13C2-4:2FTS		42% b	31% b	31% b	50-150%
13C2-6:2FTS		40% b	34% b	34% b	50-150%
13C2-8:2FTS		34% b	27% b	33% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-31A	
<b>Lab Sample ID:</b> FA77717-7	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 17.3
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53208.D	1	08/27/20 12:14	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53084.D	1	08/25/20 18:54	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53085.D	10	08/25/20 19:09	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.35 g	1.0 ml
Run #2	2.35 g	1.0 ml
Run #3	2.35 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.0015	0.0049	0.0025	0.0012	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0050	0.0049	0.0025	0.00098	mg/kg	
307-24-4	Perfluoroheptanoic acid	0.0072	0.0049	0.0025	0.00098	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0051	0.0049	0.0025	0.0012	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0013	0.0049	0.0025	0.0012	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0025 U	0.0049	0.0025	0.0012	mg/kg	

**PERFLUOROALKYLSULFONATES**

375-73-5	Perfluorobutanesulfonic acid	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0014	0.0049	0.0025	0.0012	mg/kg	J
355-46-4	Perfluoroheptanesulfonic acid	0.0080	0.0049	0.0025	0.0012	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0256	0.0049	0.0025	0.0012	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0025 U	0.0049	0.0025	0.0012	mg/kg	

**PERFLUOROOCCTANESULFONAMIDES**

754-91-6	PFOSA	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
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**PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0049 U	0.012	0.0049	0.0025	mg/kg	
2991-50-6	EtFOSAA	0.0049 U	0.012	0.0049	0.0025	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-31A	
<b>Lab Sample ID:</b> FA77717-7	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 17.3
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0025 U	0.0049	0.0025	0.0012	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0025 U	0.0049	0.0025	0.0012	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		57%	44% b	41% b	50-150%
13C5-PFPeA		55%	45% b	42% b	50-150%
13C5-PFHxA		49% b	43% b	41% b	50-150%
13C4-PFHpA		43% b	38% b	40% b	50-150%
13C8-PFOA		42% b	38% b	43% b	50-150%
13C9-PFNA		38% b	35% b	42% b	50-150%
13C6-PFDA		35% b	31% b	39% b	50-150%
13C7-PFUnDA		40% b	36% b	42% b	50-150%
13C2-PFDoDA		39% b	36% b	42% b	50-150%
13C2-PFTeDA		45% b	34% b	43% b	50-150%
13C3-PFBS		56%	45% b	42% b	50-150%
13C3-PFHxS		50%	44% b	49% b	50-150%
13C8-PFOS		42% b	35% b	41% b	50-150%
13C8-FOSA		17% b	20% b	39% b	50-150%
d3-MeFOSAA		35% b	35% b	48% b	50-150%
13C2-4:2FTS		48% b	40% b	39% b	50-150%
13C2-6:2FTS		44% b	40% b	44% b	50-150%
13C2-8:2FTS		41% b	32% b	39% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-31B	
<b>Lab Sample ID:</b> FA77717-8	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 18.3
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53204.D	1	08/27/20 11:15	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53086.D	1	08/25/20 19:23	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53087.D	10	08/25/20 19:38	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.13 g	1.0 ml
Run #2	2.13 g	1.0 ml
Run #3	2.13 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0031	0.0051	0.0026	0.0010	mg/kg	J
307-24-4	Perfluoroheptanoic acid	0.0034	0.0051	0.0026	0.0010	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.0022	0.0051	0.0026	0.0013	mg/kg	J
335-67-1	Perfluorooctanoic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
375-95-1	Perfluorononanoic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
355-46-4	Perfluoroheptanesulfonic acid	0.0044	0.0051	0.0026	0.0013	mg/kg	J
375-92-8	Perfluoroheptanesulfonic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0090	0.0051	0.0026	0.0013	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0051 U	0.013	0.0051	0.0026	mg/kg	
2991-50-6	EtFOSAA	0.0051 U	0.013	0.0051	0.0026	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-31B	
<b>Lab Sample ID:</b> FA77717-8	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 18.3
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0026 U	0.0051	0.0026	0.0013	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0028	0.0051	0.0026	0.0013	mg/kg	J
39108-34-4	8:2 Fluorotelomer sulfonate	0.0026 U	0.0051	0.0026	0.0013	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		56%	39% b	36% b	50-150%
13C5-PFPeA		50%	37% b	37% b	50-150%
13C5-PFHxA		44% b	35% b	36% b	50-150%
13C4-PFHpA		40% b	32% b	35% b	50-150%
13C8-PFOA		40% b	33% b	38% b	50-150%
13C9-PFNA		40% b	34% b	38% b	50-150%
13C6-PFDA		34% b	28% b	35% b	50-150%
13C7-PFUnDA		41% b	33% b	38% b	50-150%
13C2-PFDoDA		38% b	34% b	38% b	50-150%
13C2-PFTeDA		45% b	36% b	38% b	50-150%
13C3-PFBS		49% b	37% b	36% b	50-150%
13C3-PFHxS		46% b	39% b	41% b	50-150%
13C8-PFOS		41% b	33% b	35% b	50-150%
13C8-FOSA		18% b	21% b	37% b	50-150%
d3-MeFOSAA		39% b	36% b	45% b	50-150%
13C2-4:2FTS		42% b	33% b	34% b	50-150%
13C2-6:2FTS		43% b	35% b	39% b	50-150%
13C2-8:2FTS		37% b	29% b	36% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-33A	
<b>Lab Sample ID:</b> FA77717-9	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 21.5
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53088.D	1	08/25/20 19:53	NAF	08/24/20 07:30	OP81701	S2Q789
Run #2 <sup>a</sup>	2Q53210.D	1	08/27/20 12:44	NAF	08/24/20 07:30	OP81701	S2Q791
Run #3 <sup>a</sup>	2Q53089.D	10	08/25/20 20:08	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.19 g	1.0 ml
Run #2	2.19 g	1.0 ml
Run #3	2.19 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
2706-90-3	Perfluoropentanoic acid <sup>b</sup>	0.0010	0.0042	0.0021	0.00085	mg/kg	J
307-24-4	Perfluoroheptanoic acid <sup>b</sup>	0.0014	0.0042	0.0021	0.00085	mg/kg	J
375-85-9	Perfluoroheptanoic acid <sup>b</sup>	0.0012	0.0042	0.0021	0.0011	mg/kg	J
335-67-1	Perfluorooctanoic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
375-95-1	Perfluorononanoic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
335-76-2	Perfluorodecanoic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
2058-94-8	Perfluoroundecanoic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
307-55-1	Perfluorododecanoic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
72629-94-8	Perfluorotridecanoic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
376-06-7	Perfluorotetradecanoic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
355-46-4	Perfluoroheptanesulfonic acid <sup>b</sup>	0.0021	0.0042	0.0021	0.0011	mg/kg	J
375-92-8	Perfluoroheptanesulfonic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid <sup>b</sup>	0.0025	0.0042	0.0021	0.0011	mg/kg	J
68259-12-1	Perfluorononanesulfonic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
335-77-3	Perfluorodecanesulfonic acid <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>b</sup>	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA <sup>b</sup>	0.0042 U	0.011	0.0042	0.0021	mg/kg	
2991-50-6	EtFOSAA <sup>b</sup>	0.0042 U	0.011	0.0042	0.0021	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.9  
4

# Report of Analysis

<b>Client Sample ID:</b> T1-33A	
<b>Lab Sample ID:</b> FA77717-9	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 21.5
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	<sup>b</sup> 0.0021 U	0.0042	0.0021	0.0011	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	<sup>b</sup> 0.0021 U	0.0042	0.0021	0.0011	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	<sup>b</sup> 0.0021 U	0.0042	0.0021	0.0011	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		43% <sup>c</sup>	51%	38% <sup>c</sup>	50-150%
13C5-PFPeA		42% <sup>c</sup>	46% <sup>c</sup>	39% <sup>c</sup>	50-150%
13C5-PFHxA		39% <sup>c</sup>	38% <sup>c</sup>	39% <sup>c</sup>	50-150%
13C4-PFHpA		34% <sup>c</sup>	34% <sup>c</sup>	38% <sup>c</sup>	50-150%
13C8-PFOA		35% <sup>c</sup>	35% <sup>c</sup>	41% <sup>c</sup>	50-150%
13C9-PFNA		35% <sup>c</sup>	34% <sup>c</sup>	41% <sup>c</sup>	50-150%
13C6-PFDA		30% <sup>c</sup>	28% <sup>c</sup>	37% <sup>c</sup>	50-150%
13C7-PFUnDA		33% <sup>c</sup>	33% <sup>c</sup>	40% <sup>c</sup>	50-150%
13C2-PFDoDA		35% <sup>c</sup>	28% <sup>c</sup>	41% <sup>c</sup>	50-150%
13C2-PFTeDA		36% <sup>c</sup>	28% <sup>c</sup>	42% <sup>c</sup>	50-150%
13C3-PFBS		42% <sup>c</sup>	49% <sup>c</sup>	41% <sup>c</sup>	50-150%
13C3-PFHxS		41% <sup>c</sup>	40% <sup>c</sup>	46% <sup>c</sup>	50-150%
13C8-PFOS		34% <sup>c</sup>	38% <sup>c</sup>	39% <sup>c</sup>	50-150%
13C8-FOSA		20% <sup>c</sup>	15% <sup>c</sup>	40% <sup>c</sup>	50-150%
d3-MeFOSAA		34% <sup>c</sup>	28% <sup>c</sup>	49% <sup>c</sup>	50-150%
13C2-4:2FTS		37% <sup>c</sup>	39% <sup>c</sup>	37% <sup>c</sup>	50-150%
13C2-6:2FTS		38% <sup>c</sup>	37% <sup>c</sup>	42% <sup>c</sup>	50-150%
13C2-8:2FTS		31% <sup>c</sup>	33% <sup>c</sup>	38% <sup>c</sup>	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (c) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



# Report of Analysis

4.10  
4

<b>Client Sample ID:</b> T1-X		
<b>Lab Sample ID:</b> FA77717-10		<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 14.8
<b>Project:</b> 1204021		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53211.D	1	08/27/20 12:58	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53093.D	1	08/25/20 21:07	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53094.D	10	08/25/20 21:21	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.04 g	1.0 ml
Run #2	2.04 g	1.0 ml
Run #3	2.04 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.0051	0.0066	0.0033	0.0017	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0181	0.0066	0.0033	0.0013	mg/kg	
307-24-4	Perfluoroheptanoic acid	0.0267	0.0066	0.0033	0.0013	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0135	0.0066	0.0033	0.0017	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0043	0.0066	0.0033	0.0017	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0033 U	0.0066	0.0033	0.0017	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0033 U	0.0066	0.0033	0.0017	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0033 U	0.0066	0.0033	0.0017	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0033 U	0.0066	0.0033	0.0017	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0033 U	0.0066	0.0033	0.0017	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0033 U	0.0066	0.0033	0.0017	mg/kg	

**PERFLUOROALKYLSULFONATES**

375-73-5	Perfluorobutanesulfonic acid	0.0053	0.0066	0.0033	0.0017	mg/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.0056	0.0066	0.0033	0.0017	mg/kg	J
355-46-4	Perfluoroheptanesulfonic acid	0.0317	0.0066	0.0033	0.0017	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0033 U	0.0066	0.0033	0.0017	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0909	0.0066	0.0033	0.0017	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0033 U	0.0066	0.0033	0.0017	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0033 U	0.0066	0.0033	0.0017	mg/kg	

**PERFLUOROOCCTANESULFONAMIDES**

754-91-6	PFOSA	0.0033 U	0.0066	0.0033	0.0017	mg/kg	
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**PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0066 U	0.017	0.0066	0.0033	mg/kg	
2991-50-6	EtFOSAA	0.0066 U	0.017	0.0066	0.0033	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-X		
<b>Lab Sample ID:</b> FA77717-10		<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 14.8
<b>Project:</b> 1204021		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0033 U	0.0066	0.0033	0.0017	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0389	0.0066	0.0033	0.0017	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0019	0.0066	0.0033	0.0017	mg/kg	J

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		71%	53%	48% b	50-150%
13C5-PFPeA		62%	49% b	48% b	50-150%
13C5-PFHxA		55%	45% b	47% b	50-150%
13C4-PFHpA		51%	40% b	46% b	50-150%
13C8-PFOA		52%	43% b	50%	50-150%
13C9-PFNA		54%	45% b	51%	50-150%
13C6-PFDA		43% b	38% b	48% b	50-150%
13C7-PFUnDA		55%	44% b	49% b	50-150%
13C2-PFDoDA		49% b	44% b	50%	50-150%
13C2-PFTeDA		50%	39% b	45% b	50-150%
13C3-PFBS		62%	47% b	47% b	50-150%
13C3-PFHxS		58%	49% b	52%	50-150%
13C8-PFOS		53%	43% b	49% b	50-150%
13C8-FOSA		20% b	27% b	42% b	50-150%
d3-MeFOSAA		47% b	48% b	57%	50-150%
13C2-4:2FTS		52%	41% b	45% b	50-150%
13C2-6:2FTS		56%	46% b	52%	50-150%
13C2-8:2FTS		47% b	38% b	47% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.10  
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# Report of Analysis

<b>Client Sample ID:</b> T1-33B	
<b>Lab Sample ID:</b> FA77717-11	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 16.3
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53214.D	1	08/27/20 13:44	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53095.D	1	08/25/20 21:36	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53096.D	10	08/25/20 21:51	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.00 g	1.0 ml
Run #2	2.00 g	1.0 ml
Run #3	2.00 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0014	0.0061	0.0031	0.0012	mg/kg	J
307-24-4	Perfluoroheptanoic acid	0.0031 U	0.0061	0.0031	0.0012	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
375-95-1	Perfluorononanoic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
355-46-4	Perfluoroheptanesulfonic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0018	0.0061	0.0031	0.0015	mg/kg	J
68259-12-1	Perfluorononanesulfonic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0061 U	0.015	0.0061	0.0031	mg/kg	
2991-50-6	EtFOSAA	0.0061 U	0.015	0.0061	0.0031	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.11  
4

# Report of Analysis

<b>Client Sample ID:</b> T1-33B		
<b>Lab Sample ID:</b> FA77717-11		<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 16.3
<b>Project:</b> 1204021		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0031 U	0.0061	0.0031	0.0015	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0031 U	0.0061	0.0031	0.0015	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		53%	40% b	36% b	50-150%
13C5-PFPeA		49% b	39% b	38% b	50-150%
13C5-PFHxA		42% b	36% b	37% b	50-150%
13C4-PFHpA		39% b	33% b	35% b	50-150%
13C8-PFOA		38% b	34% b	38% b	50-150%
13C9-PFNA		37% b	34% b	38% b	50-150%
13C6-PFDA		28% b	28% b	36% b	50-150%
13C7-PFUnDA		32% b	32% b	38% b	50-150%
13C2-PFDoDA		26% b	33% b	38% b	50-150%
13C2-PFTeDA		28% b	35% b	36% b	50-150%
13C3-PFBS		51%	39% b	37% b	50-150%
13C3-PFHxS		47% b	40% b	39% b	50-150%
13C8-PFOS		38% b	32% b	37% b	50-150%
13C8-FOSA		19% b	22% b	39% b	50-150%
d3-MeFOSAA		29% b	33% b	47% b	50-150%
13C2-4:2FTS		42% b	34% b	35% b	50-150%
13C2-6:2FTS		41% b	36% b	39% b	50-150%
13C2-8:2FTS		29% b	29% b	36% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

4.12  
4

<b>Client Sample ID:</b> T1-35A	
<b>Lab Sample ID:</b> FA77717-12	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 24.9
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53215.D	1	08/27/20 13:59	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53097.D	1	08/25/20 22:06	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53098.D	10	08/25/20 22:20	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.08 g	1.0 ml
Run #2	2.08 g	1.0 ml
Run #3	2.08 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0012	0.0039	0.0019	0.00077	mg/kg	J
307-24-4	Perfluoroheptanoic acid	0.0016	0.0039	0.0019	0.00077	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.0025	0.0039	0.0019	0.00097	mg/kg	J
335-67-1	Perfluorooctanoic acid	0.0029	0.0039	0.0019	0.00097	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0022	0.0039	0.0019	0.00097	mg/kg	J
335-76-2	Perfluorodecanoic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
355-46-4	Perfluoroheptanesulfonic acid	0.0102	0.0039	0.0019	0.00097	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0436	0.0039	0.0019	0.00097	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0039 U	0.0097	0.0039	0.0019	mg/kg	
2991-50-6	EtFOSAA	0.0039 U	0.0097	0.0039	0.0019	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-35A	
<b>Lab Sample ID:</b> FA77717-12	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 24.9
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0019 U	0.0039	0.0019	0.00097	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0019 U	0.0039	0.0019	0.00097	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		46% b	35% b	31% b	50-150%
13C5-PFPeA		41% b	33% b	31% b	50-150%
13C5-PFHxA		36% b	30% b	31% b	50-150%
13C4-PFHpA		33% b	27% b	30% b	50-150%
13C8-PFOA		34% b	29% b	32% b	50-150%
13C9-PFNA		35% b	30% b	33% b	50-150%
13C6-PFDA		27% b	24% b	30% b	50-150%
13C7-PFUnDA		32% b	28% b	32% b	50-150%
13C2-PFDoDA		29% b	28% b	33% b	50-150%
13C2-PFTeDA		28% b	26% b	32% b	50-150%
13C3-PFBS		43% b	32% b	31% b	50-150%
13C3-PFHxS		40% b	34% b	36% b	50-150%
13C8-PFOS		36% b	29% b	31% b	50-150%
13C8-FOSA		17% b	18% b	33% b	50-150%
d3-MeFOSAA		30% b	28% b	36% b	50-150%
13C2-4:2FTS		35% b	28% b	31% b	50-150%
13C2-6:2FTS		34% b	30% b	33% b	50-150%
13C2-8:2FTS		27% b	24% b	30% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.12  
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# Report of Analysis

<b>Client Sample ID:</b> T1-35B	
<b>Lab Sample ID:</b> FA77717-13	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 12.4
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53216.D	1	08/27/20 14:14	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53114.D	1	08/26/20 09:35	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53100.D	10	08/25/20 22:50	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.15 g	1.0 ml
Run #2	2.15 g	1.0 ml
Run #3	2.15 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0038 U	0.0075	0.0038	0.0015	mg/kg	
307-24-4	Perfluoroheptanoic acid	0.0038 U	0.0075	0.0038	0.0015	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
375-95-1	Perfluorononanoic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
355-46-4	Perfluoroheptanesulfonic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0052	0.0075	0.0038	0.0019	mg/kg	J
68259-12-1	Perfluorononanesulfonic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0075 U	0.019	0.0075	0.0038	mg/kg	
2991-50-6	EtFOSAA	0.0075 U	0.019	0.0075	0.0038	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.13  
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# Report of Analysis

<b>Client Sample ID:</b> T1-35B	
<b>Lab Sample ID:</b> FA77717-13	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 12.4
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0038 U	0.0075	0.0038	0.0019	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0038 U	0.0075	0.0038	0.0019	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		44% b	37% b	33% b	50-150%
13C5-PFPeA		36% b	32% b	33% b	50-150%
13C5-PFHxA		30% b	27% b	32% b	50-150%
13C4-PFHpA		28% b	23% b	31% b	50-150%
13C8-PFOA		31% b	26% b	34% b	50-150%
13C9-PFNA		33% b	27% b	35% b	50-150%
13C6-PFDA		29% b	25% b	34% b	50-150%
13C7-PFUnDA		35% b	30% b	34% b	50-150%
13C2-PFDoDA		33% b	32% b	35% b	50-150%
13C2-PFTeDA		33% b	32% b	35% b	50-150%
13C3-PFBS		35% b	31% b	33% b	50-150%
13C3-PFHxS		35% b	29% b	40% b	50-150%
13C8-PFOS		34% b	27% b	35% b	50-150%
13C8-FOSA		19% b	18% b	33% b	50-150%
d3-MeFOSAA		32% b	32% b	39% b	50-150%
13C2-4:2FTS		29% b	26% b	31% b	50-150%
13C2-6:2FTS		31% b	27% b	34% b	50-150%
13C2-8:2FTS		30% b	25% b	32% b	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.13  
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# Report of Analysis

<b>Client Sample ID:</b> T1-37A	
<b>Lab Sample ID:</b> FA77717-14	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 27.4
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53217.D	1	08/27/20 14:28	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53101.D	1	08/25/20 23:05	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3	2Q53218.D	10	08/27/20 14:43	NAF	08/24/20 07:30	OP81701	S2Q791

	Initial Weight	Final Volume
Run #1	2.01 g	1.0 ml
Run #2	2.01 g	1.0 ml
Run #3	2.01 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0020	0.0036	0.0018	0.00091	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0063	0.0036	0.0018	0.00073	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0196	0.0036	0.0018	0.00073	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0109	0.0036	0.0018	0.00091	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0075	0.0036	0.0018	0.00091	mg/kg	
375-95-1	Perfluorononanoic acid	0.0028	0.0036	0.0018	0.00091	mg/kg	J
335-76-2	Perfluorodecanoic acid	0.0018 U	0.0036	0.0018	0.00091	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0018 U	0.0036	0.0018	0.00091	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0018 U	0.0036	0.0018	0.00091	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0018 U	0.0036	0.0018	0.00091	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0018 U	0.0036	0.0018	0.00091	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0011	0.0036	0.0018	0.00091	mg/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.0032	0.0036	0.0018	0.00091	mg/kg	J
355-46-4	Perfluorohexanesulfonic acid	0.0327	0.0036	0.0018	0.00091	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0041	0.0036	0.0018	0.00091	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.165 <sup>b</sup>	0.036	0.018	0.0091	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0018 U	0.0036	0.0018	0.00091	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0018 U	0.0036	0.0018	0.00091	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.0018 U	0.0036	0.0018	0.00091	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0036 U	0.0091	0.0036	0.0018	mg/kg	
2991-50-6	EtFOSAA	0.0036 U	0.0091	0.0036	0.0018	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.14  
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# Report of Analysis

<b>Client Sample ID:</b> T1-37A		
<b>Lab Sample ID:</b> FA77717-14		<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 27.4
<b>Project:</b> 1204021		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0018 U	0.0036	0.0018	0.00091	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0311	0.0036	0.0018	0.00091	mg/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	0.0018	0.0036	0.0018	0.00091	mg/kg	J

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		52%	41% <sup>c</sup>	56%	50-150%
13C5-PFPeA		49% <sup>c</sup>	39% <sup>c</sup>	56%	50-150%
13C5-PFHxA		44% <sup>c</sup>	37% <sup>c</sup>	54%	50-150%
13C4-PFHpA		40% <sup>c</sup>	32% <sup>c</sup>	54%	50-150%
13C8-PFOA		41% <sup>c</sup>	35% <sup>c</sup>	54%	50-150%
13C9-PFNA		41% <sup>c</sup>	35% <sup>c</sup>	59%	50-150%
13C6-PFDA		32% <sup>c</sup>	29% <sup>c</sup>	50%	50-150%
13C7-PFUnDA		38% <sup>c</sup>	34% <sup>c</sup>	54%	50-150%
13C2-PFDoDA		31% <sup>c</sup>	32% <sup>c</sup>	55%	50-150%
13C2-PFTeDA		36% <sup>c</sup>	33% <sup>c</sup>	54%	50-150%
13C3-PFBS		51%	39% <sup>c</sup>	61%	50-150%
13C3-PFHxS		48% <sup>c</sup>	40% <sup>c</sup>	60%	50-150%
13C8-PFOS		42% <sup>c</sup>	33% <sup>c</sup>	60%	50-150%
13C8-FOSA		21% <sup>c</sup>	23% <sup>c</sup>	57%	50-150%
d3-MeFOSAA		33% <sup>c</sup>	33% <sup>c</sup>	61%	50-150%
13C2-4:2FTS		42% <sup>c</sup>	34% <sup>c</sup>	53%	50-150%
13C2-6:2FTS		44% <sup>c</sup>	38% <sup>c</sup>	61%	50-150%
13C2-8:2FTS		33% <sup>c</sup>	29% <sup>c</sup>	48% <sup>c</sup>	50-150%

- (a) Confirmation run for ID Standard Recoveries.
- (b) Result is from Run# 3
- (c) Outside control limits due to matrix interference. Confirmed by reanalysis.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.14  
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# Report of Analysis

<b>Client Sample ID:</b> T1-37B	
<b>Lab Sample ID:</b> FA77717-15	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 13.5
<b>Project:</b> 1204021	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q53219.D	1	08/27/20 14:58	NAF	08/24/20 07:30	OP81701	S2Q791
Run #2 <sup>a</sup>	2Q53107.D	1	08/26/20 07:51	NAF	08/24/20 07:30	OP81701	S2Q789
Run #3 <sup>a</sup>	2Q53108.D	10	08/26/20 08:06	NAF	08/24/20 07:30	OP81701	S2Q789

	Initial Weight	Final Volume
Run #1	2.11 g	1.0 ml
Run #2	2.11 g	1.0 ml
Run #3	2.11 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYLCARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0054	0.0070	0.0035	0.0014	mg/kg	J
307-24-4	Perfluorohexanoic acid	0.0150	0.0070	0.0035	0.0014	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0042	0.0070	0.0035	0.0018	mg/kg	J
335-67-1	Perfluorooctanoic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
375-95-1	Perfluorononanoic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
335-76-2	Perfluorodecanoic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0079	0.0070	0.0035	0.0018	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0482	0.0070	0.0035	0.0018	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0070 U	0.018	0.0070	0.0035	mg/kg	
2991-50-6	EtFOSAA	0.0070 U	0.018	0.0070	0.0035	mg/kg	

**FLUOROTELOMER SULFONATES**

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-37B	
<b>Lab Sample ID:</b> FA77717-15	<b>Date Sampled:</b> 08/06/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 13.5
<b>Project:</b> 1204021	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
757124-72-4	4:2 Fluorotelomer sulfonate	0.0035 U	0.0070	0.0035	0.0018	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0067	0.0070	0.0035	0.0018	mg/kg	J
39108-34-4	8:2 Fluorotelomer sulfonate	0.0035 U	0.0070	0.0035	0.0018	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Run# 3	Limits
13C4-PFBA		61%	50%	45% b	50-150%
13C5-PFPeA		55%	44% b	43% b	50-150%
13C5-PFHxA		49% b	41% b	43% b	50-150%
13C4-PFHpA		47% b	37% b	41% b	50-150%
13C8-PFOA		46% b	38% b	42% b	50-150%
13C9-PFNA		47% b	38% b	43% b	50-150%
13C6-PFDA		36% b	32% b	42% b	50-150%
13C7-PFUnDA		43% b	39% b	44% b	50-150%
13C2-PFDoDA		33% b	38% b	44% b	50-150%
13C2-PFTeDA		32% b	39% b	42% b	50-150%
13C3-PFBS		54%	45% b	45% b	50-150%
13C3-PFHxS		52%	43% b	46% b	50-150%
13C8-PFOS		48% b	38% b	44% b	50-150%
13C8-FOSA		22% b	22% b	41% b	50-150%
d3-MeFOSAA		32% b	39% b	49% b	50-150%
13C2-4:2FTS		47% b	40% b	41% b	50-150%
13C2-6:2FTS		47% b	41% b	45% b	50-150%
13C2-8:2FTS		36% b	32% b	42% b	50-150%

(a) Confirmation run for ID Standard Recoveries.

(b) Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

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FA77717

SGS North America Inc.  
CHAIN OF CUSTODY RECORD

1204021

Locations Nationwide  
Alaska Florida  
New Jersey Colorado  
Texas North Carolina  
Virginia Louisiana  
[www.us.sgs.com](http://www.us.sgs.com)

CLIENT: SGS North America Inc. - Alaska Division				SGS Reference: <b>SGS Orlando, FL</b>				Page 1 of 2					
CONTACT: Julie Shumway		PHONE NO: (907) 562-2343		Additional Comments: All soils report out in dry weight unless									
PROJECT NAME: 1204021		PWSID#:		CONTAINER #	Preservative Used: NONE	TYPE	C = COMP G = GRAB MI = Multi Incremental Soils	EPA 537 PFAS	MS	MSD	SGS lab #	Location ID	
REPORTS TO: Julie Shumway		E-MAIL: Julie.Shumway@sgs.com											
INVOICE TO: SGS - Alaska		QUOTE #: 1204021											
E-MAIL: Env.Alaska.Ref.LabTeam@sgs.com		P.O. #: 1204021		INITIAL ASSESSMENT <i>AG</i> LABEL VERIFICATION <i>AG</i>									
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/MATRIX CODE	#	Preservative Used:	TYPE	C = COMP G = GRAB MI = Multi Incremental Soils	EPA 537 PFAS	MS	MSD	SGS lab #	Location ID
1	T1-19A	08/06/2020	14:55:00	SO 1	1	X						1204021001	
2	T1-19B	08/06/2020	15:15:00	Solid 1	1	X						1204021002	
3	T1-21A	08/06/2020	12:35:00	SO 1	1	X						1204021003	
4	T1-21B	08/06/2020	12:45:00	SO 1	1	X						1204021004	
5	T1-29A	08/06/2020	14:00:00	SO 1	1	X						1204021005	
6	T1-29B	08/06/2020	14:20:00	Solid 1	1	X						1204021006	
7	T1-31A	08/06/2020	10:35:00	SO 1	1	X						1204021007	
8	T1-31B	08/06/2020	11:00:00	SO 1	1	X						1204021008	
9	T1-33A	08/06/2020	09:15:00	SO 1	1	X						1204021009	
10	T1-X	08/06/2020	14:57:00	Solid 1	1	X						1204021010	
Relinquished By: (1) <i>J. Shumway</i>		Date	Time	Received By:		DOD Project? YES		Data Deliverable Requirements:					
		8/11/20	0841	<i>Fedex</i>		Report to DL (J Flags)? YES		Level 2					
Relinquished By: (2) <i>Fedex</i>		Date	Time	Received By:		Cooler ID:		Requested Turnaround Time and-or Special Instructions:					
		8/12/20	945	<i>John O'Connell</i>									
Relinquished By: (3)		Date	Time	Received By:		Temp Blank °C: 1.4		Chain of Custody Seal: (Circle)					
Relinquished By: (4)		Date	Time	Received For Laboratory By:		or Ambient [ ]		INTACT BROKEN ABSENT					

[ X 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301  
[ . 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

[http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)

F088\_COC\_REF\_LAB\_20190411

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SGS North America Inc.  
CHAIN OF CUSTODY RECORD

1204021

Locations Nationwide  
Alaska Florida  
New Jersey Colorado  
Texas North Carolina  
Virginia Louisiana  
[www.us.sgs.com](http://www.us.sgs.com)

CLIENT: SGS North America Inc. - Alaska Division				SGS Reference:				Page 2 of 2							
CONTACT: Julie Shumway		PHONE NO: (907) 562-2343		Additional Comments: All soils report out in dry weight unless											
PROJECT NAME: 1204021		PWSID#: _____		CONTAINER	#	Preservative Used:	NONE	TYPE	C = COMP G = GRAB MI = Multi Incremental Soils	EPA 537 PFAS	MS	MSD	SGS lab #	Location ID	
REPORTS TO: Julie Shumway		E-MAIL: Julie.Shumway@sgs.com													
INVOICE TO: SGS - Alaska		QUOTE #: _____													
		P.O. #: 1204021													
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/MATRIX CODE											
11	T1-33B	08/06/2020	09:45:00	SO 1									1204021011		
12	T1-35A	08/06/2020	11:40:00	SO 1									1204021012		
13	T1-35B	08/06/2020	11:50:00	SO 1									1204021013		
14	T1-37A	08/06/2020	13:20:00	SO 1									1204021014		
15	T1-37B	08/06/2020	13:35:00	SO 1									1204021015		
Relinquished By: (1)		Date	Time	Received By:		DOD Project?		Report to DL (J Flags)?		Data Deliverable Requirements:					
<i>J. Shumway</i>		8/14/20	0944	<i>Fedex</i>		YES		YES		Level 2					
Relinquished By: (2)		Date	Time	Received By:		Cooler ID:									
<i>Fedex</i>		8/12/20	945	<i>[Signature]</i>		Requested Turnaround Time and-or Special Instructions:									
Relinquished By: (3)		Date	Time	Received By:		Temp Blank °C:		Chain of Custody Seal: (Circle)							
Relinquished By: (4)		Date	Time	Received For Laboratory By:		or Ambient [ ]		INTACT BROKEN ABSENT							

[X] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301  
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

[http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)

F088\_COC\_REF\_LAB\_20190411

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## SGS Sample Receipt Summary

Job Number: FA77717

Client: SGS NORTH AMERICA, INC. - ALASKA DI

Project: 1204021

Date / Time Received: 8/12/2020 9:45:00 AM

Delivery Method: FEDEX

Airbill #'s: 148348008273

Therm ID:	Therm CF:	# of Coolers: N/A
Cooler Temps (Raw Measured) °C:		
Cooler Temps (Corrected) °C:		

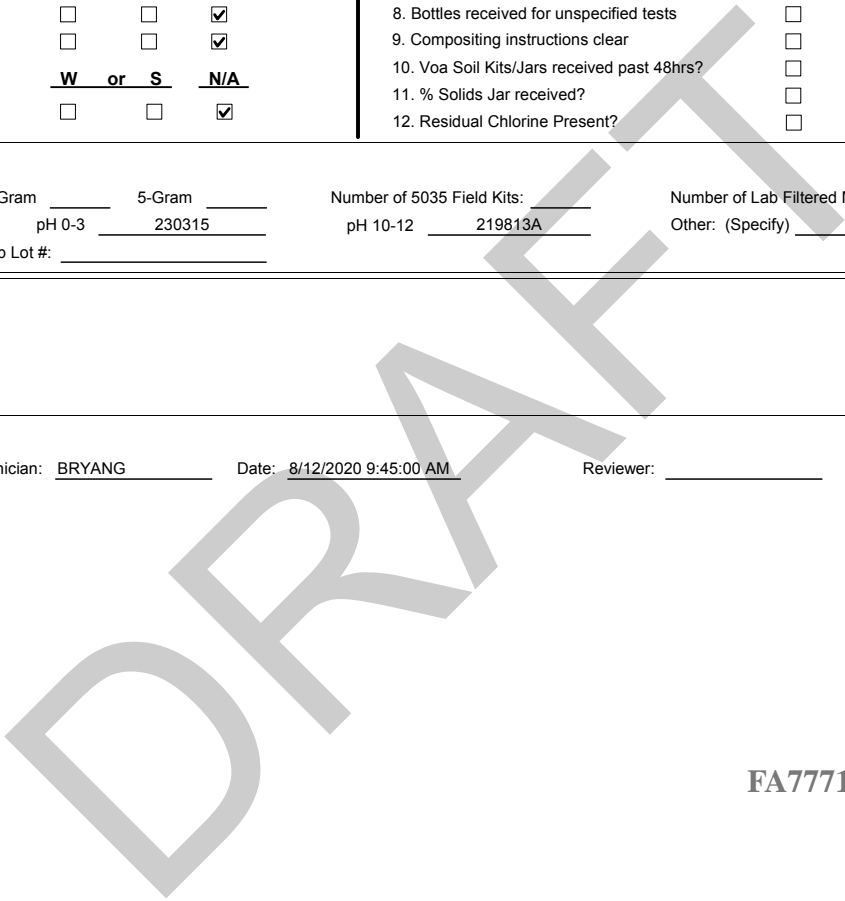
<u>Cooler Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	
1. Custody Seals Present	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Custody Seals Intact	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
3. Temp criteria achieved	<input type="checkbox"/>		<input type="checkbox"/>	
4. Cooler temp verification	N/A			
5. Cooler media	N/A			
<u>Trip Blank Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<u>W</u>	<u>or</u>	<u>S</u>	<u>N/A</u>
3. Type Of TB Received	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Sample labels present on bottles	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Samples preserved properly	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
3. Sufficient volume/containers recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Condition of sample	Intact			
5. Sample recvd within HT	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
6. Dates/Times/IDs on COC match Sample Label	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
7. VOCs have headspace	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
9. Compositing instructions clear	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Voa Soil Kits/Jars received past 48hrs?	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. % Solids Jar received?	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Residual Chlorine Present?	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Misc. Information</u>			
Number of Encores: 25-Gram _____	5-Gram _____	Number of 5035 Field Kits: _____	Number of Lab Filtered Metals: _____
Test Strip Lot #s: pH 0-3 _____	230315 _____	pH 10-12 _____	219813A _____
Residual Chlorine Test Strip Lot #: _____			

Comments

SM001 Rev. Date 05/24/17 Technician: BRYANG Date: 8/12/2020 9:45:00 AM Reviewer: \_\_\_\_\_ Date: \_\_\_\_\_



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# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77717  
**Account:** SGS North America, Inc  
**Project:** 1204021  
**Collected:** 08/06/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
--------------	------	---------	-------------	-------------	--------	-------	--------

OP81701 EPA 537M QSM5.3 B-15

OP81701-BS	375-22-4	Perfluorobutanoic acid	BSP	REC	102	%	71-135
OP81701-BS	2706-90-3	Perfluoropentanoic acid	BSP	REC	91	%	69-132
OP81701-BS	307-24-4	Perfluorohexanoic acid	BSP	REC	93	%	70-132
OP81701-BS	375-85-9	Perfluoroheptanoic acid	BSP	REC	99	%	71-131
OP81701-BS	335-67-1	Perfluorooctanoic acid	BSP	REC	102	%	69-133
OP81701-BS	375-95-1	Perfluorononanoic acid	BSP	REC	96	%	72-129
OP81701-BS	335-76-2	Perfluorodecanoic acid	BSP	REC	94	%	69-133
OP81701-BS	2058-94-8	Perfluoroundecanoic acid	BSP	REC	97	%	64-136
OP81701-BS	307-55-1	Perfluorododecanoic acid	BSP	REC	99	%	69-135
OP81701-BS	72629-94-8	Perfluorotridecanoic acid	BSP	REC	91	%	66-139
OP81701-BS	376-06-7	Perfluorotetradecanoic acid	BSP	REC	93	%	69-133
OP81701-BS	375-73-5	Perfluorobutanesulfonic acid	BSP	REC	101	%	72-128
OP81701-BS	2706-91-4	Perfluoropentanesulfonic acid	BSP	REC	98	%	73-123
OP81701-BS	355-46-4	Perfluorohexanesulfonic acid	BSP	REC	91	%	67-130
OP81701-BS	375-92-8	Perfluoroheptanesulfonic acid	BSP	REC	95	%	70-132
OP81701-BS	1763-23-1	Perfluorooctanesulfonic acid	BSP	REC	98	%	67-136
OP81701-BS	68259-12-1	Perfluorononanesulfonic acid	BSP	REC	100	%	69-125
OP81701-BS	335-77-3	Perfluorodecanesulfonic acid	BSP	REC	104	%	59-134
OP81701-BS	754-91-6	PFOSA	BSP	REC	100	%	67-137
OP81701-BS	2355-31-9	MeFOSAA	BSP	REC	100	%	63-144
OP81701-BS	2991-50-6	EtFOSAA	BSP	REC	97	%	61-139
OP81701-BS	757124-72-4	4:2 Fluorotelomer sulfonate	BSP	REC	99	%	62-145
OP81701-BS	27619-97-2	6:2 Fluorotelomer sulfonate	BSP	REC	100	%	64-140
OP81701-BS	39108-34-4	8:2 Fluorotelomer sulfonate	BSP	REC	99	%	65-137
OP81701-MS	375-22-4	Perfluorobutanoic acid	MS	REC	96	%	71-135
OP81701-MS	2706-90-3	Perfluoropentanoic acid	MS	REC	94	%	69-132
OP81701-MS	307-24-4	Perfluorohexanoic acid	MS	REC	94	%	70-132
OP81701-MS	375-85-9	Perfluoroheptanoic acid	MS	REC	99	%	71-131
OP81701-MS	335-67-1	Perfluorooctanoic acid	MS	REC	96	%	69-133
OP81701-MS	375-95-1	Perfluorononanoic acid	MS	REC	98	%	72-129
OP81701-MS	335-76-2	Perfluorodecanoic acid	MS	REC	98	%	69-133
OP81701-MS	2058-94-8	Perfluoroundecanoic acid	MS	REC	96	%	64-136
OP81701-MS	307-55-1	Perfluorododecanoic acid	MS	REC	99	%	69-135
OP81701-MS	72629-94-8	Perfluorotridecanoic acid	MS	REC	83	%	66-139
OP81701-MS	376-06-7	Perfluorotetradecanoic acid	MS	REC	98	%	69-133
OP81701-MS	375-73-5	Perfluorobutanesulfonic acid	MS	REC	97	%	72-128
OP81701-MS	2706-91-4	Perfluoropentanesulfonic acid	MS	REC	92	%	73-123
OP81701-MS	355-46-4	Perfluorohexanesulfonic acid	MS	REC	97	%	67-130
OP81701-MS	375-92-8	Perfluoroheptanesulfonic acid	MS	REC	99	%	70-132
OP81701-MS	1763-23-1	Perfluorooctanesulfonic acid	MS	REC	82	%	67-136
OP81701-MS	68259-12-1	Perfluorononanesulfonic acid	MS	REC	95	%	69-125
OP81701-MS	335-77-3	Perfluorodecanesulfonic acid	MS	REC	114	%	59-134

\* Sample used for QC is not from job FA77717

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77717  
**Account:** SGS North America, Inc  
**Project:** 1204021  
**Collected:** 08/06/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP81701-MS	754-91-6	PFOSA	MS	REC	98	%	67-137
OP81701-MS	2355-31-9	MeFOSAA	MS	REC	91	%	63-144
OP81701-MS	2991-50-6	EtFOSAA	MS	REC	106	%	61-139
OP81701-MS	757124-72-4	4:2 Fluorotelomer sulfonate	MS	REC	99	%	62-145
OP81701-MS	27619-97-2	6:2 Fluorotelomer sulfonate	MS	REC	95	%	64-140
OP81701-MS	39108-34-4	8:2 Fluorotelomer sulfonate	MS	REC	96	%	65-137
OP81701-MSD	375-22-4	Perfluorobutanoic acid	MSD	REC	91	%	71-135
OP81701-MSD	375-22-4	Perfluorobutanoic acid	MSD	RPD	0	%	30
OP81701-MSD	2706-90-3	Perfluoropentanoic acid	MSD	REC	88	%	69-132
OP81701-MSD	2706-90-3	Perfluoropentanoic acid	MSD	RPD	1	%	30
OP81701-MSD	307-24-4	Perfluorohexanoic acid	MSD	REC	82	%	70-132
OP81701-MSD	307-24-4	Perfluorohexanoic acid	MSD	RPD	7	%	30
OP81701-MSD	375-85-9	Perfluoroheptanoic acid	MSD	REC	90	%	71-131
OP81701-MSD	375-85-9	Perfluoroheptanoic acid	MSD	RPD	3	%	30
OP81701-MSD	335-67-1	Perfluorooctanoic acid	MSD	REC	89	%	69-133
OP81701-MSD	335-67-1	Perfluorooctanoic acid	MSD	RPD	1	%	30
OP81701-MSD	375-95-1	Perfluorononanoic acid	MSD	REC	90	%	72-129
OP81701-MSD	375-95-1	Perfluorononanoic acid	MSD	RPD	2	%	30
OP81701-MSD	335-76-2	Perfluorodecanoic acid	MSD	REC	94	%	69-133
OP81701-MSD	335-76-2	Perfluorodecanoic acid	MSD	RPD	2	%	30
OP81701-MSD	2058-94-8	Perfluoroundecanoic acid	MSD	REC	92	%	64-136
OP81701-MSD	2058-94-8	Perfluoroundecanoic acid	MSD	RPD	1	%	30
OP81701-MSD	307-55-1	Perfluorododecanoic acid	MSD	REC	91	%	69-135
OP81701-MSD	307-55-1	Perfluorododecanoic acid	MSD	RPD	2	%	30
OP81701-MSD	72629-94-8	Perfluorotridecanoic acid	MSD	REC	80	%	66-139
OP81701-MSD	72629-94-8	Perfluorotridecanoic acid	MSD	RPD	2	%	30
OP81701-MSD	376-06-7	Perfluorotetradecanoic acid	MSD	REC	91	%	69-133
OP81701-MSD	376-06-7	Perfluorotetradecanoic acid	MSD	RPD	0	%	30
OP81701-MSD	375-73-5	Perfluorobutanesulfonic acid	MSD	REC	90	%	72-128
OP81701-MSD	375-73-5	Perfluorobutanesulfonic acid	MSD	RPD	1	%	30
OP81701-MSD	2706-91-4	Perfluoropentanesulfonic acid	MSD	REC	86	%	73-123
OP81701-MSD	2706-91-4	Perfluoropentanesulfonic acid	MSD	RPD	1	%	30
OP81701-MSD	355-46-4	Perfluorohexanesulfonic acid	MSD	REC	82	%	67-130
OP81701-MSD	355-46-4	Perfluorohexanesulfonic acid	MSD	RPD	9	%	30
OP81701-MSD	375-92-8	Perfluoroheptanesulfonic acid	MSD	REC	93	%	70-132
OP81701-MSD	375-92-8	Perfluoroheptanesulfonic acid	MSD	RPD	0	%	30
OP81701-MSD	1763-23-1	Perfluorooctanesulfonic acid	MSD	REC	48	%	67-136
OP81701-MSD	1763-23-1	Perfluorooctanesulfonic acid	MSD	RPD	23	%	30
OP81701-MSD	68259-12-1	Perfluorononanesulfonic acid	MSD	REC	89	%	69-125
OP81701-MSD	68259-12-1	Perfluorononanesulfonic acid	MSD	RPD	1	%	30
OP81701-MSD	335-77-3	Perfluorodecanesulfonic acid	MSD	REC	98	%	59-134
OP81701-MSD	335-77-3	Perfluorodecanesulfonic acid	MSD	RPD	9	%	30
OP81701-MSD	754-91-6	PFOSA	MSD	REC	90	%	67-137
OP81701-MSD	754-91-6	PFOSA	MSD	RPD	2	%	30
OP81701-MSD	2355-31-9	MeFOSAA	MSD	REC	90	%	63-144

\* Sample used for QC is not from job FA77717

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# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77717  
**Account:** SGS North America, Inc  
**Project:** 1204021  
**Collected:** 08/06/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP81701-MSD	2355-31-9	MeFOSAA	MSD	RPD	5	%	30
OP81701-MSD	2991-50-6	EtFOSAA	MSD	REC	99	%	61-139
OP81701-MSD	2991-50-6	EtFOSAA	MSD	RPD	1	%	30
OP81701-MSD	757124-72-4	4:2 Fluorotelomer sulfonate	MSD	REC	91	%	62-145
OP81701-MSD	757124-72-4	4:2 Fluorotelomer sulfonate	MSD	RPD	2	%	30
OP81701-MSD	27619-97-2	6:2 Fluorotelomer sulfonate	MSD	REC	87	%	64-140
OP81701-MSD	27619-97-2	6:2 Fluorotelomer sulfonate	MSD	RPD	2	%	30
OP81701-MSD	39108-34-4	8:2 Fluorotelomer sulfonate	MSD	REC	92	%	65-137
OP81701-MSD	39108-34-4	8:2 Fluorotelomer sulfonate	MSD	RPD	1	%	30

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\* Sample used for QC is not from job FA77717

## MS Semi-volatiles

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

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# Instrument Blank

**Job Number:** FA77717  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204021

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q789-IBLK	2Q53055.D	1	08/25/20	NAF	n/a	n/a	S2Q789

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77717-9

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.25	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	85% 50-150%
	13C5-PFPeA	84% 50-150%
	13C5-PFHxA	84% 50-150%
	13C4-PFHpA	82% 50-150%
	13C8-PFOA	85% 50-150%
	13C9-PFNA	85% 50-150%
	13C6-PFDA	88% 50-150%
	13C7-PFUnDA	87% 50-150%

# Instrument Blank

**Job Number:** FA77717  
**Account:** SGS/SAKA SGS North America, Inc  
**Project:** 1204021

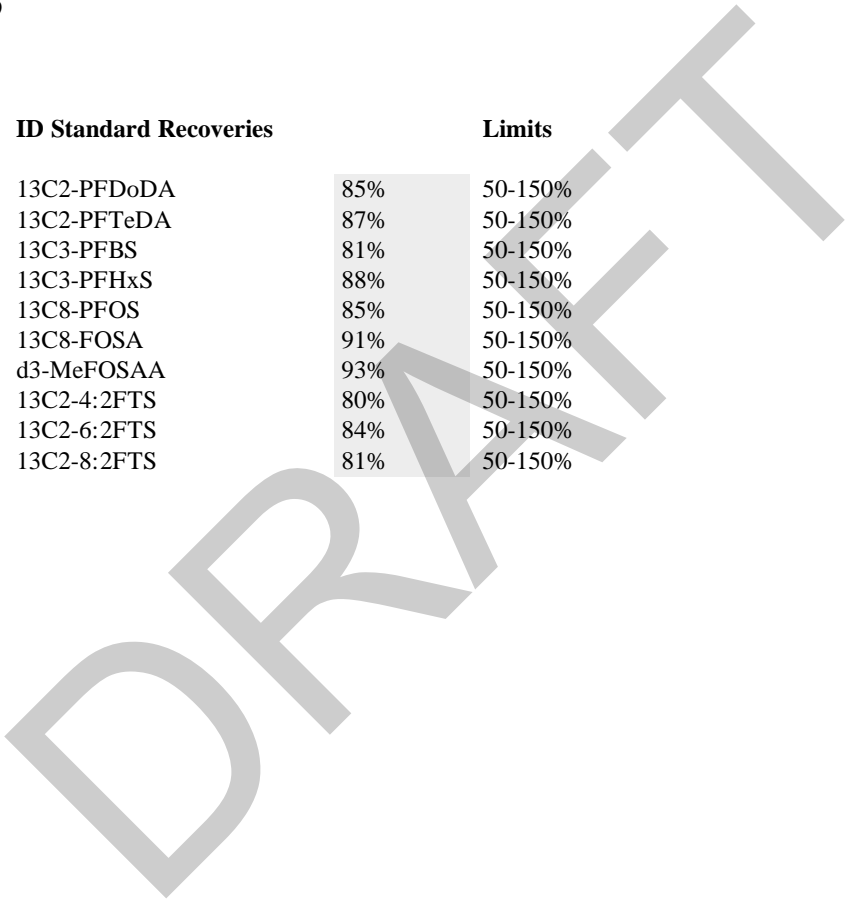
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q789-IBLK	2Q53055.D	1	08/25/20	NAF	n/a	n/a	S2Q789

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77717-9

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	85% 50-150%
	13C2-PFTeDA	87% 50-150%
	13C3-PFBS	81% 50-150%
	13C3-PFHxS	88% 50-150%
	13C8-PFOS	85% 50-150%
	13C8-FOSA	91% 50-150%
	d3-MeFOSAA	93% 50-150%
	13C2-4:2FTS	80% 50-150%
	13C2-6:2FTS	84% 50-150%
	13C2-8:2FTS	81% 50-150%



6.1.1  
6

# Instrument Blank

**Job Number:** FA77717  
**Account:** SGS/SAKA SGS North America, Inc  
**Project:** 1204021

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q791-IBLK	2Q53191.D	1	08/27/20	NAF	n/a	n/a	S2Q791

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77717-1, FA77717-2, FA77717-3, FA77717-4, FA77717-5, FA77717-6, FA77717-7, FA77717-8, FA77717-10, FA77717-11, FA77717-12, FA77717-13, FA77717-14, FA77717-15

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.25	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	103% 50-150%
	13C5-PFPeA	98% 50-150%
	13C5-PFHxA	99% 50-150%
	13C4-PFHpA	100% 50-150%
	13C8-PFOA	100% 50-150%
	13C9-PFNA	98% 50-150%
	13C6-PFDA	100% 50-150%
	13C7-PFUnDA	99% 50-150%

# Instrument Blank

**Job Number:** FA77717  
**Account:** SGS/SAKA SGS North America, Inc  
**Project:** 1204021

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q791-IBLK	2Q53191.D	1	08/27/20	NAF	n/a	n/a	S2Q791

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77717-1, FA77717-2, FA77717-3, FA77717-4, FA77717-5, FA77717-6, FA77717-7, FA77717-8, FA77717-10, FA77717-11, FA77717-12, FA77717-13, FA77717-14, FA77717-15

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	98% 50-150%
	13C2-PFTeDA	94% 50-150%
	13C3-PFBS	99% 50-150%
	13C3-PFHxS	100% 50-150%
	13C8-PFOS	101% 50-150%
	13C8-FOSA	105% 50-150%
	d3-MeFOSAA	101% 50-150%
	13C2-4:2FTS	95% 50-150%
	13C2-6:2FTS	96% 50-150%
	13C2-8:2FTS	96% 50-150%

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6.12  
6



# Method Blank Summary

**Job Number:** FA77717  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204021

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81701-MB	2Q53069.D	1	08/25/20	NAF	08/24/20	OP81701	S2Q789

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77717-1, FA77717-2, FA77717-3, FA77717-4, FA77717-5, FA77717-6, FA77717-7, FA77717-8, FA77717-9, FA77717-10, FA77717-11, FA77717-12, FA77717-13, FA77717-14, FA77717-15

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	0.29	1.0	0.25	ug/kg	J
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	63% 50-150%
	13C5-PFPeA	65% 50-150%
	13C5-PFHxA	65% 50-150%
	13C4-PFHpA	63% 50-150%
	13C8-PFOA	67% 50-150%
	13C9-PFNA	68% 50-150%
	13C6-PFDA	66% 50-150%
	13C7-PFUnDA	67% 50-150%

# Method Blank Summary

**Job Number:** FA77717  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204021

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81701-MB	2Q53069.D	1	08/25/20	NAF	08/24/20	OP81701	S2Q789

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77717-1, FA77717-2, FA77717-3, FA77717-4, FA77717-5, FA77717-6, FA77717-7, FA77717-8, FA77717-9, FA77717-10, FA77717-11, FA77717-12, FA77717-13, FA77717-14, FA77717-15

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	66% 50-150%
	13C2-PFTeDA	70% 50-150%
	13C3-PFBS	63% 50-150%
	13C3-PFHxS	70% 50-150%
	13C8-PFOS	64% 50-150%
	13C8-FOSA	72% 50-150%
	d3-MeFOSAA	76% 50-150%
	13C2-4:2FTS	61% 50-150%
	13C2-6:2FTS	66% 50-150%
	13C2-8:2FTS	63% 50-150%

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6

# Blank Spike Summary

**Job Number:** FA77717  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204021

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81701-BS	2Q53068.D	1	08/25/20	NAF	08/24/20	OP81701	S2Q789

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77717-1, FA77717-2, FA77717-3, FA77717-4, FA77717-5, FA77717-6, FA77717-7, FA77717-8, FA77717-9, FA77717-10, FA77717-11, FA77717-12, FA77717-13, FA77717-14, FA77717-15

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	10.2	102	71-135
2706-90-3	Perfluoropentanoic acid	10	9.1	91	69-132
307-24-4	Perfluorohexanoic acid	10	9.3	93	70-132
375-85-9	Perfluoroheptanoic acid	10	9.9	99	71-131
335-67-1	Perfluorooctanoic acid	10	10.2	102	69-133
375-95-1	Perfluorononanoic acid	10	9.6	96	72-129
335-76-2	Perfluorodecanoic acid	10	9.4	94	69-133
2058-94-8	Perfluoroundecanoic acid	10	9.7	97	64-136
307-55-1	Perfluorododecanoic acid	10	9.9	99	69-135
72629-94-8	Perfluorotridecanoic acid	10	9.1	91	66-139
376-06-7	Perfluorotetradecanoic acid	10	9.3	93	69-133
375-73-5	Perfluorobutanesulfonic acid	10	10.1	101	72-128
2706-91-4	Perfluoropentanesulfonic acid	10	9.8	98	73-123
355-46-4	Perfluorohexanesulfonic acid	10	9.1	91	67-130
375-92-8	Perfluoroheptanesulfonic acid	10	9.5	95	70-132
1763-23-1	Perfluorooctanesulfonic acid	10	9.8	98	67-136
68259-12-1	Perfluorononanesulfonic acid	10	10	100	69-125
335-77-3	Perfluorodecanesulfonic acid	10	10.4	104	59-134
754-91-6	PFOSA	10	10	100	67-137
2355-31-9	MeFOSAA	10	10.0	100	63-144
2991-50-6	EtFOSAA	10	9.7	97	61-139
757124-72-44:2	Fluorotelomer sulfonate	10	9.9	99	62-145
27619-97-2	6:2 Fluorotelomer sulfonate	10	10.0	100	64-140
39108-34-4	8:2 Fluorotelomer sulfonate	10	9.9	99	65-137

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	72%	50-150%
	13C5-PFPeA	73%	50-150%
	13C5-PFHxA	73%	50-150%
	13C4-PFHpA	70%	50-150%
	13C8-PFOA	75%	50-150%
	13C9-PFNA	76%	50-150%
	13C6-PFDA	76%	50-150%
	13C7-PFUnDA	76%	50-150%

\* = Outside of Control Limits.

# Blank Spike Summary

**Job Number:** FA77717  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1204021

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81701-BS	2Q53068.D	1	08/25/20	NAF	08/24/20	OP81701	S2Q789

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77717-1, FA77717-2, FA77717-3, FA77717-4, FA77717-5, FA77717-6, FA77717-7, FA77717-8, FA77717-9, FA77717-10, FA77717-11, FA77717-12, FA77717-13, FA77717-14, FA77717-15

CAS No.	ID Standard Recoveries	BSP	Limits
	13C2-PFDoDA	76%	50-150%
	13C2-PFTeDA	80%	50-150%
	13C3-PFBS	71%	50-150%
	13C3-PFHxS	79%	50-150%
	13C8-PFOS	72%	50-150%
	13C8-FOSA	78%	50-150%
	d3-MeFOSAA	86%	50-150%
	13C2-4:2FTS	72%	50-150%
	13C2-6:2FTS	77%	50-150%
	13C2-8:2FTS	75%	50-150%

DRY

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA77717  
**Account:** SGS/SAKA SGS North America, Inc  
**Project:** 1204021

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81701-MS	2Q53220.D	1	08/27/20	NAF	08/24/20	OP81701	S2Q791
OP81701-MSD	2Q53221.D	1	08/27/20	NAF	08/24/20	OP81701	S2Q791
FA77717-15 <sup>a</sup>	2Q53107.D	1	08/26/20	NAF	08/24/20	OP81701	S2Q789
FA77717-15	2Q53219.D	1	08/27/20	NAF	08/24/20	OP81701	S2Q791

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77717-1, FA77717-2, FA77717-3, FA77717-4, FA77717-5, FA77717-6, FA77717-7, FA77717-8, FA77717-9, FA77717-10, FA77717-11, FA77717-12, FA77717-13, FA77717-14, FA77717-15

CAS No.	Compound	FA77717-15 Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
375-22-4	Perfluorobutanoic acid	7.0 U <sup>b</sup>	68.9	66.2	96	73.3	66.5	91	0	71-135/30
2706-90-3	Perfluoropentanoic acid	5.4 <sup>b</sup> J	68.9	70.4	94	73.3	69.9	88	1	69-132/30
307-24-4	Perfluorohexanoic acid	15.0 <sup>b</sup>	68.9	80.0	94	73.3	74.8	82	7	70-132/30
375-85-9	Perfluoroheptanoic acid	4.2 <sup>b</sup> J	68.9	72.1	99	73.3	70.1	90	3	71-131/30
335-67-1	Perfluorooctanoic acid	7.0 U <sup>b</sup>	68.9	66.0	96	73.3	65.6	89	1	69-133/30
375-95-1	Perfluorononanoic acid	7.0 U <sup>b</sup>	68.9	67.6	98	73.3	66.1	90	2	72-129/30
335-76-2	Perfluorodecanoic acid	7.0 U <sup>b</sup>	68.9	67.6	98	73.3	69.3	94	2	69-133/30
2058-94-8	Perfluoroundecanoic acid	7.0 U <sup>b</sup>	68.9	66.2	96	73.3	67.2	92	1	64-136/30
307-55-1	Perfluorododecanoic acid	7.0 U <sup>b</sup>	68.9	68.2	99	73.3	66.7	91	2	69-135/30
72629-94-8	Perfluorotridecanoic acid	7.0 U <sup>b</sup>	68.9	57.2	83	73.3	58.6	80	2	66-139/30
376-06-7	Perfluorotetradecanoic acid	7.0 U <sup>b</sup>	68.9	67.2	98	73.3	67.0	91	0	69-133/30
375-73-5	Perfluorobutanesulfonic acid	7.0 U <sup>b</sup>	68.9	67.0	97	73.3	66.3	90	1	72-128/30
2706-91-4	Perfluoropentanesulfonic acid	7.0 U <sup>b</sup>	68.9	63.6	92	73.3	63.0	86	1	73-123/30
355-46-4	Perfluorohexanesulfonic acid	7.9 <sup>b</sup>	68.9	74.5	97	73.3	68.4	82	9	67-130/30
375-92-8	Perfluoroheptanesulfonic acid	7.0 U <sup>b</sup>	68.9	68.4	99	73.3	68.2	93	0	70-132/30
1763-23-1	Perfluorooctanesulfonic acid	48.2 <sup>b</sup>	68.9	105	82	73.3	83.7	48*	23	67-136/30
68259-12-1	Perfluorononanesulfonic acid	7.0 U <sup>b</sup>	68.9	65.7	95	73.3	65.1	89	1	69-125/30
335-77-3	Perfluorodecanesulfonic acid	7.0 U <sup>b</sup>	68.9	78.5	114	73.3	72.0	98	9	59-134/30
754-91-6	PFOSA	7.0 U <sup>b</sup>	68.9	67.5	98	73.3	66.0	90	2	67-137/30
2355-31-9	MeFOSAA	18 U <sup>b</sup>	68.9	62.6	91	73.3	66.0	90	5	63-144/30
2991-50-6	EtFOSAA	18 U <sup>b</sup>	68.9	72.7	106	73.3	72.3	99	1	61-139/30
757124-72-44:2	Fluorotelomer sulfonate	7.0 U <sup>b</sup>	68.9	68.1	99	73.3	67.0	91	2	62-145/30
27619-97-2	6:2 Fluorotelomer sulfonate	6.7 <sup>b</sup> J	68.9	72.0	95	73.3	70.4	87	2	64-140/30
39108-34-4	8:2 Fluorotelomer sulfonate	7.0 U <sup>b</sup>	68.9	66.4	96	73.3	67.3	92	1	65-137/30

CAS No.	ID Standard Recoveries	MS	MSD	FA77717-15	FA77717-15	Limits
13C4-PFBA		59%	61%	50%	61%	50-150%
13C5-PFPeA		53%	57%	44% * c	55%	50-150%
13C5-PFHxA		47% *	53%	41% * c	49% * c	50-150%
13C4-PFHpA		43% *	49% *	37% * c	47% * c	50-150%
13C8-PFOA		43% *	50%	38% * c	46% * c	50-150%
13C9-PFNA		45% *	51%	38% * c	47% * c	50-150%
13C6-PFDA		35% *	38% *	32% * c	36% * c	50-150%
13C7-PFUnDA		44% *	47% *	39% * c	43% * c	50-150%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA77717  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204021

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81701-MS	2Q53220.D	1	08/27/20	NAF	08/24/20	OP81701	S2Q791
OP81701-MSD	2Q53221.D	1	08/27/20	NAF	08/24/20	OP81701	S2Q791
FA77717-15 <sup>a</sup>	2Q53107.D	1	08/26/20	NAF	08/24/20	OP81701	S2Q789
FA77717-15	2Q53219.D	1	08/27/20	NAF	08/24/20	OP81701	S2Q791

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77717-1, FA77717-2, FA77717-3, FA77717-4, FA77717-5, FA77717-6, FA77717-7, FA77717-8, FA77717-9, FA77717-10, FA77717-11, FA77717-12, FA77717-13, FA77717-14, FA77717-15

CAS No.	ID Standard Recoveries	MS	MSD	FA77717-15	FA77717-15	Limits
13C2-PFDoDA		38% *	44% *	38% * <sup>c</sup>	33% * <sup>c</sup>	50-150%
13C2-PFTeDA		45% *	50%	39% * <sup>c</sup>	32% * <sup>c</sup>	50-150%
13C3-PFBS		53%	59%	45% * <sup>c</sup>	54%	50-150%
13C3-PFHxS		50%	55%	43% * <sup>c</sup>	52%	50-150%
13C8-PFOS		44% *	49% *	38% * <sup>c</sup>	48% * <sup>c</sup>	50-150%
13C8-FOSA		20% *	27% *	22% * <sup>c</sup>	22% * <sup>c</sup>	50-150%
d3-MeFOSAA		40% *	45% *	39% * <sup>c</sup>	32% * <sup>c</sup>	50-150%
13C2-4:2FTS		46% *	53%	40% * <sup>c</sup>	47% * <sup>c</sup>	50-150%
13C2-6:2FTS		45% *	51%	41% * <sup>c</sup>	47% * <sup>c</sup>	50-150%
13C2-8:2FTS		38% *	42% *	32% * <sup>c</sup>	36% * <sup>c</sup>	50-150%

(a) Confirmation run for ID Standard Recoveries.

(b) Result is from Run #2.

(c) Outside control limits due to matrix interference. Confirmed by reanalysis and MS/MSD.

\* = Outside of Control Limits.



## Laboratory Report of Analysis

To: Restoration Science & Eng  
911 West 8th Ave Suite 100  
Anchorage, AK 99501

Report Number: **1204046**

Client Project: **20-2176 CRW Postmark Bog V2**

Dear Kyle Wiseman,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Chuck at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,  
SGS North America Inc.

---

Chuck Homestead  
Project Manager  
Charles.Homestead@sgs.com

Date

## Case Narrative

SGS Client: **Restoration Science & Eng**  
SGS Project: **1204046**  
Project Name/Site: **20-2176 CRW Postmark Bog V2**  
Project Contact: **Kyle Wiseman**

Refer to sample receipt form for information on sample condition.

### **T1-03A (1204046001) PS**

EPA 537 PFAS was analyzed by SGS of Orlando, FL.

### **LCSD for HBN 1810503 [XXX/4368 (1575621) LCSD**

AK102/103 - Surrogate recovery in the LCSD for 5a androstane does not meet QC criteria; however, the surrogate recoveries in the samples are within criteria.

### **1204046001MS (1574910) MS**

9060A - Total Organic Carbon - MS recovery is outside of QC criteria. Refer to LCS for accuracy requirements.

DRAFT

\*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

Print Date: 09/03/2020 9:46:27AM



## Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCC/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

### Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
T1-03A	1204046001	08/07/2020	08/07/2020	Soil/Solid (dry weight)
T1-03B	1204046002	08/07/2020	08/07/2020	Solid/Soil (Wet Weight)
T1-05A	1204046003	08/07/2020	08/07/2020	Soil/Solid (dry weight)
T1-05B	1204046004	08/07/2020	08/07/2020	Soil/Solid (dry weight)
T1-11A	1204046005	08/07/2020	08/07/2020	Soil/Solid (dry weight)
T1-11B	1204046006	08/07/2020	08/07/2020	Soil/Solid (dry weight)
T1-13A	1204046007	08/07/2020	08/07/2020	Soil/Solid (dry weight)
T1-13B	1204046008	08/07/2020	08/07/2020	Solid/Soil (Wet Weight)
T1-15A	1204046009	08/07/2020	08/07/2020	Soil/Solid (dry weight)
T1-XX	1204046010	08/07/2020	08/07/2020	Solid/Soil (Wet Weight)
T1-17A	1204046011	08/07/2020	08/07/2020	Soil/Solid (dry weight)
T1-17B	1204046012	08/07/2020	08/07/2020	Soil/Solid (dry weight)
Trip Blank	1204046013	08/07/2020	08/07/2020	Soil/Solid (dry weight)

Method

AK101  
 SW8021B  
 AK102  
 AK103  
 SM21 2540G  
 SW9060A-Mod

Method Description

AK101/8021 Combo. (S)  
 AK101/8021 Combo. (S)  
 Diesel/Residual Range Organics  
 Diesel/Residual Range Organics  
 Percent Solids SM2540G  
 Total Organic Carbon-M in Soil

## Detectable Results Summary

Client Sample ID: **T1-03A**  
 Lab Sample ID: 1204046001  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1380	mg/kg
Residual Range Organics	17000	mg/kg
Gasoline Range Organics	15.7J	mg/Kg
Total Organic Carbon	33.8	%

**Volatile Fuels**  
**Waters Department**

Client Sample ID: **T1-05A**  
 Lab Sample ID: 1204046003  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	825	mg/kg
Residual Range Organics	9220	mg/kg
Total Organic Carbon	33.0	%

**Waters Department**

Client Sample ID: **T1-11A**  
 Lab Sample ID: 1204046005  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1700	mg/kg
Residual Range Organics	18900	mg/kg
Total Organic Carbon	40.3	%

**Waters Department**

Client Sample ID: **T1-13A**  
 Lab Sample ID: 1204046007  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	796	mg/kg
Residual Range Organics	9240	mg/kg
Total Organic Carbon	37.4	%

**Waters Department**

Client Sample ID: **T1-15A**  
 Lab Sample ID: 1204046009  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	875	mg/kg
Residual Range Organics	8260	mg/kg
Total Organic Carbon	25.0	%

**Waters Department**

Client Sample ID: **T1-17A**  
 Lab Sample ID: 1204046011  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	724	mg/kg
Residual Range Organics	8750	mg/kg
Total Organic Carbon	34.4	%

**Waters Department**

## Results of T1-03A

Client Sample ID: **T1-03A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204046001  
 Lab Project ID: 1204046

Collection Date: 08/07/20 12:00  
 Received Date: 08/07/20 16:20  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):27.9  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1380	286	88.7	mg/kg	4		08/31/20 22:16

### Surrogates

5a Androstane (surr)	126	50-150		%	4		08/31/20 22:16
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## Batch Information

Analytical Batch: XFC15712  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 22:16  
 Container ID: 1204046001-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.013 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	17000	1430	615	mg/kg	4		08/31/20 22:16

### Surrogates

n-Triacontane-d62 (surr)	82.8	50-150		%	4		08/31/20 22:16
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## Batch Information

Analytical Batch: XFC15712  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 22:16  
 Container ID: 1204046001-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.013 g  
 Prep Extract Vol: 5 mL



Results of T1-03A

Client Sample ID: T1-03A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204046001
Lab Project ID: 1204046

Collection Date: 08/07/20 12:00
Received Date: 08/07/20 16:20
Matrix: Soil/Solid (dry weight)
Solids (%):27.9
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 15.7 J, 43.6, 13.1, mg/Kg, 1, 08/11/20 23:16

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 101, 50-150, %, 1, 08/11/20 23:16

Batch Information

Analytical Batch: VFC15277
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/11/20 23:16
Container ID: 1204046001-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/07/20 12:00
Prep Initial Wt./Vol.: 14.551 g
Prep Extract Vol: 35.4842 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 95.9, 72-119, %, 1, 08/11/20 23:16

Batch Information

Analytical Batch: VFC15277
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/11/20 23:16
Container ID: 1204046001-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/07/20 12:00
Prep Initial Wt./Vol.: 14.551 g
Prep Extract Vol: 35.4842 mL

### Results of T1-03A

Client Sample ID: **T1-03A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204046001  
Lab Project ID: 1204046

Collection Date: 08/07/20 12:00  
Received Date: 08/07/20 16:20  
Matrix: Soil/Solid (dry weight)  
Solids (%):27.9  
Location:

### Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	33.8	1.25	0.376	%	1		08/15/20 13:17

### Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 13:17  
Container ID: 1204046001-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 71.3 mg  
Prep Extract Vol: 1 mL

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## Results of T1-05A

Client Sample ID: **T1-05A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204046003  
 Lab Project ID: 1204046

Collection Date: 08/07/20 13:35  
 Received Date: 08/07/20 16:20  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):21.4  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	825	93.0	28.8	mg/kg	1		08/31/20 03:09
<b>Surrogates</b>							
5a Androstane (surr)	104	50-150		%	1		08/31/20 03:09

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 03:09  
 Container ID: 1204046003-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.072 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	9220	465	200	mg/kg	1		08/31/20 03:09
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	77.8	50-150		%	1		08/31/20 03:09

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 03:09  
 Container ID: 1204046003-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.072 g  
 Prep Extract Vol: 5 mL



Results of T1-05A

Client Sample ID: T1-05A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204046003
Lab Project ID: 1204046

Collection Date: 08/07/20 13:35
Received Date: 08/07/20 16:20
Matrix: Soil/Solid (dry weight)
Solids (%):21.4
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 23.9 U, 47.7, 14.3, mg/Kg, 1, 08/11/20 23:34

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 103, 50-150, %, 1, 08/11/20 23:34

Batch Information

Analytical Batch: VFC15277
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/11/20 23:34
Container ID: 1204046003-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/07/20 13:35
Prep Initial Wt./Vol.: 19.825 g
Prep Extract Vol: 40.5736 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 94, 72-119, %, 1, 08/11/20 23:34

Batch Information

Analytical Batch: VFC15277
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/11/20 23:34
Container ID: 1204046003-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/07/20 13:35
Prep Initial Wt./Vol.: 19.825 g
Prep Extract Vol: 40.5736 mL



## Results of T1-05A

Client Sample ID: **T1-05A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204046003  
 Lab Project ID: 1204046

Collection Date: 08/07/20 13:35  
 Received Date: 08/07/20 16:20  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):21.4  
 Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	33.0	1.77	0.530	%	1		08/15/20 13:34

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Analyst: EWW  
 Analytical Date/Time: 08/15/20 13:34  
 Container ID: 1204046003-A

Prep Batch: WXX13402  
 Prep Method: METHOD  
 Prep Date/Time: 08/15/20 10:30  
 Prep Initial Wt./Vol.: 66 mg  
 Prep Extract Vol: 1 mL

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## Results of T1-11A

Client Sample ID: **T1-11A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204046005  
 Lab Project ID: 1204046

Collection Date: 08/07/20 14:15  
 Received Date: 08/07/20 16:20  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):22.4  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1700	356	110	mg/kg	4		08/31/20 22:26
<b>Surrogates</b>							
5a Androstane (surr)	107	50-150		%	4		08/31/20 22:26

## Batch Information

Analytical Batch: XFC15712  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 22:26  
 Container ID: 1204046005-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.107 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	18900	1780	766	mg/kg	4		08/31/20 22:26
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	84.2	50-150		%	4		08/31/20 22:26

## Batch Information

Analytical Batch: XFC15712  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 22:26  
 Container ID: 1204046005-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.107 g  
 Prep Extract Vol: 5 mL



Results of T1-11A

Client Sample ID: T1-11A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204046005
Lab Project ID: 1204046

Collection Date: 08/07/20 14:15
Received Date: 08/07/20 16:20
Matrix: Soil/Solid (dry weight)
Solids (%):22.4
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 24.0 U, 48.0, 14.4, mg/Kg, 1, 08/11/20 23:52

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 94.5, 50-150, %, 1, 08/11/20 23:52

Batch Information

Analytical Batch: VFC15277
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/11/20 23:52
Container ID: 1204046005-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/07/20 14:15
Prep Initial Wt./Vol.: 18.179 g
Prep Extract Vol: 39.109 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 95, 72-119, %, 1, 08/11/20 23:52

Batch Information

Analytical Batch: VFC15277
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/11/20 23:52
Container ID: 1204046005-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/07/20 14:15
Prep Initial Wt./Vol.: 18.179 g
Prep Extract Vol: 39.109 mL

## Results of T1-11A

Client Sample ID: **T1-11A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204046005  
Lab Project ID: 1204046

Collection Date: 08/07/20 14:15  
Received Date: 08/07/20 16:20  
Matrix: Soil/Solid (dry weight)  
Solids (%):22.4  
Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	40.3	1.54	0.461	%	1		08/15/20 13:50

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 13:50  
Container ID: 1204046005-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 72.6 mg  
Prep Extract Vol: 1 mL

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## Results of T1-13A

Client Sample ID: **T1-13A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204046007  
 Lab Project ID: 1204046

Collection Date: 08/07/20 13:05  
 Received Date: 08/07/20 16:20  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):14.4  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	796	136	42.3	mg/kg	1		08/31/20 03:19
<b>Surrogates</b>							
5a Androstane (surr)	119	50-150		%	1		08/31/20 03:19

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 03:19  
 Container ID: 1204046007-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.469 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	9240	682	293	mg/kg	1		08/31/20 03:19
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	84.3	50-150		%	1		08/31/20 03:19

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 03:19  
 Container ID: 1204046007-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.469 g  
 Prep Extract Vol: 5 mL



**Results of T1-13A**

Client Sample ID: **T1-13A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204046007  
Lab Project ID: 1204046

Collection Date: 08/07/20 13:05  
Received Date: 08/07/20 16:20  
Matrix: Soil/Solid (dry weight)  
Solids (%):14.4  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	39.8 U	79.5	23.8	mg/Kg	1		08/12/20 00:10

**Surrogates**

4-Bromofluorobenzene (surr)	98.1	50-150		%	1		08/12/20 00:10
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: AK101  
Analyst: ALJ  
Analytical Date/Time: 08/12/20 00:10  
Container ID: 1204046007-B

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/07/20 13:05  
Prep Initial Wt./Vol.: 17.358 g  
Prep Extract Vol: 39.8503 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	199 U	397	127	ug/kg	1		08/12/20 00:10
Ethylbenzene	398 U	795	248	ug/kg	1		08/12/20 00:10
o-Xylene	398 U	795	248	ug/kg	1		08/12/20 00:10
P & M -Xylene	795 U	1590	477	ug/kg	1		08/12/20 00:10
Toluene	398 U	795	248	ug/kg	1		08/12/20 00:10
Xylenes (total)	1190 U	2380	725	ug/kg	1		08/12/20 00:10

**Surrogates**

1,4-Difluorobenzene (surr)	95.2	72-119		%	1		08/12/20 00:10
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: SW8021B  
Analyst: ALJ  
Analytical Date/Time: 08/12/20 00:10  
Container ID: 1204046007-B

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/07/20 13:05  
Prep Initial Wt./Vol.: 17.358 g  
Prep Extract Vol: 39.8503 mL

## Results of T1-13A

Client Sample ID: **T1-13A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204046007  
Lab Project ID: 1204046

Collection Date: 08/07/20 13:05  
Received Date: 08/07/20 16:20  
Matrix: Soil/Solid (dry weight)  
Solids (%):14.4  
Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	37.4	2.81	0.843	%	1		08/15/20 13:42

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 13:42  
Container ID: 1204046007-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 61.6 mg  
Prep Extract Vol: 1 mL

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## Results of T1-15A

Client Sample ID: **T1-15A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204046009  
 Lab Project ID: 1204046

Collection Date: 08/07/20 11:10  
 Received Date: 08/07/20 16:20  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):46.8  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	875	169	52.3	mg/kg	4		08/31/20 22:56
<b>Surrogates</b>							
5a Androstane (surr)	106	50-150		%	4		08/31/20 22:56

## Batch Information

Analytical Batch: XFC15712  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 22:56  
 Container ID: 1204046009-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.388 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	8260	844	363	mg/kg	4		08/31/20 22:56
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	90.6	50-150		%	4		08/31/20 22:56

## Batch Information

Analytical Batch: XFC15712  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 22:56  
 Container ID: 1204046009-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.388 g  
 Prep Extract Vol: 5 mL





Results of T1-15A

Client Sample ID: T1-15A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204046009
Lab Project ID: 1204046

Collection Date: 08/07/20 11:10
Received Date: 08/07/20 16:20
Matrix: Soil/Solid (dry weight)
Solids (%):46.8
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 13.3 U, 26.6, 7.99, mg/Kg, 1, 08/12/20 00:28

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 89.6, 50-150, %, 1, 08/12/20 00:28

Batch Information

Analytical Batch: VFC15277
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/12/20 00:28
Container ID: 1204046009-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/07/20 11:10
Prep Initial Wt./Vol.: 12.757 g
Prep Extract Vol: 31.7904 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 94.9, 72-119, %, 1, 08/12/20 00:28

Batch Information

Analytical Batch: VFC15277
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/12/20 00:28
Container ID: 1204046009-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/07/20 11:10
Prep Initial Wt./Vol.: 12.757 g
Prep Extract Vol: 31.7904 mL

## Results of T1-15A

Client Sample ID: **T1-15A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204046009  
Lab Project ID: 1204046

Collection Date: 08/07/20 11:10  
Received Date: 08/07/20 16:20  
Matrix: Soil/Solid (dry weight)  
Solids (%):46.8  
Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	25.0	0.892	0.268	%	1		08/15/20 14:00

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 14:00  
Container ID: 1204046009-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 59.9 mg  
Prep Extract Vol: 1 mL

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## Results of T1-17A

Client Sample ID: **T1-17A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204046011  
 Lab Project ID: 1204046

Collection Date: 08/07/20 09:55  
 Received Date: 08/07/20 16:20  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):21.2  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	724	94.3	29.2	mg/kg	1		08/31/20 03:29
<b>Surrogates</b>							
5a Androstane (surr)	111	50-150		%	1		08/31/20 03:29

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 03:29  
 Container ID: 1204046011-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.003 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	8750	471	203	mg/kg	1		08/31/20 03:29
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	87.1	50-150		%	1		08/31/20 03:29

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 03:29  
 Container ID: 1204046011-A

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/20 13:42  
 Prep Initial Wt./Vol.: 30.003 g  
 Prep Extract Vol: 5 mL



Results of T1-17A

Client Sample ID: T1-17A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204046011
Lab Project ID: 1204046

Collection Date: 08/07/20 09:55
Received Date: 08/07/20 16:20
Matrix: Soil/Solid (dry weight)
Solids (%):21.2
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 32.0 U, 64.0, 19.2, mg/Kg, 1, 08/12/20 00:46

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 98.7, 50-150, %, 1, 08/12/20 00:46

Batch Information

Analytical Batch: VFC15277
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/12/20 00:46
Container ID: 1204046011-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/07/20 09:55
Prep Initial Wt./Vol.: 12.981 g
Prep Extract Vol: 35.2281 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 95.8, 72-119, %, 1, 08/12/20 00:46

Batch Information

Analytical Batch: VFC15277
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/12/20 00:46
Container ID: 1204046011-B

Prep Batch: VXX36101
Prep Method: SW5035A
Prep Date/Time: 08/07/20 09:55
Prep Initial Wt./Vol.: 12.981 g
Prep Extract Vol: 35.2281 mL

## Results of T1-17A

Client Sample ID: **T1-17A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204046011  
Lab Project ID: 1204046

Collection Date: 08/07/20 09:55  
Received Date: 08/07/20 16:20  
Matrix: Soil/Solid (dry weight)  
Solids (%):21.2  
Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	34.4	1.95	0.585	%	1		08/15/20 14:09

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 14:09  
Container ID: 1204046011-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 60.5 mg  
Prep Extract Vol: 1 mL

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**Results of Trip Blank**

Client Sample ID: **Trip Blank**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204046013  
Lab Project ID: 1204046

Collection Date: 08/07/20 09:55  
Received Date: 08/07/20 16:20  
Matrix: Soil/Solid (dry weight)  
Solids (%):  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.25 U	2.51	0.754	mg/Kg	1		08/11/20 18:09

**Surrogates**

4-Bromofluorobenzene (surr)	114	50-150		%	1		08/11/20 18:09
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: AK101  
Analyst: ALJ  
Analytical Date/Time: 08/11/20 18:09  
Container ID: 1204046013-A

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/07/20 09:55  
Prep Initial Wt./Vol.: 49.744 g  
Prep Extract Vol: 25 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	6.30 U	12.6	4.02	ug/kg	1		08/11/20 18:09
Ethylbenzene	12.6 U	25.1	7.84	ug/kg	1		08/11/20 18:09
o-Xylene	12.6 U	25.1	7.84	ug/kg	1		08/11/20 18:09
P & M -Xylene	25.1 U	50.3	15.1	ug/kg	1		08/11/20 18:09
Toluene	12.6 U	25.1	7.84	ug/kg	1		08/11/20 18:09
Xylenes (total)	37.7 U	75.4	22.9	ug/kg	1		08/11/20 18:09

**Surrogates**

1,4-Difluorobenzene (surr)	96	72-119		%	1		08/11/20 18:09
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**Batch Information**

Analytical Batch: VFC15277  
Analytical Method: SW8021B  
Analyst: ALJ  
Analytical Date/Time: 08/11/20 18:09  
Container ID: 1204046013-A

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 08/07/20 09:55  
Prep Initial Wt./Vol.: 49.744 g  
Prep Extract Vol: 25 mL

## Method Blank

Blank ID: MB for HBN 1810423 [SPT/11106]  
Blank Lab ID: 1575293

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

## Batch Information

Analytical Batch: SPT11106  
Analytical Method: SM21 2540G  
Instrument:  
Analyst: H.M  
Analytical Date/Time: 8/17/2020 5:18:00PM

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## Duplicate Sample Summary

Original Sample ID: 1204181008

Duplicate Sample ID: 1575294

QC for Samples:

1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

Analysis Date: 08/17/2020 17:18

Matrix: Soil/Solid (dry weight)

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	83.9	84.0	%	0.12	(< 15 )

## Batch Information

Analytical Batch: SPT11106

Analytical Method: SM21 2540G

Instrument:

Analyst: H.M

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## Method Blank

Blank ID: MB for HBN 1810178 [VXX/36101]  
Blank Lab ID: 1574160

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011, 1204046013

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	87	50-150		%

## Batch Information

Analytical Batch: VFC15277  
Analytical Method: AK101  
Instrument: Agilent 7890A PID/FID  
Analyst: ALJ  
Analytical Date/Time: 8/11/2020 5:51:00PM

Prep Batch: VXX36101  
Prep Method: SW5035A  
Prep Date/Time: 8/11/2020 6:00:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

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Print Date: 09/03/2020 9:46:42AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204046 [VXX36101]  
 Blank Spike Lab ID: 1574161  
 Date Analyzed: 08/11/2020 16:39

Spike Duplicate ID: LCSD for HBN 1204046 [VXX36101]  
 Spike Duplicate Lab ID: 1574162  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011, 1204046013

## Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	13.3	107	12.5	13.5	108	( 60-120 )	1.10	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene (surr)	1.25	90.3	90	1.25	92	92	( 50-150 )	1.90	

## Batch Information

Analytical Batch: VFC15277  
 Analytical Method: AK101  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ

Prep Batch: VXX36101  
 Prep Method: SW5035A  
 Prep Date/Time: 08/11/2020 06:00  
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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## Method Blank

Blank ID: MB for HBN 1810178 [VXX/36101]  
 Blank Lab ID: 1574160

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011, 1204046013

## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	6.25U	12.5	4.00	ug/kg
Ethylbenzene	12.5U	25.0	7.80	ug/kg
o-Xylene	12.5U	25.0	7.80	ug/kg
P & M -Xylene	25.0U	50.0	15.0	ug/kg
Toluene	12.5U	25.0	7.80	ug/kg
Xylenes (total)	37.5U	75.0	22.8	ug/kg
<b>Surrogates</b>				
1,4-Difluorobenzene (surr)	98.4	72-119		%

## Batch Information

Analytical Batch: VFC15277  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ  
 Analytical Date/Time: 8/11/2020 5:51:00PM

Prep Batch: VXX36101  
 Prep Method: SW5035A  
 Prep Date/Time: 8/11/2020 6:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL

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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204046 [VXX36101]  
 Blank Spike Lab ID: 1574163  
 Date Analyzed: 08/11/2020 17:15

Spike Duplicate ID: LCSD for HBN 1204046 [VXX36101]  
 Spike Duplicate Lab ID: 1574164  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011, 1204046013

## Results by SW8021B

Parameter	Blank Spike (ug/kg)			Spike Duplicate (ug/kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1250	1360	109	1250	1340	107	( 75-125 )	2.20	(< 20 )
Ethylbenzene	1250	1140	91	1250	1130	91	( 75-125 )	0.57	(< 20 )
o-Xylene	1250	1160	93	1250	1140	91	( 75-125 )	1.40	(< 20 )
P & M -Xylene	2500	2280	91	2500	2260	90	( 80-125 )	1.00	(< 20 )
Toluene	1250	1190	96	1250	1200	96	( 70-125 )	0.65	(< 20 )
Xylenes (total)	3750	3440	92	3750	3400	91	( 78-124 )	1.10	(< 20 )
<b>Surrogates</b>									
1,4-Difluorobenzene (surr)	1250	104	104	1250	103	103	( 72-119 )	0.23	

## Batch Information

Analytical Batch: VFC15277  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ

Prep Batch: VXX36101  
 Prep Method: SW5035A  
 Prep Date/Time: 08/11/2020 06:00  
 Spike Init Wt./Vol.: 1250 ug/kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 1250 ug/kg Extract Vol: 25 mL

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## Matrix Spike Summary

Original Sample ID: 1204053004  
 MS Sample ID: 1574165 MS  
 MSD Sample ID: 1574166 MSD

Analysis Date: 08/11/2020 18:27  
 Analysis Date: 08/11/2020 18:45  
 Analysis Date: 08/11/2020 19:03  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011, 1204046013

## Results by SW8021B

Parameter	Sample	Matrix Spike (ug/kg)			Spike Duplicate (ug/kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	7.25J	772	843	108	772	848	109	75-125	0.66	(< 20)
Ethylbenzene	24.6	772	765	96	772	777	98	75-125	1.60	(< 20)
o-Xylene	47.9	772	762	92	772	766	93	75-125	0.61	(< 20)
P & M -Xylene	163	1546	1609	94	1546	1630	95	80-125	1.30	(< 20)
Toluene	115	772	863	97	772	887	100	70-125	2.70	(< 20)
Xylenes (total)	211	2320	2372	93	2320	2393	94	78-124	1.10	(< 20)
<b>Surrogates</b>										
1,4-Difluorobenzene (surr)		772	773	100	772	770	100	72-119	0.32	

## Batch Information

Analytical Batch: VFC15277  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ  
 Analytical Date/Time: 8/11/2020 6:45:00PM

Prep Batch: VXX36101  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 8/11/2020 6:00:00AM  
 Prep Initial Wt./Vol.: 84.54g  
 Prep Extract Vol: 25.00mL

## Method Blank

Blank ID: MB for HBN 1810348 [WXX/13402]  
Blank Lab ID: 1574906

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by SW9060A-Mod

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Organic Carbon	0.0250U	0.0500	0.0150	%

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Instrument: TOC Analyzer 2  
Analyst: EWW  
Analytical Date/Time: 8/15/2020 11:06:25AM

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 8/15/2020 10:30:00AM  
Prep Initial Wt./Vol.: 500 mg  
Prep Extract Vol: 1 mL

DRAFT

## Method Blank

Blank ID: MB for HBN 1810348 [WXX/13402]  
Blank Lab ID: 1574911

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by SW9060A-Mod

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Organic Carbon	0.0250U	0.0500	0.0150	%

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Instrument: TOC Analyzer 2  
Analyst: EWW  
Analytical Date/Time: 8/15/2020 2:44:42PM

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 8/15/2020 10:30:00AM  
Prep Initial Wt./Vol.: 500 mg  
Prep Extract Vol: 1 mL

DRAFT

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204046 [WXX13402]  
 Blank Spike Lab ID: 1574907  
 Date Analyzed: 08/15/2020 11:19

Spike Duplicate ID: LCSD for HBN 1204046 [WXX13402]  
 Spike Duplicate Lab ID: 1574908  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by SW9060A-Mod

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	3.35	3.23	96	3.35	3.22	96	( 75-125 )	0.31	(< 25 )

## Batch Information

Analytical Batch: **WTC3027**  
 Analytical Method: **SW9060A-Mod**  
 Instrument: **TOC Analyzer 2**  
 Analyst: **EWV**

Prep Batch: **WXX13402**  
 Prep Method: **METHOD**  
 Prep Date/Time: **08/15/2020 10:30**  
 Spike Init Wt./Vol.: 3.35 % Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 3.35 % Extract Vol: 1 mL

DRAFT



## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204046 [WXX13402]  
 Blank Spike Lab ID: 1574912  
 Date Analyzed: 08/15/2020 14:59

Spike Duplicate ID: LCSD for HBN 1204046 [WXX13402]  
 Spike Duplicate Lab ID: 1574913  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by SW9060A-Mod

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	3.35	3.21	96	3.35	3.18	95	( 75-125 )	0.94	(< 25 )

## Batch Information

Analytical Batch: **WTC3027**  
 Analytical Method: **SW9060A-Mod**  
 Instrument: **TOC Analyzer 2**  
 Analyst: **EWV**

Prep Batch: **WXX13402**  
 Prep Method: **METHOD**  
 Prep Date/Time: **08/15/2020 10:30**  
 Spike Init Wt./Vol.: 3.35 % Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 3.35 % Extract Vol: 1 mL

DRAFT

## Matrix Spike Summary

Original Sample ID: 1204021014  
 MS Sample ID: 1574909 MS  
 MSD Sample ID:

Analysis Date: 08/15/2020 12:36  
 Analysis Date: 08/15/2020 12:43  
 Analysis Date:  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204046001

## Results by SW9060A-Mod

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	32.1	7.20	41.0	123				75-125		

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Instrument: TOC Analyzer 2  
 Analyst: EWW  
 Analytical Date/Time: 8/15/2020 12:43:57PM

Prep Batch: WXX13402  
 Prep Method: TOC Soils Prep (S)  
 Prep Date/Time: 8/15/2020 10:30:00AM  
 Prep Initial Wt./Vol.: 53.10mg  
 Prep Extract Vol: 1.00mL

DRAFT

## Matrix Spike Summary

Original Sample ID: 1204046001  
 MS Sample ID: 1574910 MS  
 MSD Sample ID:

Analysis Date: 08/15/2020 13:17  
 Analysis Date: 08/15/2020 13:26  
 Analysis Date:  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by SW9060A-Mod

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	33.8	4.98	40.5	130 *				75-125		

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Instrument: TOC Analyzer 2  
 Analyst: EWW  
 Analytical Date/Time: 8/15/2020 1:26:17PM

Prep Batch: WXX13402  
 Prep Method: TOC Soils Prep (S)  
 Prep Date/Time: 8/15/2020 10:30:00AM  
 Prep Initial Wt./Vol.: 71.80mg  
 Prep Extract Vol: 1.00mL

DRAFT

## Matrix Spike Summary

Original Sample ID: 1204074006  
 MS Sample ID: 1574914 MS  
 MSD Sample ID:

Analysis Date: 08/15/2020 15:20  
 Analysis Date: 08/15/2020 15:28  
 Analysis Date:  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by SW9060A-Mod

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	45.1	14.1	57.0	85			75-125			

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Instrument: TOC Analyzer 2  
 Analyst: EWW  
 Analytical Date/Time: 8/15/2020 3:28:50PM

Prep Batch: WXX13402  
 Prep Method: TOC Soils Prep (S)  
 Prep Date/Time: 8/15/2020 10:30:00AM  
 Prep Initial Wt./Vol.: 44.70mg  
 Prep Extract Vol: 1.00mL

DRAFT

## Method Blank

Blank ID: MB for HBN 1810503 [XXX/43688]  
Blank Lab ID: 1575619

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/kg
<b>Surrogates</b>				
5a Androstane (surr)	112	60-120		%

## Batch Information

Analytical Batch: XFC15711  
Analytical Method: AK102  
Instrument: Agilent 7890B R  
Analyst: CDM  
Analytical Date/Time: 8/31/2020 2:40:00AM

Prep Batch: XXX43688  
Prep Method: SW3550C  
Prep Date/Time: 8/19/2020 1:42:49PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 5 mL

DRAFT

Print Date: 09/03/2020 9:46:58AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204046 [XXX43688]  
 Blank Spike Lab ID: 1575620  
 Date Analyzed: 08/31/2020 02:50

Spike Duplicate ID: LCSD for HBN 1204046  
 [XXX43688]  
 Spike Duplicate Lab ID: 1575621  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by AK102

Parameter	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)			CL	RPD (%)	RPD CL	
	Spike	Result	Rec (%)	Spike	Result	Rec (%)				
Diesel Range Organics	833	759	91	833	836	100	( 75-125 )	9.60	(< 20 )	
<b>Surrogates</b>										
5a Androstane (surr)	16.7	115	115	16.7	127	127	* ( 60-120 )	10.00		

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK102  
 Instrument: Agilent 7890B R  
 Analyst: CDM

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/2020 13:42  
 Spike Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL

DRAFT

## Method Blank

Blank ID: MB for HBN 1810503 [XXX/43688]  
Blank Lab ID: 1575619

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	50.0U	100	43.0	mg/kg
<b>Surrogates</b>				
n-Triacontane-d62 (surr)	109	60-120		%

## Batch Information

Analytical Batch: XFC15711  
Analytical Method: AK103  
Instrument: Agilent 7890B R  
Analyst: CDM  
Analytical Date/Time: 8/31/2020 2:40:00AM

Prep Batch: XXX43688  
Prep Method: SW3550C  
Prep Date/Time: 8/19/2020 1:42:49PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 5 mL

DRAFT

Print Date: 09/03/2020 9:47:01AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204046 [XXX43688]  
 Blank Spike Lab ID: 1575620  
 Date Analyzed: 08/31/2020 02:50

Spike Duplicate ID: LCSD for HBN 1204046 [XXX43688]  
 Spike Duplicate Lab ID: 1575621  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204046001, 1204046003, 1204046005, 1204046007, 1204046009, 1204046011

## Results by AK103

Parameter	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)			CL	RPD (%)	RPD CL	
	Spike	Result	Rec (%)	Spike	Result	Rec (%)				
Residual Range Organics	833	740	89	833	815	98	( 60-120 )	9.70	(< 20 )	
<b>Surrogates</b>										
n-Triacontane-d62 (surr)	16.7	107	107	16.7	117	117	( 60-120 )	9.20		

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK103  
 Instrument: Agilent 7890B R  
 Analyst: CDM

Prep Batch: XXX43688  
 Prep Method: SW3550C  
 Prep Date/Time: 08/19/2020 13:42  
 Spike Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL

DRAFT





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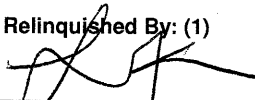
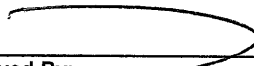
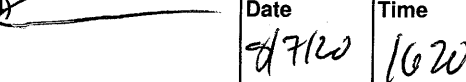
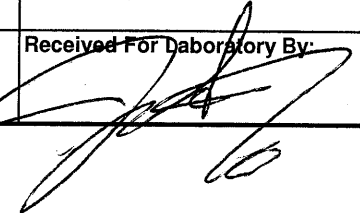
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INVOICE TO: <b>RSE</b>			QUOTE #: <b></b>						<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"></td> <td style="width: 10%; text-align: center;">PFAS</td> <td style="width: 10%; text-align: center;">DRO/RRO</td> <td style="width: 10%; text-align: center;">TOC</td> <td style="width: 10%; text-align: center;">GRO/BTEX</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">G</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">G</td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">G</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">G</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">G</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">G</td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">G</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">G</td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						PFAS	DRO/RRO	TOC	GRO/BTEX							3	G	X	X	X	X						1	G	X									3	G	X	X	X	X						3	G	X	X	X	X						3	G	X	X	X	X						1	G	X									3	G	X	X	X	X						1	G	X																																						
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4A	T1-05B	8/7/2020	13:45	SOIL	3	G	X	X	X	X	HOLD DRO, RRO, TOC, GRO, BTEX																																																																																																																																			
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Relinquished By: (1) Relinquished By: (2) Relinquished By: (3) Relinquished By: (4)					Date: <b>8/7/2020</b> Time: <b>16:19</b> Received By:		Section 4		DOD Project? Yes No		Data Deliverable Requirements:																																																																																																																																			
							Cooler ID:		Requested Turnaround Time and/or Special Instructions: <b>Profile #364091 gm</b>																																																																																																																																					
							Temp Blank °C: <b>4.0 #144</b>		Chain of Custody Seal: (Circle) INTACT BROKEN <b>ABSENT</b>																																																																																																																																					
					Received For Laboratory By:		or Ambient [ ]		Delivery Method: Hand Delivery <input checked="" type="checkbox"/> Commercial Delivery [ ]																																																																																																																																					

<http://www.sgs.com/terms-and-conditions>



SGS North America Inc.  
CHAIN OF CUSTODY RECORD

www.us.sgs.com

CLIENT: <b>RSE</b>					<b>Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.</b>					Page <b>2</b> of <b>2</b>						
CONTACT: <b>Kyle Wiseman</b>			PHONE #: <b>278-1023</b>		Section 3		Preservative									
PROJECT NAME: <b>CRW Postmark Bog V2</b>			PROJECT/PWSID/PERMIT#: <b>20-2176</b>		# C O N T A I N E R S		Analysis*					<b>1204046</b>				
REPORTS TO: <b>RSE</b>			E-MAIL: <b>kwise@restorsci.com</b>				Comp Grab		MI (Multi-incremental)					 analyses ic method und list: , PFAS		
INVOICE TO: <b>RSE</b>			QUOTE #: _____				PPAS		DRO/PRO		TOC		GRO/BTEX			
P.O. #: _____			RESERVED for lab use				MATRIX/MATRIX CODE									REMARKS/LOC ID
Section 2	<b>11A</b>	T1-17A	8/7/2020	9:55	801L	3	G	X	X	X	X					
<b>12A</b>	T1-17B	8/7/2020	10:15	801L	3	G	X	X	X	X	HOLD DRO, GRO, PRO TOC, BTEX					
<b>13A</b>	T2															
Section 5	Relinquished By: (1) 		Date: <b>8/7/2020</b>	Time: <b>10:20</b>	Received By: 		Section 4		DOD Project? Yes No		Data Deliverable Requirements:					
	Relinquished By: (2)		Date	Time	Received By:		Cooler ID:		Requested Turnaround Time and/or Special Instructions:							
	Relinquished By: (3)		Date	Time	Received By:		Temp Blank °C: <b>4.6° D44</b>		Chain of Custody Seal: (Circle) INTACT BROKEN <b>ABSENT</b>							
	Relinquished By: (4) 		Date: <b>8/7/20</b>	Time: <b>10:20</b>	Received For Laboratory By: 		Delivery Method: Hand Delivery <input checked="" type="checkbox"/> Commercial Delivery [ ]									

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e-Sample Receipt Form

SGS Workorder #:

1204046



1 2 0 4 0 4 6

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
<b>Chain of Custody / Temperature Requirements</b>	<b>Yes</b>	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	absent
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
<b>N/A</b> **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 4.6 °C Therm. ID: D44
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
<b>Holding Time / Documentation / Sample Condition Requirements</b>	Note: Refer to form F-083 "Sample Guide" for specific holding times.	
Were samples received within holding time?	Yes	
Do samples match COC** (i.e., sample IDs, dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
Were proper containers (type/mass/volume/preservative***) used?	Yes	N/A ***Exemption permitted for metals (e.g,200.8/6020A).
<b>Volatile / LL-Hg Requirements</b>		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	Yes	
<b>Note to Client:</b> Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		



### Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1204046001-A	No Preservative Required	OK			
1204046001-B	Methanol field pres. 4 C	OK			
1204046001-C	No Preservative Required	OK			
1204046002-A	No Preservative Required	OK			
1204046003-A	No Preservative Required	OK			
1204046003-B	Methanol field pres. 4 C	OK			
1204046003-C	No Preservative Required	OK			
1204046004-A	No Preservative Required	OK			
1204046004-B	Methanol field pres. 4 C	OK			
1204046004-C	No Preservative Required	OK			
1204046005-A	No Preservative Required	OK			
1204046005-B	Methanol field pres. 4 C	OK			
1204046005-C	No Preservative Required	OK			
1204046006-A	No Preservative Required	OK			
1204046006-B	Methanol field pres. 4 C	OK			
1204046006-C	No Preservative Required	OK			
1204046007-A	No Preservative Required	OK			
1204046007-B	Methanol field pres. 4 C	OK			
1204046007-C	No Preservative Required	OK			
1204046008-A	No Preservative Required	OK			
1204046009-A	No Preservative Required	OK			
1204046009-B	Methanol field pres. 4 C	OK			
1204046009-C	No Preservative Required	OK			
1204046010-A	No Preservative Required	OK			
1204046011-A	No Preservative Required	OK			
1204046011-B	Methanol field pres. 4 C	OK			
1204046011-C	No Preservative Required	OK			
1204046012-A	No Preservative Required	OK			
1204046012-B	Methanol field pres. 4 C	OK			
1204046012-C	No Preservative Required	OK			
1204046013-A	Methanol field pres. 4 C	OK			

Container Id

Preservative

Container  
Condition

Container Id

Preservative

Container  
Condition

DRAFT

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

QN - Insufficient sample quantity provided.

The results set forth herein are provided by SGS North America Inc.

*e-Hardcopy 2.0*  
*Automated Report*

## Technical Report for

SGS North America, Inc

1204046

SGS Job Number: FA77711

Sampling Date: 08/07/20

Report to:

SGS North America, Inc  
200 W Potter Dr  
Anchorage, AK 99518  
julie.shumway@sgs.com

ATTN: Julie Shumway

Total number of pages in report: 52



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer  
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001)  
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),  
AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Test results relate only to samples analyzed.

# Table of Contents

-1-

<b>Section 1: Sample Summary</b> .....	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary</b> .....	<b>4</b>
<b>Section 3: Summary of Hits</b> .....	<b>9</b>
<b>Section 4: Sample Results</b> .....	<b>11</b>
<b>4.1:</b> FA77711-1: T1-03A .....	12
<b>4.2:</b> FA77711-2: T1-03B .....	14
<b>4.3:</b> FA77711-3: T1-05A .....	16
<b>4.4:</b> FA77711-4: T1-05B .....	18
<b>4.5:</b> FA77711-5: T1-11A .....	20
<b>4.6:</b> FA77711-6: T1-11B .....	22
<b>4.7:</b> FA77711-7: T1-13A .....	24
<b>4.8:</b> FA77711-8: T1-13B .....	26
<b>4.9:</b> FA77711-9: T1-15A .....	28
<b>4.10:</b> FA77711-10: T1-XX .....	30
<b>4.11:</b> FA77711-11: T1-17A .....	32
<b>4.12:</b> FA77711-12: T1-17B .....	34
<b>Section 5: Misc. Forms</b> .....	<b>36</b>
<b>5.1:</b> Chain of Custody .....	37
<b>5.2:</b> QC Evaluation: DOD QSM5.x Limits .....	40
<b>Section 6: MS Semi-volatiles - QC Data Summaries</b> .....	<b>43</b>
<b>6.1:</b> Method Blank Summary .....	44
<b>6.2:</b> Blank Spike Summary .....	49
<b>6.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	51

DRAFT



## Sample Summary

SGS North America, Inc  
1204046

**Job No:** FA77711

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA77711-1	08/07/20	12:00	08/12/20	SO	Soil	T1-03A
FA77711-2	08/07/20	12:16	08/12/20	SO	Soil	T1-03B
FA77711-3	08/07/20	13:35	08/12/20	SO	Soil	T1-05A
FA77711-4	08/07/20	13:45	08/12/20	SO	Soil	T1-05B
FA77711-5	08/07/20	14:15	08/12/20	SO	Soil	T1-11A
FA77711-6	08/07/20	14:35	08/12/20	SO	Soil	T1-11B
FA77711-7	08/07/20	13:05	08/12/20	SO	Soil	T1-13A
FA77711-8	08/07/20	13:15	08/12/20	SO	Soil	T1-13B
FA77711-9	08/07/20	11:10	08/12/20	SO	Soil	T1-15A
FA77711-10	08/07/20	14:20	08/12/20	SO	Soil	T1-XX
FA77711-11	08/07/20	09:55	08/12/20	SO	Soil	T1-17A
FA77711-12	08/07/20	10:15	08/12/20	SO	Soil	T1-17B

---

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** SGS North America, Inc

**Job No:** FA77711

**Site:** 1204046

**Report Date:** 8/26/2020 12:03:54 PM

12 Samples were collected on 08/07/2020 and were received at SGS North America Inc - Orlando on 08/12/2020 properly preserved, at 1.4 Deg. C and intact. These Samples received an SGS Orlando job number of FA77711. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### MS Semi-volatiles By Method EPA 537M QSM5.3 B-15

**Matrix:** SO

**Batch ID:** OP81642

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA77936-1MS, FA77936-1MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Sample(s) FA77711-1, FA77711-10, FA77711-11, FA77711-12, FA77711-2, FA77711-3, FA77711-4, FA77711-5, FA77711-6, FA77711-7, FA77711-8, FA77711-9 have surrogates outside control limits.

FA77711-1 for 13C2-6:2FTS: Outside control limits due to matrix interference.

FA77711-1 for 13C2-8:2FTS: Outside control limits due to matrix interference.

FA77711-1 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77711-1 for 13C2-PFTeDA: Outside control limits due to matrix interference.

FA77711-1 for 13C4-PFHpA: Outside control limits due to matrix interference.

FA77711-1 for 13C6-PFDA: Outside control limits due to matrix interference.

FA77711-1 for 13C7-PFUnDA: Outside control limits due to matrix interference.

FA77711-1 for 13C8-FOSA: Outside control limits due to matrix interference.

FA77711-1 for 13C8-PFOA: Outside control limits due to matrix interference.

FA77711-1 for 13C8-PFOS: Outside control limits due to matrix interference.

FA77711-1 for 13C9-PFNA: Outside control limits due to matrix interference.

FA77711-1 for d3-MeFOSAA: Outside control limits due to matrix interference.

FA77711-1: Dilution required due to matrix interference (ID recovery standard failure).

FA77711-2 for 13C2-4:2FTS: Outside control limits due to matrix interference.

FA77711-2 for 13C2-6:2FTS: Outside control limits due to matrix interference.

FA77711-2 for 13C2-8:2FTS: Outside control limits due to matrix interference.

FA77711-2 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77711-2 for 13C2-PFTeDA: Outside control limits due to matrix interference.

FA77711-2 for 13C3-PFHxS: Outside control limits due to matrix interference.

FA77711-2 for 13C4-PFHpA: Outside control limits due to matrix interference.

FA77711-2 for 13C5-PFHxA: Outside control limits due to matrix interference.

FA77711-2 for 13C6-PFDA: Outside control limits due to matrix interference.

FA77711-2 for 13C7-PFUnDA: Outside control limits due to matrix interference.

FA77711-2 for 13C8-FOSA: Outside control limits due to matrix interference.

FA77711-2 for 13C8-PFOA: Outside control limits due to matrix interference.

FA77711-2 for 13C8-PFOS: Outside control limits due to matrix interference.

FA77711-2 for 13C9-PFNA: Outside control limits due to matrix interference.

FA77711-2 for 8:2 Fluorotelomer sulfonate: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.

FA77711-2 for d3-MeFOSAA: Outside control limits due to matrix interference.

FA77711-2: Dilution required due to matrix interference (ID recovery standard failure).

FA77711-3 for 13C2-4:2FTS: Outside control limits due to matrix interference.

FA77711-3 for 13C2-6:2FTS: Outside control limits due to matrix interference.

FA77711-3 for 13C2-8:2FTS: Outside control limits due to matrix interference.

## MS Semi-volatiles By Method EPA 537M QSM5.3 B-15

**Matrix:** SO

**Batch ID:** OP81642 (cont.)

FA77711-3 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77711-3 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77711-3 for 13C3-PFHxS: Outside control limits due to matrix interference.  
FA77711-3 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77711-3 for 13C5-PFHxA: Outside control limits due to matrix interference.  
FA77711-3 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77711-3 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77711-3 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77711-3 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77711-3 for 13C8-PFOS: Outside control limits due to matrix interference.  
FA77711-3 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77711-3 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77711-3: Dilution required due to matrix interference (ID recovery standard failure).  
FA77711-4 for 13C2-6:2FTS: Outside control limits due to matrix interference.  
FA77711-4 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77711-4 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77711-4 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77711-4 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77711-4 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77711-4 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77711-4 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77711-4 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77711-4 for 13C8-PFOS: Outside control limits due to matrix interference.  
FA77711-4 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77711-4 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77711-4: Dilution required due to matrix interference (ID recovery standard failure).  
FA77711-5 for 13C2-4:2FTS: Outside control limits due to matrix interference.  
FA77711-5 for 13C2-6:2FTS: Outside control limits due to matrix interference.  
FA77711-5 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77711-5 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77711-5 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77711-5 for 13C3-PFBS: Outside control limits due to matrix interference.  
FA77711-5 for 13C3-PFHxS: Outside control limits due to matrix interference.  
FA77711-5 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77711-5 for 13C5-PFHxA: Outside control limits due to matrix interference.  
FA77711-5 for 13C5-PFPeA: Outside control limits due to matrix interference.  
FA77711-5 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77711-5 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77711-5 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77711-5 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77711-5 for 13C8-PFOS: Outside control limits due to matrix interference.  
FA77711-5 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77711-5 for 8:2 Fluorotelomer sulfonate: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77711-5 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77711-5: Dilution required due to matrix interference (ID recovery standard failure).  
FA77711-6 for 13C2-4:2FTS: Outside control limits due to matrix interference.  
FA77711-6 for 13C2-6:2FTS: Outside control limits due to matrix interference.  
FA77711-6 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77711-6 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77711-6 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77711-6 for 13C3-PFBS: Outside control limits due to matrix interference.  
FA77711-6 for 13C3-PFHxS: Outside control limits due to matrix interference.

## MS Semi-volatiles By Method EPA 537M QSM5.3 B-15

**Matrix:** SO

**Batch ID:** OP81642 (cont.)

FA77711-6 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77711-6 for 13C5-PFHxA: Outside control limits due to matrix interference.  
FA77711-6 for 13C5-PFPeA: Outside control limits due to matrix interference.  
FA77711-6 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77711-6 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77711-6 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77711-6 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77711-6 for 13C8-PFOS: Outside control limits due to matrix interference.  
FA77711-6 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77711-6 for 4:2 Fluorotelomer sulfonate: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77711-6 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77711-6: Dilution required due to matrix interference (ID recovery standard failure).  
FA77711-7 for 13C2-4:2FTS: Outside control limits due to matrix interference.  
FA77711-7 for 13C2-6:2FTS: Outside control limits due to matrix interference.  
FA77711-7 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77711-7 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77711-7 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77711-7 for 13C3-PFHxS: Outside control limits due to matrix interference.  
FA77711-7 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77711-7 for 13C5-PFHxA: Outside control limits due to matrix interference.  
FA77711-7 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77711-7 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77711-7 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77711-7 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77711-7 for 13C8-PFOS: Outside control limits due to matrix interference.  
FA77711-7 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77711-7 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77711-7 for Perfluorodecanoic acid: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77711-7: Dilution required due to matrix interference (ID recovery standard failure).  
FA77711-8 for 13C2-4:2FTS: Outside control limits due to matrix interference.  
FA77711-8 for 13C2-6:2FTS: Outside control limits due to matrix interference.  
FA77711-8 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77711-8 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77711-8 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77711-8 for 13C3-PFHxS: Outside control limits due to matrix interference.  
FA77711-8 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77711-8 for 13C5-PFHxA: Outside control limits due to matrix interference.  
FA77711-8 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77711-8 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77711-8 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77711-8 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77711-8 for 13C8-PFOS: Outside control limits due to matrix interference.  
FA77711-8 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77711-8 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77711-8: Dilution required due to matrix interference (ID recovery standard failure).  
FA77711-9 for 13C2-6:2FTS: Outside control limits due to matrix interference.  
FA77711-9 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77711-9 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77711-9 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77711-9 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77711-9 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77711-9 for 13C7-PFUnDA: Outside control limits due to matrix interference.

## MS Semi-volatiles By Method EPA 537M QSM5.3 B-15

**Matrix:** SO

**Batch ID:** OP81642 (cont.)

FA77711-9 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77711-9 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77711-9 for 13C8-PFOS: Outside control limits due to matrix interference.  
FA77711-9 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77711-9 for 8:2 Fluorotelomer sulfonate: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77711-9 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77711-9: Dilution required due to matrix interference (ID recovery standard failure).  
FA77711-10 for 13C2-4:2FTS: Outside control limits due to matrix interference.  
FA77711-10 for 13C2-6:2FTS: Outside control limits due to matrix interference.  
FA77711-10 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77711-10 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77711-10 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77711-10 for 13C3-PFBS: Outside control limits due to matrix interference.  
FA77711-10 for 13C3-PFHxS: Outside control limits due to matrix interference.  
FA77711-10 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77711-10 for 13C5-PFHxA: Outside control limits due to matrix interference.  
FA77711-10 for 13C5-PFPeA: Outside control limits due to matrix interference.  
FA77711-10 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77711-10 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77711-10 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77711-10 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77711-10 for 13C8-PFOS: Outside control limits due to matrix interference.  
FA77711-10 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77711-10 for 8:2 Fluorotelomer sulfonate: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77711-10 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77711-10: Dilution required due to matrix interference (ID recovery standard failure).  
FA77711-11 for 13C2-4:2FTS: Outside control limits due to matrix interference.  
FA77711-11 for 13C2-6:2FTS: Outside control limits due to matrix interference.  
FA77711-11 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77711-11 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77711-11 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77711-11 for 13C3-PFBS: Outside control limits due to matrix interference.  
FA77711-11 for 13C3-PFHxS: Outside control limits due to matrix interference.  
FA77711-11 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77711-11 for 13C5-PFHxA: Outside control limits due to matrix interference.  
FA77711-11 for 13C5-PFPeA: Outside control limits due to matrix interference.  
FA77711-11 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77711-11 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77711-11 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77711-11 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77711-11 for 13C8-PFOS: Outside control limits due to matrix interference.  
FA77711-11 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77711-11 for 8:2 Fluorotelomer sulfonate: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77711-11 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77711-11: Dilution required due to matrix interference (ID recovery standard failure).  
FA77711-12 for 13C2-4:2FTS: Outside control limits due to matrix interference.  
FA77711-12 for 13C2-6:2FTS: Outside control limits due to matrix interference.  
FA77711-12 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77711-12 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77711-12 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77711-12 for 13C3-PFBS: Outside control limits due to matrix interference.

## MS Semi-volatiles By Method EPA 537M QSM5.3 B-15

**Matrix:** SO

**Batch ID:** OP81642 (cont.)

FA77711-12 for 13C3-PFHxS: Outside control limits due to matrix interference.  
FA77711-12 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77711-12 for 13C5-PFHxA: Outside control limits due to matrix interference.  
FA77711-12 for 13C5-PFPeA: Outside control limits due to matrix interference.  
FA77711-12 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77711-12 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77711-12 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77711-12 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77711-12 for 13C8-PFOS: Outside control limits due to matrix interference.  
FA77711-12 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77711-12 for 4:2 Fluorotelomer sulfonate: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77711-12 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77711-12: Dilution required due to matrix interference (ID recovery standard failure).

## General Chemistry By Method SM19 2540G

**Matrix:** SO

**Batch ID:** GN85932

Sample(s) FA77711-5DUP were used as the QC samples for Solids, Percent.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

\_\_\_\_\_  
Jenna Kravitz, Client Services (*Signature on File*)

## Summary of Hits

**Job Number:** FA77711  
**Account:** SGS North America, Inc  
**Project:** 1204046  
**Collected:** 08/07/20



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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**FA77711-1 T1-03A**

Perfluoropentanoic acid	0.00080 J	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid	0.00072 J	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid	0.0010 J	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15

**FA77711-2 T1-03B**

No hits reported in this sample.

**FA77711-3 T1-05A**

Perfluorobutanoic acid	0.0012 J	0.0034	0.0017	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid	0.0048	0.0034	0.0017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid	0.0012 J	0.0034	0.0017	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid	0.0015 J	0.0034	0.0017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid <sup>a</sup>	0.0138 J	0.034	0.017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid <sup>a</sup>	0.0898	0.034	0.017	mg/kg	EPA 537M QSM5.3 B-15

**FA77711-4 T1-05B**

Perfluorohexanesulfonic acid	0.0016 J	0.0043	0.0022	mg/kg	EPA 537M QSM5.3 B-15
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**FA77711-5 T1-11A**

Perfluorobutanoic acid	0.0014 J	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid <sup>a</sup>	0.0088 J	0.035	0.017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid <sup>a</sup>	0.0169 J	0.035	0.017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid <sup>b</sup>	0.0838	0.035	0.017	mg/kg	EPA 537M QSM5.3 B-15

**FA77711-6 T1-11B**

No hits reported in this sample.

**FA77711-7 T1-13A**

Perfluorobutanoic acid	0.0035 J	0.0065	0.0032	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid	0.0146	0.0065	0.0032	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid <sup>a</sup>	0.0168 J	0.065	0.032	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid	0.0028 J	0.0065	0.0032	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid	0.0031 J	0.0065	0.0032	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid <sup>a</sup>	0.0176 J	0.065	0.032	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid <sup>a</sup>	0.0549 J	0.065	0.032	mg/kg	EPA 537M QSM5.3 B-15

## Summary of Hits

**Job Number:** FA77711  
**Account:** SGS North America, Inc  
**Project:** 1204046  
**Collected:** 08/07/20



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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**FA77711-8 T1-13B**

Perfluorobutanoic acid	0.0025 J	0.0057	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid	0.0105	0.0057	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid	0.0019 J	0.0057	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid	0.0020 J	0.0057	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid <sup>a</sup>	0.0568 J	0.057	0.028	mg/kg	EPA 537M QSM5.3 B-15

**FA77711-9 T1-15A**

Perfluorobutanoic acid	0.00076 J	0.0024	0.0012	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid	0.0023 J	0.0024	0.0012	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid	0.0030	0.0024	0.0012	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid	0.0030	0.0024	0.0012	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid <sup>a</sup>	0.0083 J	0.024	0.012	mg/kg	EPA 537M QSM5.3 B-15

**FA77711-10 T1-XX**

Perfluorobutanoic acid	0.0014 J	0.0034	0.0017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid <sup>a</sup>	0.0079 J	0.034	0.017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid <sup>a</sup>	0.0145 J	0.034	0.017	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid <sup>a</sup>	0.0412	0.034	0.017	mg/kg	EPA 537M QSM5.3 B-15

**FA77711-11 T1-17A**

No hits reported in this sample.

**FA77711-12 T1-17B**

No hits reported in this sample.

(a) Dilution required due to matrix interference (ID recovery standard failure).

(b) Dilution required due to matrix interference (ID recovery standard failure). Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.

Sample Results

Report of Analysis

DRAFT



# Report of Analysis

<b>Client Sample ID:</b> T1-03A	
<b>Lab Sample ID:</b> FA77711-1	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 28.1
<b>Project:</b> 1204046	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52970.D	1	08/24/20 01:34	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53005.D	10	08/24/20 14:33	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.05 g	1.0 ml
Run #2	2.05 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00080	0.0035	0.0017	0.00069	mg/kg	J
307-24-4	Perfluorohexanoic acid	0.00072	0.0035	0.0017	0.00069	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
335-67-1	Perfluorooctanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
375-95-1	Perfluorononanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
335-76-2	Perfluorodecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
307-55-1	Perfluorododecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0010	0.0035	0.0017	0.00087	mg/kg	J
375-92-8	Perfluoroheptanesulfonic acid	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.035 U <sup>b</sup>	0.087	0.035	0.017	mg/kg	
2991-50-6	EtFOSAA	0.035 U <sup>b</sup>	0.087	0.035	0.017	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-03A	
<b>Lab Sample ID:</b> FA77711-1	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 28.1
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	65%	63%	50-150%
	13C5-PFPeA	59%	64%	50-150%
	13C5-PFHxA	54%	63%	50-150%
	13C4-PFHpA	45% <sup>c</sup>	59%	50-150%
	13C8-PFOA	42% <sup>c</sup>	62%	50-150%
	13C9-PFNA	36% <sup>c</sup>	59%	50-150%
	13C6-PFDA	29% <sup>c</sup>	55%	50-150%
	13C7-PFUnDA	36% <sup>c</sup>	62%	50-150%
	13C2-PFDoDA	33% <sup>c</sup>	64%	50-150%
	13C2-PFTeDA	37% <sup>c</sup>	65%	50-150%
	13C3-PFBS	61%	65%	50-150%
	13C3-PFHxS	52%	66%	50-150%
	13C8-PFOS	39% <sup>c</sup>	61%	50-150%
	13C8-FOSA	17% <sup>c</sup>	52%	50-150%
	d3-MeFOSAA	28% <sup>c</sup>	63%	50-150%
	13C2-4:2FTS	51%	58%	50-150%
	13C2-6:2FTS	45% <sup>c</sup>	65%	50-150%
	13C2-8:2FTS	31% <sup>c</sup>	53%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-03B	
<b>Lab Sample ID:</b> FA77711-2	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 21.9
<b>Project:</b> 1204046	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52971.D	1	08/24/20 01:49	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53006.D	10	08/24/20 14:48	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.50 g	1.0 ml
Run #2	2.50 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0018 U	0.0037	0.0018	0.00091	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0018 U	0.0037	0.0018	0.00073	mg/kg	
307-24-4	Perfluorohexanoic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0073	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
335-67-1	Perfluorooctanoic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
375-95-1	Perfluorononanoic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
335-76-2	Perfluorodecanoic acid <sup>c</sup>	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
307-55-1	Perfluorododecanoic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
72629-94-8	Perfluorotridecanoic acid <sup>c</sup>	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
376-06-7	Perfluorotetradecanoic acid <sup>c</sup>	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0018 U	0.0037	0.0018	0.00091	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0018 U	0.0037	0.0018	0.00091	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.037 U <sup>b</sup>	0.091	0.037	0.018	mg/kg	
2991-50-6	EtFOSAA	0.037 U <sup>b</sup>	0.091	0.037	0.018	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-03B	
<b>Lab Sample ID:</b> FA77711-2	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 21.9
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate <sup>c</sup>	0.018 U <sup>b</sup>	0.037	0.018	0.0091	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		60%	56%	50-150%
13C5-PFPeA		53%	56%	50-150%
13C5-PFHxA		47% <sup>d</sup>	55%	50-150%
13C4-PFHpA		40% <sup>d</sup>	53%	50-150%
13C8-PFOA		39% <sup>d</sup>	56%	50-150%
13C9-PFNA		36% <sup>d</sup>	55%	50-150%
13C6-PFDA		29% <sup>d</sup>	45% <sup>d</sup>	50-150%
13C7-PFUnDA		38% <sup>d</sup>	52%	50-150%
13C2-PFDoDA		35% <sup>d</sup>	53%	50-150%
13C2-PFTeDA		33% <sup>d</sup>	49% <sup>d</sup>	50-150%
13C3-PFBS		53%	58%	50-150%
13C3-PFHxS		47% <sup>d</sup>	60%	50-150%
13C8-PFOS		38% <sup>d</sup>	53%	50-150%
13C8-FOSA		16% <sup>d</sup>	44% <sup>d</sup>	50-150%
d3-MeFOSAA		34% <sup>d</sup>	54%	50-150%
13C2-4:2FTS		44% <sup>d</sup>	50%	50-150%
13C2-6:2FTS		42% <sup>d</sup>	57%	50-150%
13C2-8:2FTS		31% <sup>d</sup>	45% <sup>d</sup>	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-05A	
<b>Lab Sample ID:</b> FA77711-3	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 23.8
<b>Project:</b> 1204046	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52972.D	1	08/24/20 02:04	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53007.D	10	08/24/20 15:03	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.46 g	1.0 ml
Run #2	2.46 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0012	0.0034	0.0017	0.00085	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0048	0.0034	0.0017	0.00068	mg/kg	
307-24-4	Perfluorohexanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0068	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
335-67-1	Perfluorooctanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
375-95-1	Perfluorononanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
335-76-2	Perfluorodecanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
307-55-1	Perfluorododecanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0012	0.0034	0.0017	0.00085	mg/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.0015	0.0034	0.0017	0.00085	mg/kg	J
355-46-4	Perfluorohexanesulfonic acid	0.0138 <sup>b</sup>	0.034	0.017	0.0085	mg/kg	J
375-92-8	Perfluoroheptanesulfonic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0898 <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.034 U <sup>b</sup>	0.085	0.034	0.017	mg/kg	
2991-50-6	EtFOSAA	0.034 U <sup>b</sup>	0.085	0.034	0.017	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.3  
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# Report of Analysis

<b>Client Sample ID:</b> T1-05A	
<b>Lab Sample ID:</b> FA77711-3	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 23.8
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		64%	66%	50-150%
13C5-PFPeA		55%	66%	50-150%
13C5-PFHxA		48% <sup>c</sup>	65%	50-150%
13C4-PFHpA		43% <sup>c</sup>	61%	50-150%
13C8-PFOA		41% <sup>c</sup>	65%	50-150%
13C9-PFNA		39% <sup>c</sup>	67%	50-150%
13C6-PFDA		30% <sup>c</sup>	56%	50-150%
13C7-PFUnDA		38% <sup>c</sup>	62%	50-150%
13C2-PFDoDA		32% <sup>c</sup>	61%	50-150%
13C2-PFTeDA		29% <sup>c</sup>	57%	50-150%
13C3-PFBS		55%	68%	50-150%
13C3-PFHxS		49% <sup>c</sup>	71%	50-150%
13C8-PFOS		39% <sup>c</sup>	67%	50-150%
13C8-FOSA		17% <sup>c</sup>	51%	50-150%
d3-MeFOSAA		35% <sup>c</sup>	68%	50-150%
13C2-4:2FTS		45% <sup>c</sup>	60%	50-150%
13C2-6:2FTS		44% <sup>c</sup>	65%	50-150%
13C2-8:2FTS		31% <sup>c</sup>	52%	50-150%

(a) Dilution required due to matrix interference (ID recovery standard failure).

(b) Result is from Run# 2

(c) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-05B	
<b>Lab Sample ID:</b> FA77711-4	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 21.3
<b>Project:</b> 1204046	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52973.D	1	08/24/20 02:19	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53008.D	10	08/24/20 15:18	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.16 g	1.0 ml
Run #2	2.16 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0022 U	0.0043	0.0022	0.0011	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0022 U	0.0043	0.0022	0.00087	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0022 U	0.0043	0.0022	0.00087	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
335-67-1	Perfluorooctanoic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
375-95-1	Perfluorononanoic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
335-76-2	Perfluorodecanoic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
307-55-1	Perfluorododecanoic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0022 U	0.0043	0.0022	0.0011	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0022 U	0.0043	0.0022	0.0011	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0016	0.0043	0.0022	0.0011	mg/kg	J
375-92-8	Perfluoroheptanesulfonic acid	0.0022 U	0.0043	0.0022	0.0011	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.043 U <sup>b</sup>	0.11	0.043	0.022	mg/kg	
2991-50-6	EtFOSAA	0.043 U <sup>b</sup>	0.11	0.043	0.022	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0022 U	0.0043	0.0022	0.0011	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-05B	
<b>Lab Sample ID:</b> FA77711-4	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 21.3
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.022 U <sup>b</sup>	0.043	0.022	0.011	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		66%	66%	50-150%
13C5-PFPeA		57%	67%	50-150%
13C5-PFHxA		52%	67%	50-150%
13C4-PFHpA		45% <sup>c</sup>	63%	50-150%
13C8-PFOA		46% <sup>c</sup>	68%	50-150%
13C9-PFNA		43% <sup>c</sup>	68%	50-150%
13C6-PFDA		35% <sup>c</sup>	63%	50-150%
13C7-PFUnDA		46% <sup>c</sup>	67%	50-150%
13C2-PFDoDA		45% <sup>c</sup>	68%	50-150%
13C2-PFTeDA		37% <sup>c</sup>	63%	50-150%
13C3-PFBS		58%	68%	50-150%
13C3-PFHxS		53%	77%	50-150%
13C8-PFOS		42% <sup>c</sup>	67%	50-150%
13C8-FOSA		21% <sup>c</sup>	57%	50-150%
d3-MeFOSAA		44% <sup>c</sup>	71%	50-150%
13C2-4:2FTS		50%	62%	50-150%
13C2-6:2FTS		48% <sup>c</sup>	70%	50-150%
13C2-8:2FTS		36% <sup>c</sup>	62%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



# Report of Analysis

<b>Client Sample ID:</b> T1-11A	
<b>Lab Sample ID:</b> FA77711-5	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 24.5
<b>Project:</b> 1204046	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52974.D	1	08/24/20 02:33	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53009.D	10	08/24/20 15:33	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.35 g	1.0 ml
Run #2	2.35 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0014	0.0035	0.0017	0.00087	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0069	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0088 <sup>b</sup>	0.035	0.017	0.0069	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
335-67-1	Perfluorooctanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
375-95-1	Perfluorononanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
335-76-2	Perfluorodecanoic acid <sup>c</sup>	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
307-55-1	Perfluorododecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
72629-94-8	Perfluorotridecanoic acid <sup>c</sup>	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
376-06-7	Perfluorotetradecanoic acid <sup>c</sup>	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0169 <sup>b</sup>	0.035	0.017	0.0087	mg/kg	J
375-92-8	Perfluoroheptanesulfonic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid <sup>c</sup>	0.0838 <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
68259-12-1	Perfluorononanesulfonic acid <sup>c</sup>	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
335-77-3	Perfluorodecanesulfonic acid <sup>c</sup>	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.035 U <sup>b</sup>	0.087	0.035	0.017	mg/kg	
2991-50-6	EtFOSAA	0.035 U <sup>b</sup>	0.087	0.035	0.017	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-11A	
<b>Lab Sample ID:</b> FA77711-5	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 24.5
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate <sup>c</sup>	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		55%	54%	50-150%
13C5-PFPeA		47% <sup>d</sup>	52%	50-150%
13C5-PFHxA		40% <sup>d</sup>	53%	50-150%
13C4-PFHpA		34% <sup>d</sup>	50%	50-150%
13C8-PFOA		32% <sup>d</sup>	53%	50-150%
13C9-PFNA		30% <sup>d</sup>	51%	50-150%
13C6-PFDA		23% <sup>d</sup>	43% <sup>d</sup>	50-150%
13C7-PFUnDA		30% <sup>d</sup>	51%	50-150%
13C2-PFDoDA		27% <sup>d</sup>	50%	50-150%
13C2-PFTeDA		26% <sup>d</sup>	48% <sup>d</sup>	50-150%
13C3-PFBS		47% <sup>d</sup>	53%	50-150%
13C3-PFHxS		41% <sup>d</sup>	56%	50-150%
13C8-PFOS		30% <sup>d</sup>	49% <sup>d</sup>	50-150%
13C8-FOSA		13% <sup>d</sup>	41% <sup>d</sup>	50-150%
d3-MeFOSAA		28% <sup>d</sup>	52%	50-150%
13C2-4:2FTS		38% <sup>d</sup>	51%	50-150%
13C2-6:2FTS		35% <sup>d</sup>	53%	50-150%
13C2-8:2FTS		21% <sup>d</sup>	44% <sup>d</sup>	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-11B	
<b>Lab Sample ID:</b> FA77711-6	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 16.5
<b>Project:</b> 1204046	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52975.D	1	08/24/20 02:48	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53010.D	10	08/24/20 15:48	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.28 g	1.0 ml
Run #2	2.28 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0027 U	0.0053	0.0027	0.0013	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.027 U <sup>b</sup>	0.053	0.027	0.011	mg/kg	
307-24-4	Perfluorohexanoic acid	0.027 U <sup>b</sup>	0.053	0.027	0.011	mg/kg	
375-85-9	Perfluoroheptanoic acid <sup>c</sup>	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
335-67-1	Perfluorooctanoic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
375-95-1	Perfluorononanoic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
335-76-2	Perfluorodecanoic acid <sup>c</sup>	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
307-55-1	Perfluorododecanoic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.053 U <sup>b</sup>	0.13	0.053	0.027	mg/kg	
2991-50-6	EtFOSAA	0.053 U <sup>b</sup>	0.13	0.053	0.027	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate <sup>c</sup>	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-11B	
<b>Lab Sample ID:</b> FA77711-6	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 16.5
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate <sup>c</sup>	0.027 U <sup>b</sup>	0.053	0.027	0.013	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		50%	53%	50-150%
13C5-PFPeA		39% <sup>d</sup>	52%	50-150%
13C5-PFHxA		32% <sup>d</sup>	52%	50-150%
13C4-PFHpA		27% <sup>d</sup>	49% <sup>d</sup>	50-150%
13C8-PFOA		29% <sup>d</sup>	53%	50-150%
13C9-PFNA		28% <sup>d</sup>	52%	50-150%
13C6-PFDA		25% <sup>d</sup>	48% <sup>d</sup>	50-150%
13C7-PFUnDA		33% <sup>d</sup>	53%	50-150%
13C2-PFDoDA		32% <sup>d</sup>	54%	50-150%
13C2-PFTeDA		29% <sup>d</sup>	54%	50-150%
13C3-PFBS		38% <sup>d</sup>	54%	50-150%
13C3-PFHxS		35% <sup>d</sup>	58%	50-150%
13C8-PFOS		28% <sup>d</sup>	52%	50-150%
13C8-FOSA		16% <sup>d</sup>	47% <sup>d</sup>	50-150%
d3-MeFOSAA		31% <sup>d</sup>	57%	50-150%
13C2-4:2FTS		30% <sup>d</sup>	48% <sup>d</sup>	50-150%
13C2-6:2FTS		31% <sup>d</sup>	52%	50-150%
13C2-8:2FTS		24% <sup>d</sup>	47% <sup>d</sup>	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-13A	
<b>Lab Sample ID:</b> FA77711-7	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 14.4
<b>Project:</b> 1204046	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52976.D	1	08/24/20 03:03	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53011.D	10	08/24/20 16:03	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.15 g	1.0 ml
Run #2	2.15 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0035	0.0065	0.0032	0.0016	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0146	0.0065	0.0032	0.0013	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0168 <sup>b</sup>	0.065	0.032	0.013	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
335-67-1	Perfluorooctanoic acid	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
375-95-1	Perfluorononanoic acid	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
335-76-2	Perfluorodecanoic acid <sup>c</sup>	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
307-55-1	Perfluorododecanoic acid	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0028	0.0065	0.0032	0.0016	mg/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.0031	0.0065	0.0032	0.0016	mg/kg	J
355-46-4	Perfluorohexanesulfonic acid	0.0176 <sup>b</sup>	0.065	0.032	0.016	mg/kg	J
375-92-8	Perfluoroheptanesulfonic acid	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0549 <sup>b</sup>	0.065	0.032	0.016	mg/kg	J
68259-12-1	Perfluorononanesulfonic acid	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.065 U <sup>b</sup>	0.16	0.065	0.032	mg/kg	
2991-50-6	EtFOSAA	0.065 U <sup>b</sup>	0.16	0.065	0.032	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-13A	
<b>Lab Sample ID:</b> FA77711-7	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 14.4
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.032 U <sup>b</sup>	0.065	0.032	0.016	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		63%	56%	50-150%
13C5-PFPeA		54%	56%	50-150%
13C5-PFHxA		46% <sup>d</sup>	55%	50-150%
13C4-PFHpA		39% <sup>d</sup>	52%	50-150%
13C8-PFOA		40% <sup>d</sup>	56%	50-150%
13C9-PFNA		38% <sup>d</sup>	57%	50-150%
13C6-PFDA		33% <sup>d</sup>	49% <sup>d</sup>	50-150%
13C7-PFUnDA		43% <sup>d</sup>	55%	50-150%
13C2-PFDoDA		43% <sup>d</sup>	55%	50-150%
13C2-PFTeDA		38% <sup>d</sup>	53%	50-150%
13C3-PFBS		52%	53%	50-150%
13C3-PFHxS		48% <sup>d</sup>	62%	50-150%
13C8-PFOS		38% <sup>d</sup>	56%	50-150%
13C8-FOSA		15% <sup>d</sup>	48% <sup>d</sup>	50-150%
d3-MeFOSAA		40% <sup>d</sup>	60%	50-150%
13C2-4:2FTS		44% <sup>d</sup>	53%	50-150%
13C2-6:2FTS		40% <sup>d</sup>	57%	50-150%
13C2-8:2FTS		32% <sup>d</sup>	50%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-13B	
<b>Lab Sample ID:</b> FA77711-8	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 17.1
<b>Project:</b> 1204046	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52977.D	1	08/24/20 03:18	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53012.D	10	08/24/20 16:18	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.06 g	1.0 ml
Run #2	2.06 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0025	0.0057	0.0028	0.0014	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0105	0.0057	0.0028	0.0011	mg/kg	
307-24-4	Perfluorohexanoic acid	0.028 U <sup>b</sup>	0.057	0.028	0.011	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
335-67-1	Perfluorooctanoic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
375-95-1	Perfluorononanoic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
335-76-2	Perfluorodecanoic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
307-55-1	Perfluorododecanoic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0019	0.0057	0.0028	0.0014	mg/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.0020	0.0057	0.0028	0.0014	mg/kg	J
355-46-4	Perfluorohexanesulfonic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0568 <sup>b</sup>	0.057	0.028	0.014	mg/kg	J
68259-12-1	Perfluorononanesulfonic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.057 U <sup>b</sup>	0.14	0.057	0.028	mg/kg	
2991-50-6	EtFOSAA	0.057 U <sup>b</sup>	0.14	0.057	0.028	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-13B	
<b>Lab Sample ID:</b> FA77711-8	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 17.1
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.028 U <sup>b</sup>	0.057	0.028	0.014	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		66%	64%	50-150%
13C5-PFPeA		56%	65%	50-150%
13C5-PFHxA		47% <sup>c</sup>	64%	50-150%
13C4-PFHpA		40% <sup>c</sup>	60%	50-150%
13C8-PFOA		39% <sup>c</sup>	65%	50-150%
13C9-PFNA		39% <sup>c</sup>	65%	50-150%
13C6-PFDA		32% <sup>c</sup>	58%	50-150%
13C7-PFUnDA		42% <sup>c</sup>	65%	50-150%
13C2-PFDoDA		42% <sup>c</sup>	65%	50-150%
13C2-PFTeDA		42% <sup>c</sup>	62%	50-150%
13C3-PFBS		54%	67%	50-150%
13C3-PFHxS		48% <sup>c</sup>	70%	50-150%
13C8-PFOS		38% <sup>c</sup>	65%	50-150%
13C8-FOSA		16% <sup>c</sup>	50%	50-150%
d3-MeFOSAA		37% <sup>c</sup>	68%	50-150%
13C2-4:2FTS		44% <sup>c</sup>	60%	50-150%
13C2-6:2FTS		39% <sup>c</sup>	66%	50-150%
13C2-8:2FTS		31% <sup>c</sup>	56%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



# Report of Analysis

<b>Client Sample ID:</b> T1-15A	
<b>Lab Sample ID:</b> FA77711-9	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 39.3
<b>Project:</b> 1204046	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52978.D	1	08/24/20 03:32	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53013.D	10	08/24/20 16:32	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.16 g	1.0 ml
Run #2	2.16 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.00076	0.0024	0.0012	0.00059	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0023	0.0024	0.0012	0.00047	mg/kg	J
307-24-4	Perfluorohexanoic acid	0.0030	0.0024	0.0012	0.00047	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
335-67-1	Perfluorooctanoic acid	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
375-95-1	Perfluorononanoic acid	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
335-76-2	Perfluorodecanoic acid <sup>c</sup>	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
307-55-1	Perfluorododecanoic acid	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0012 U	0.0024	0.0012	0.00059	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0012 U	0.0024	0.0012	0.00059	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0030	0.0024	0.0012	0.00059	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0012 U	0.0024	0.0012	0.00059	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0083 <sup>b</sup>	0.024	0.012	0.0059	mg/kg	J
68259-12-1	Perfluorononanesulfonic acid	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.024 U <sup>b</sup>	0.059	0.024	0.012	mg/kg	
2991-50-6	EtFOSAA	0.024 U <sup>b</sup>	0.059	0.024	0.012	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0012 U	0.0024	0.0012	0.00059	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-15A	
<b>Lab Sample ID:</b> FA77711-9	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 39.3
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate <sup>c</sup>	0.012 U <sup>b</sup>	0.024	0.012	0.0059	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		63%	58%	50-150%
13C5-PFPeA		58%	59%	50-150%
13C5-PFHxA		53%	58%	50-150%
13C4-PFHpA		43% <sup>d</sup>	54%	50-150%
13C8-PFOA		40% <sup>d</sup>	58%	50-150%
13C9-PFNA		36% <sup>d</sup>	56%	50-150%
13C6-PFDA		27% <sup>d</sup>	48% <sup>d</sup>	50-150%
13C7-PFUnDA		29% <sup>d</sup>	53%	50-150%
13C2-PFDoDA		22% <sup>d</sup>	54%	50-150%
13C2-PFTeDA		22% <sup>d</sup>	60%	50-150%
13C3-PFBS		58%	57%	50-150%
13C3-PFHxS		50%	69%	50-150%
13C8-PFOS		36% <sup>d</sup>	54%	50-150%
13C8-FOSA		14% <sup>d</sup>	51%	50-150%
d3-MeFOSAA		24% <sup>d</sup>	55%	50-150%
13C2-4:2FTS		51%	55%	50-150%
13C2-6:2FTS		44% <sup>d</sup>	58%	50-150%
13C2-8:2FTS		27% <sup>d</sup>	49% <sup>d</sup>	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-XX		
<b>Lab Sample ID:</b> FA77711-10		<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 22.8
<b>Project:</b> 1204046		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52981.D	1	08/24/20 04:17	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53014.D	10	08/24/20 16:47	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.57 g	1.0 ml
Run #2	2.57 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0014	0.0034	0.0017	0.00085	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0068	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0079 <sup>b</sup>	0.034	0.017	0.0068	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
335-67-1	Perfluorooctanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
375-95-1	Perfluorononanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
335-76-2	Perfluorodecanoic acid <sup>c</sup>	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
307-55-1	Perfluorododecanoic acid <sup>c</sup>	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
72629-94-8	Perfluorotridecanoic acid <sup>c</sup>	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
376-06-7	Perfluorotetradecanoic acid <sup>c</sup>	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0145 <sup>b</sup>	0.034	0.017	0.0085	mg/kg	J
375-92-8	Perfluoroheptanesulfonic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0412 <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.034 U <sup>b</sup>	0.085	0.034	0.017	mg/kg	
2991-50-6	EtFOSAA	0.034 U <sup>b</sup>	0.085	0.034	0.017	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-XX		
<b>Lab Sample ID:</b> FA77711-10		<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 22.8
<b>Project:</b> 1204046		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate <sup>c</sup>	0.017 U <sup>b</sup>	0.034	0.017	0.0085	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		58%	57%	50-150%
13C5-PFPeA		44% <sup>d</sup>	57%	50-150%
13C5-PFHxA		37% <sup>d</sup>	56%	50-150%
13C4-PFHpA		32% <sup>d</sup>	52%	50-150%
13C8-PFOA		33% <sup>d</sup>	56%	50-150%
13C9-PFNA		32% <sup>d</sup>	53%	50-150%
13C6-PFDA		24% <sup>d</sup>	46% <sup>d</sup>	50-150%
13C7-PFUnDA		32% <sup>d</sup>	52%	50-150%
13C2-PFDoDA		27% <sup>d</sup>	48% <sup>d</sup>	50-150%
13C2-PFTeDA		22% <sup>d</sup>	39% <sup>d</sup>	50-150%
13C3-PFBS		44% <sup>d</sup>	57%	50-150%
13C3-PFHxS		40% <sup>d</sup>	62%	50-150%
13C8-PFOS		33% <sup>d</sup>	52%	50-150%
13C8-FOSA		11% <sup>d</sup>	35% <sup>d</sup>	50-150%
d3-MeFOSAA		29% <sup>d</sup>	51%	50-150%
13C2-4:2FTS		35% <sup>d</sup>	52%	50-150%
13C2-6:2FTS		37% <sup>d</sup>	57%	50-150%
13C2-8:2FTS		24% <sup>d</sup>	46% <sup>d</sup>	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-17A	
<b>Lab Sample ID:</b> FA77711-11	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 17.1
<b>Project:</b> 1204046	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52982.D	1	08/24/20 04:31	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53017.D	10	08/24/20 17:31	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.08 g	1.0 ml
Run #2	2.08 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.011	mg/kg	
307-24-4	Perfluorohexanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.011	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
335-67-1	Perfluorooctanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
375-95-1	Perfluorononanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
335-76-2	Perfluorodecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
307-55-1	Perfluorododecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.056 U <sup>b</sup>	0.14	0.056	0.028	mg/kg	
2991-50-6	EtFOSAA	0.056 U <sup>b</sup>	0.14	0.056	0.028	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-17A	
<b>Lab Sample ID:</b> FA77711-11	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 17.1
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate <sup>c</sup>	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		58%	55%	50-150%
13C5-PFPeA		48% <sup>d</sup>	56%	50-150%
13C5-PFHxA		40% <sup>d</sup>	54%	50-150%
13C4-PFHpA		34% <sup>d</sup>	52%	50-150%
13C8-PFOA		36% <sup>d</sup>	56%	50-150%
13C9-PFNA		35% <sup>d</sup>	57%	50-150%
13C6-PFDA		28% <sup>d</sup>	51%	50-150%
13C7-PFUnDA		39% <sup>d</sup>	57%	50-150%
13C2-PFDoDA		37% <sup>d</sup>	56%	50-150%
13C2-PFTeDA		35% <sup>d</sup>	51%	50-150%
13C3-PFBS		46% <sup>d</sup>	55%	50-150%
13C3-PFHxS		42% <sup>d</sup>	60%	50-150%
13C8-PFOS		35% <sup>d</sup>	54%	50-150%
13C8-FOSA		17% <sup>d</sup>	45% <sup>d</sup>	50-150%
d3-MeFOSAA		37% <sup>d</sup>	62%	50-150%
13C2-4:2FTS		38% <sup>d</sup>	51%	50-150%
13C2-6:2FTS		37% <sup>d</sup>	57%	50-150%
13C2-8:2FTS		27% <sup>d</sup>	49% <sup>d</sup>	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-17B		
<b>Lab Sample ID:</b> FA77711-12		<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 19.8
<b>Project:</b> 1204046		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q52983.D	1	08/24/20 04:46	NAF	08/20/20 12:00	OP81642	S2Q787
Run #2 <sup>a</sup>	2Q53018.D	10	08/24/20 17:46	NAF	08/20/20 12:00	OP81642	S2Q788

	Initial Weight	Final Volume
Run #1	2.38 g	1.0 ml
Run #2	2.38 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.0085	mg/kg	
307-24-4	Perfluorohexanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.0085	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
335-67-1	Perfluorooctanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
375-95-1	Perfluorononanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
335-76-2	Perfluorodecanoic acid <sup>c</sup>	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
307-55-1	Perfluorododecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.042 U <sup>b</sup>	0.11	0.042	0.021	mg/kg	
2991-50-6	EtFOSAA	0.042 U <sup>b</sup>	0.11	0.042	0.021	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate <sup>c</sup>	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-17B	
<b>Lab Sample ID:</b> FA77711-12	<b>Date Sampled:</b> 08/07/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 19.8
<b>Project:</b> 1204046	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate <sup>c</sup>	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		52%	54%	50-150%
13C5-PFPeA		42% <sup>d</sup>	54%	50-150%
13C5-PFHxA		33% <sup>d</sup>	54%	50-150%
13C4-PFHpA		30% <sup>d</sup>	51%	50-150%
13C8-PFOA		31% <sup>d</sup>	55%	50-150%
13C9-PFNA		29% <sup>d</sup>	55%	50-150%
13C6-PFDA		24% <sup>d</sup>	49% <sup>d</sup>	50-150%
13C7-PFUnDA		31% <sup>d</sup>	54%	50-150%
13C2-PFDoDA		27% <sup>d</sup>	54%	50-150%
13C2-PFTeDA		31% <sup>d</sup>	51%	50-150%
13C3-PFBS		40% <sup>d</sup>	53%	50-150%
13C3-PFHxS		36% <sup>d</sup>	57%	50-150%
13C8-PFOS		29% <sup>d</sup>	55%	50-150%
13C8-FOSA		13% <sup>d</sup>	43% <sup>d</sup>	50-150%
d3-MeFOSAA		30% <sup>d</sup>	60%	50-150%
13C2-4:2FTS		31% <sup>d</sup>	49% <sup>d</sup>	50-150%
13C2-6:2FTS		33% <sup>d</sup>	55%	50-150%
13C2-8:2FTS		23% <sup>d</sup>	47% <sup>d</sup>	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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4



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

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FA77711

SGS North America Inc.  
CHAIN OF CUSTODY RECORD



Locations Nationwide  
Alaska Florida  
New Jersey Colorado  
Texas North Carolina  
Virginia Louisiana  
[www.us.sgs.com](http://www.us.sgs.com)

CLIENT: SGS North America Inc. - Alaska Division				SGS Reference: <b>SGS Orlando, FL</b>				Page 1 of 2																				
CONTACT: Julie Shumway		PHONE NO: (907) 562-2343		Additional Comments: All soils report out in dry weight unless																								
PROJECT NAME: 1204046		PWSID#:		CONTAINER #	Preservative Used: NONE	TYPE	C = COMP G = GRAB MI = Multi Incremental Soils	EPA 537 PFAS	MS	MSD	SGS lab #	Location ID																
REPORTS TO: Julie Shumway		E-MAIL: Julie.Shumway@sgs.com																										
INVOICE TO: SGS - Alaska		QUOTE #: 1204046																										
P.O. #:		1204046		RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/MATRIX CODE	#	EPA 537 PFAS	MS	MSD	SGS lab #	Location ID														
1		T1-03A													08/07/2020		12:00:00		SO		1		X		1204046001			
2		T1-03B													08/07/2020		12:16:00		Solid		1		X		1204046002			
3		T1-05A													08/07/2020		13:35:00		SO		1		X		1204046003			
4		T1-05B													08/07/2020		13:45:00		SO		1		X		1204046004			
5		T1-11A													08/07/2020		14:15:00		SO		1		X		1204046005			
6		T1-11B													08/07/2020		14:35:00		SO		1		X		1204046006			
7		T1-13A													08/07/2020		13:05:00		SO		1		X		1204046007			
8		T1-13B													08/07/2020		13:15:00		Solid		1		X		1204046008			
9		T1-15A													08/07/2020		11:10:00		SO		1		X		1204046009			
10		T1-XX		08/07/2020		14:20:00		Solid		1		X		1204046010														
Relinquished By: (1)		Date	Time	Received By:		DOD Project?		YES		Data Deliverable Requirements:																		
<i>Julie Shumway</i>		8/11/20	0959	Fedex		Report to DL (J Flags)?		YES		Level 2																		
Relinquished By: (2)		Date	Time	Received By:		Cooler ID:		Requested Turnaround Time and-or Special Instructions:																				
Fedex		8/12/20	945	<i>MW Stein</i>																								
Relinquished By: (3)		Date	Time	Received By:		Temp Blank		Chain of Custody Seal: (Circle)																				
						or Ambient [ ]		INTACT BROKEN ABSENT																				

[X 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301 [http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)  
[ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

F088\_COC\_REF\_LAB\_20190411

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FA77711

SGS North America Inc.  
CHAIN OF CUSTODY RECORD



Locations Nationwide  
Alaska Florida  
New Jersey Colorado  
Texas North Carolina  
Virginia Louisiana  
[www.us.sgs.com](http://www.us.sgs.com)

CLIENT: <b>SGS North America Inc. - Alaska Division</b>					SGS Reference:					Page 2 of 2			
CONTACT: Julie Shumway			PHONE NO: (907) 562-2343		Additional Comments: All soils report out in dry weight unless								
PROJECT NAME: 1204046		PWSID#:			CONTAINER S	Preservative Used: NONE	TYPE	C = COMP G = GRAB MI = Multi Incremental Soils	EPA 537 PFAS	MS	MSD	SGS lab #	Location ID
REPORTS TO: Julie Shumway		E-MAIL: Julie.Shumway@sgs.com Env Alaska.RefLabTeam@sgs.com											
INVOICE TO: SGS - Alaska		QUOTE #: P.O. #: 1204046											
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/MATRIX CODE									
11	T1-17A	08/07/2020	09:55:00	SO 1				X				1204046011	
12	T1-17B	08/07/2020	10:15:00	SO 1				X				1204046012	
Relinquished By: (1)		Date	Time	Received By:		DOD Project?		YES	Data Deliverable Requirements:				
<i>J. Shumway</i>		8/11/20	09:59	Fedex		Report to DL (J Flags)?		YES	Level 2				
Relinquished By: (2)		Date	Time	Received By:		Cooler ID:		Requested Turnaround Time and-or Special Instructions:					
Fedex		8/12/20	09:15	<i>MW</i>									
Relinquished By: (3)		Date	Time	Received By:		Temp Blank °C:		Chain of Custody Seal: (Circle)					
Relinquished By: (4)		Date	Time	Received For Laboratory By:		or Ambient [ ]		INTACT    BROKEN    ABSENT					

[X] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301  
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

[http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)

F088\_COC\_REF\_LAB\_20190411

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51  
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## SGS Sample Receipt Summary

Job Number: FA77711

Client: SGS NORTH AMERICA, INC. - ALASKA DI

Project: 1204046

Date / Time Received: 8/12/2020 9:45:00 AM

Delivery Method: FEDEX

Airbill #'s: 148348008273

Therm ID:

Therm CF:

# of Coolers: N/A

Cooler Temps (Raw Measured) °C:

Cooler Temps (Corrected) °C:

**Cooler Information**

Y or N

- |                             |                                     |                          |
|-----------------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present    | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact     | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Temp criteria achieved   | <input type="checkbox"/>            | <input type="checkbox"/> |
| 4. Cooler temp verification | <u>N/A</u>                          |                          |
| 5. Cooler media             | <u>N/A</u>                          |                          |

**Sample Information**

Y or N N/A

- |   |                                     |                                     |                                     |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Sample labels present on bottles                 | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 2. Samples preserved properly                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 3. Sufficient volume/containers recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 4. Condition of sample                              | <u>Intact</u>                       |                                     |                                     |
| 5. Sample recvd within HT                           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 6. Dates/Times/IDs on COC match Sample Label        | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 7. VOCs have headspace                              | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 8. Bottles received for unspecified tests           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                                     |
| 9. Compositing instructions clear                   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 10. Voa Soil Kits/Jars received past 48hrs?         | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 11. % Solids Jar received?                          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 12. Residual Chlorine Present?                      | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**Trip Blank Information**

Y or N N/A

- |                                |                          |                          |                                     |
|--------------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Trip Blank listed on COC    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

W or S N/A

- |                        |                          |                          |                                     |
|------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. Type Of TB Received | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|------------------------|--------------------------|--------------------------|-------------------------------------|

**Misc. Information**

Number of Encores: 25-Gram \_\_\_\_\_ 5-Gram \_\_\_\_\_ Number of 5035 Field Kits: \_\_\_\_\_ Number of Lab Filtered Metals: \_\_\_\_\_  
 Test Strip Lot #: pH 0-3 230315 pH 10-12 219813A Other: (Specify) \_\_\_\_\_  
 Residual Chlorine Test Strip Lot #: \_\_\_\_\_

Comments

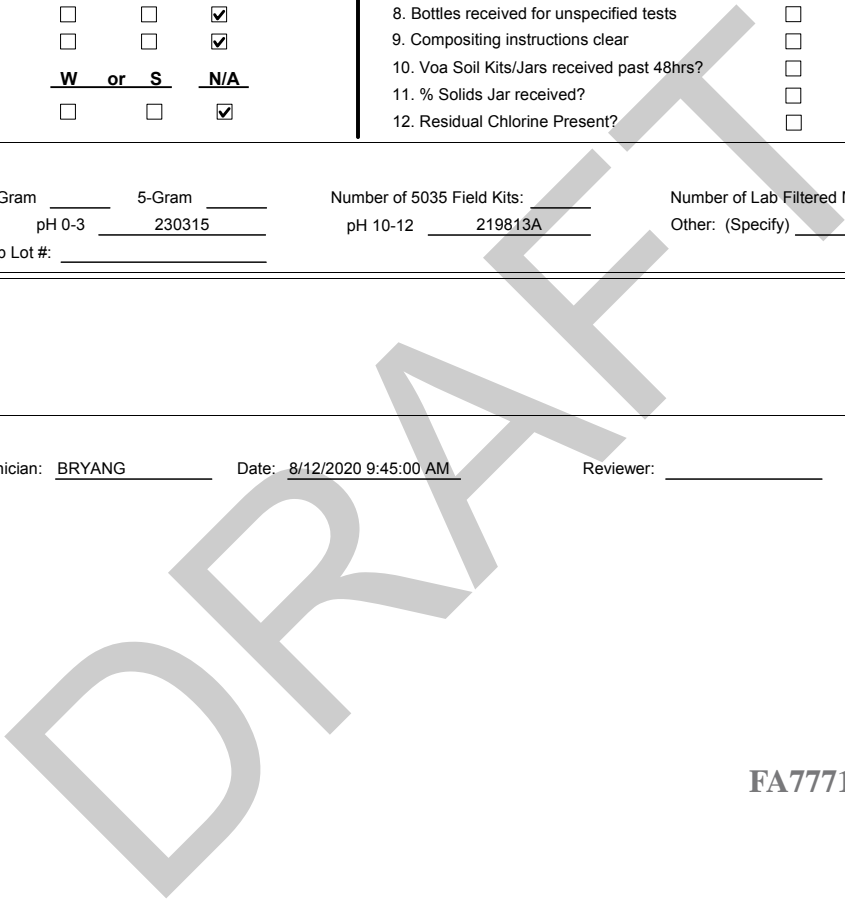
SM001  
Rev. Date 05/24/17

Technician: BRYANG

Date: 8/12/2020 9:45:00 AM

Reviewer: \_\_\_\_\_

Date: \_\_\_\_\_



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FA77711: Chain of Custody

Page 3 of 3

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77711  
**Account:** SGS North America, Inc  
**Project:** 1204046  
**Collected:** 08/07/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
--------------	------	---------	-------------	-------------	--------	-------	--------

OP81642 EPA 537M QSM5.3 B-15

OP81642-BS	375-22-4	Perfluorobutanoic acid	BSP	REC	86	%	71-135
OP81642-BS	2706-90-3	Perfluoropentanoic acid	BSP	REC	85	%	69-132
OP81642-BS	307-24-4	Perfluorohexanoic acid	BSP	REC	82	%	70-132
OP81642-BS	375-85-9	Perfluoroheptanoic acid	BSP	REC	92	%	71-131
OP81642-BS	335-67-1	Perfluorooctanoic acid	BSP	REC	91	%	69-133
OP81642-BS	375-95-1	Perfluorononanoic acid	BSP	REC	88	%	72-129
OP81642-BS	335-76-2	Perfluorodecanoic acid	BSP	REC	82	%	69-133
OP81642-BS	2058-94-8	Perfluoroundecanoic acid	BSP	REC	89	%	64-136
OP81642-BS	307-55-1	Perfluorododecanoic acid	BSP	REC	88	%	69-135
OP81642-BS	72629-94-8	Perfluorotridecanoic acid	BSP	REC	92	%	66-139
OP81642-BS	376-06-7	Perfluorotetradecanoic acid	BSP	REC	89	%	69-133
OP81642-BS	375-73-5	Perfluorobutanesulfonic acid	BSP	REC	89	%	72-128
OP81642-BS	2706-91-4	Perfluoropentanesulfonic acid	BSP	REC	85	%	73-123
OP81642-BS	355-46-4	Perfluorohexanesulfonic acid	BSP	REC	81	%	67-130
OP81642-BS	375-92-8	Perfluoroheptanesulfonic acid	BSP	REC	86	%	70-132
OP81642-BS	1763-23-1	Perfluorooctanesulfonic acid	BSP	REC	87	%	67-136
OP81642-BS	68259-12-1	Perfluorononanesulfonic acid	BSP	REC	85	%	69-125
OP81642-BS	335-77-3	Perfluorodecanesulfonic acid	BSP	REC	91	%	59-134
OP81642-BS	754-91-6	PFOSA	BSP	REC	92	%	67-137
OP81642-BS	2355-31-9	MeFOSAA	BSP	REC	88	%	63-144
OP81642-BS	2991-50-6	EtFOSAA	BSP	REC	89	%	61-139
OP81642-BS	757124-72-4	4:2 Fluorotelomer sulfonate	BSP	REC	89	%	62-145
OP81642-BS	27619-97-2	6:2 Fluorotelomer sulfonate	BSP	REC	89	%	64-140
OP81642-BS	39108-34-4	8:2 Fluorotelomer sulfonate	BSP	REC	90	%	65-137
OP81642-MS*	375-22-4	Perfluorobutanoic acid	MS	REC	94	%	71-135
OP81642-MS*	2706-90-3	Perfluoropentanoic acid	MS	REC	93	%	69-132
OP81642-MS*	307-24-4	Perfluorohexanoic acid	MS	REC	90	%	70-132
OP81642-MS*	375-85-9	Perfluoroheptanoic acid	MS	REC	102	%	71-131
OP81642-MS*	335-67-1	Perfluorooctanoic acid	MS	REC	100	%	69-133
OP81642-MS*	375-95-1	Perfluorononanoic acid	MS	REC	97	%	72-129
OP81642-MS*	335-76-2	Perfluorodecanoic acid	MS	REC	91	%	69-133
OP81642-MS*	2058-94-8	Perfluoroundecanoic acid	MS	REC	96	%	64-136
OP81642-MS*	307-55-1	Perfluorododecanoic acid	MS	REC	97	%	69-135
OP81642-MS*	72629-94-8	Perfluorotridecanoic acid	MS	REC	105	%	66-139
OP81642-MS*	376-06-7	Perfluorotetradecanoic acid	MS	REC	97	%	69-133
OP81642-MS*	375-73-5	Perfluorobutanesulfonic acid	MS	REC	97	%	72-128
OP81642-MS*	2706-91-4	Perfluoropentanesulfonic acid	MS	REC	95	%	73-123
OP81642-MS*	355-46-4	Perfluorohexanesulfonic acid	MS	REC	87	%	67-130
OP81642-MS*	375-92-8	Perfluoroheptanesulfonic acid	MS	REC	93	%	70-132
OP81642-MS*	1763-23-1	Perfluorooctanesulfonic acid	MS	REC	90	%	67-136
OP81642-MS*	68259-12-1	Perfluorononanesulfonic acid	MS	REC	94	%	69-125
OP81642-MS*	335-77-3	Perfluorodecanesulfonic acid	MS	REC	98	%	59-134

\* Sample used for QC is not from job FA77711

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77711  
**Account:** SGS North America, Inc  
**Project:** 1204046  
**Collected:** 08/07/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP81642-MS*	754-91-6	PFOSA	MS	REC	101	%	67-137
OP81642-MS*	2355-31-9	MeFOSAA	MS	REC	96	%	63-144
OP81642-MS*	2991-50-6	EtFOSAA	MS	REC	105	%	61-139
OP81642-MS*	757124-72-4	4:2 Fluorotelomer sulfonate	MS	REC	96	%	62-145
OP81642-MS*	27619-97-2	6:2 Fluorotelomer sulfonate	MS	REC	98	%	64-140
OP81642-MS*	39108-34-4	8:2 Fluorotelomer sulfonate	MS	REC	96	%	65-137
OP81642-MSD*	375-22-4	Perfluorobutanoic acid	MSD	REC	93	%	71-135
OP81642-MSD*	375-22-4	Perfluorobutanoic acid	MSD	RPD	2	%	30
OP81642-MSD*	2706-90-3	Perfluoropentanoic acid	MSD	REC	93	%	69-132
OP81642-MSD*	2706-90-3	Perfluoropentanoic acid	MSD	RPD	2	%	30
OP81642-MSD*	307-24-4	Perfluorohexanoic acid	MSD	REC	89	%	70-132
OP81642-MSD*	307-24-4	Perfluorohexanoic acid	MSD	RPD	2	%	30
OP81642-MSD*	375-85-9	Perfluoroheptanoic acid	MSD	REC	101	%	71-131
OP81642-MSD*	375-85-9	Perfluoroheptanoic acid	MSD	RPD	2	%	30
OP81642-MSD*	335-67-1	Perfluorooctanoic acid	MSD	REC	97	%	69-133
OP81642-MSD*	335-67-1	Perfluorooctanoic acid	MSD	RPD	4	%	30
OP81642-MSD*	375-95-1	Perfluorononanoic acid	MSD	REC	95	%	72-129
OP81642-MSD*	375-95-1	Perfluorononanoic acid	MSD	RPD	3	%	30
OP81642-MSD*	335-76-2	Perfluorodecanoic acid	MSD	REC	89	%	69-133
OP81642-MSD*	335-76-2	Perfluorodecanoic acid	MSD	RPD	4	%	30
OP81642-MSD*	2058-94-8	Perfluoroundecanoic acid	MSD	REC	94	%	64-136
OP81642-MSD*	2058-94-8	Perfluoroundecanoic acid	MSD	RPD	3	%	30
OP81642-MSD*	307-55-1	Perfluorododecanoic acid	MSD	REC	95	%	69-135
OP81642-MSD*	307-55-1	Perfluorododecanoic acid	MSD	RPD	3	%	30
OP81642-MSD*	72629-94-8	Perfluorotridecanoic acid	MSD	REC	105	%	66-139
OP81642-MSD*	72629-94-8	Perfluorotridecanoic acid	MSD	RPD	1	%	30
OP81642-MSD*	376-06-7	Perfluorotetradecanoic acid	MSD	REC	94	%	69-133
OP81642-MSD*	376-06-7	Perfluorotetradecanoic acid	MSD	RPD	4	%	30
OP81642-MSD*	375-73-5	Perfluorobutanesulfonic acid	MSD	REC	97	%	72-128
OP81642-MSD*	375-73-5	Perfluorobutanesulfonic acid	MSD	RPD	2	%	30
OP81642-MSD*	2706-91-4	Perfluoropentanesulfonic acid	MSD	REC	93	%	73-123
OP81642-MSD*	2706-91-4	Perfluoropentanesulfonic acid	MSD	RPD	3	%	30
OP81642-MSD*	355-46-4	Perfluorohexanesulfonic acid	MSD	REC	87	%	67-130
OP81642-MSD*	355-46-4	Perfluorohexanesulfonic acid	MSD	RPD	1	%	30
OP81642-MSD*	375-92-8	Perfluoroheptanesulfonic acid	MSD	REC	93	%	70-132
OP81642-MSD*	375-92-8	Perfluoroheptanesulfonic acid	MSD	RPD	1	%	30
OP81642-MSD*	1763-23-1	Perfluorooctanesulfonic acid	MSD	REC	88	%	67-136
OP81642-MSD*	1763-23-1	Perfluorooctanesulfonic acid	MSD	RPD	2	%	30
OP81642-MSD*	68259-12-1	Perfluorononanesulfonic acid	MSD	REC	92	%	69-125
OP81642-MSD*	68259-12-1	Perfluorononanesulfonic acid	MSD	RPD	3	%	30
OP81642-MSD*	335-77-3	Perfluorodecanesulfonic acid	MSD	REC	99	%	59-134
OP81642-MSD*	335-77-3	Perfluorodecanesulfonic acid	MSD	RPD	1	%	30
OP81642-MSD*	754-91-6	PFOSA	MSD	REC	97	%	67-137
OP81642-MSD*	754-91-6	PFOSA	MSD	RPD	5	%	30
OP81642-MSD*	2355-31-9	MeFOSAA	MSD	REC	93	%	63-144

\* Sample used for QC is not from job FA77711

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77711  
**Account:** SGS North America, Inc  
**Project:** 1204046  
**Collected:** 08/07/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP81642-MSD*	2355-31-9	MeFOSAA	MSD	RPD	5	%	30
OP81642-MSD*	2991-50-6	EtFOSAA	MSD	REC	104	%	61-139
OP81642-MSD*	2991-50-6	EtFOSAA	MSD	RPD	2	%	30
OP81642-MSD*	757124-72-4	4:2 Fluorotelomer sulfonate	MSD	REC	95	%	62-145
OP81642-MSD*	757124-72-4	4:2 Fluorotelomer sulfonate	MSD	RPD	2	%	30
OP81642-MSD*	27619-97-2	6:2 Fluorotelomer sulfonate	MSD	REC	98	%	64-140
OP81642-MSD*	27619-97-2	6:2 Fluorotelomer sulfonate	MSD	RPD	2	%	30
OP81642-MSD*	39108-34-4	8:2 Fluorotelomer sulfonate	MSD	REC	95	%	65-137
OP81642-MSD*	39108-34-4	8:2 Fluorotelomer sulfonate	MSD	RPD	2	%	30

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\* Sample used for QC is not from job FA77711

## MS Semi-volatiles

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



# Instrument Blank

**Job Number:** FA77711  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204046

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q787-IBLK	2Q52901.D	1	08/23/20	NAF	n/a	n/a	S2Q787

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77711-1, FA77711-2, FA77711-3, FA77711-4, FA77711-5, FA77711-6, FA77711-7, FA77711-8, FA77711-9, FA77711-10, FA77711-11, FA77711-12

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.25	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 50-150%
	13C5-PFPeA	88% 50-150%
	13C5-PFHxA	89% 50-150%
	13C4-PFHpA	91% 50-150%
	13C8-PFOA	90% 50-150%
	13C9-PFNA	89% 50-150%
	13C6-PFDA	92% 50-150%
	13C7-PFUnDA	93% 50-150%
	13C2-PFDoDA	91% 50-150%
	13C2-PFTeDA	83% 50-150%
	13C3-PFBS	93% 50-150%
	13C3-PFHxS	95% 50-150%
	13C8-PFOS	94% 50-150%
	13C8-FOSA	96% 50-150%
	d3-MeFOSAA	88% 50-150%
	13C2-4:2FTS	85% 50-150%
	13C2-6:2FTS	87% 50-150%
	13C2-8:2FTS	85% 50-150%

# Instrument Blank

**Job Number:** FA77711  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204046

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q788-IBLK	2Q52990.D	1	08/24/20	NAF	n/a	n/a	S2Q788

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77711-1, FA77711-2, FA77711-3, FA77711-4, FA77711-5, FA77711-6, FA77711-7, FA77711-8, FA77711-9, FA77711-10, FA77711-11, FA77711-12

CAS No.	Compound	Result	RL	MDL	Units	Q
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	89% 50-150%
	13C5-PFPeA	84% 50-150%
	13C5-PFHxA	83% 50-150%
	13C4-PFHpA	83% 50-150%
	13C8-PFOA	85% 50-150%
	13C9-PFNA	85% 50-150%
	13C6-PFDA	89% 50-150%
	13C7-PFUnDA	87% 50-150%
	13C2-PFDoDA	85% 50-150%

# Instrument Blank

**Job Number:** FA77711  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204046

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q788-IBLK	2Q52990.D	1	08/24/20	NAF	n/a	n/a	S2Q788

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77711-1, FA77711-2, FA77711-3, FA77711-4, FA77711-5, FA77711-6, FA77711-7, FA77711-8, FA77711-9, FA77711-10, FA77711-11, FA77711-12

CAS No.	ID Standard Recoveries	Limits
	13C2-PFTeDA	81% 50-150%
	13C3-PFBS	84% 50-150%
	13C3-PFHxS	88% 50-150%
	13C8-PFOS	87% 50-150%
	13C8-FOSA	95% 50-150%
	d3-MeFOSAA	92% 50-150%
	13C2-4:2FTS	82% 50-150%
	13C2-6:2FTS	86% 50-150%
	13C2-8:2FTS	85% 50-150%

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## Method Blank Summary

**Job Number:** FA77711  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204046

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81642-MB	2Q52958.D	1	08/23/20	NAF	08/20/20	OP81642	S2Q787

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77711-1, FA77711-2, FA77711-3, FA77711-4, FA77711-5, FA77711-6, FA77711-7, FA77711-8, FA77711-9, FA77711-10, FA77711-11, FA77711-12

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.25	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	81% 50-150%
	13C5-PFPeA	77% 50-150%
	13C5-PFHxA	78% 50-150%
	13C4-PFHpA	76% 50-150%
	13C8-PFOA	79% 50-150%
	13C9-PFNA	77% 50-150%
	13C6-PFDA	81% 50-150%
	13C7-PFUnDA	81% 50-150%

# Method Blank Summary

**Job Number:** FA77711  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204046

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81642-MB	2Q52958.D	1	08/23/20	NAF	08/20/20	OP81642	S2Q787

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77711-1, FA77711-2, FA77711-3, FA77711-4, FA77711-5, FA77711-6, FA77711-7, FA77711-8, FA77711-9, FA77711-10, FA77711-11, FA77711-12

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	81% 50-150%
	13C2-PFTeDA	76% 50-150%
	13C3-PFBS	78% 50-150%
	13C3-PFHxS	82% 50-150%
	13C8-PFOS	80% 50-150%
	13C8-FOSA	85% 50-150%
	d3-MeFOSAA	81% 50-150%
	13C2-4:2FTS	72% 50-150%
	13C2-6:2FTS	75% 50-150%
	13C2-8:2FTS	75% 50-150%

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# Blank Spike Summary

**Job Number:** FA77711  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204046

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81642-BS	2Q52957.D	1	08/23/20	NAF	08/20/20	OP81642	S2Q787

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77711-1, FA77711-2, FA77711-3, FA77711-4, FA77711-5, FA77711-6, FA77711-7, FA77711-8, FA77711-9, FA77711-10, FA77711-11, FA77711-12

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	8.6	86	71-135
2706-90-3	Perfluoropentanoic acid	10	8.5	85	69-132
307-24-4	Perfluorohexanoic acid	10	8.2	82	70-132
375-85-9	Perfluoroheptanoic acid	10	9.2	92	71-131
335-67-1	Perfluorooctanoic acid	10	9.1	91	69-133
375-95-1	Perfluorononanoic acid	10	8.8	88	72-129
335-76-2	Perfluorodecanoic acid	10	8.2	82	69-133
2058-94-8	Perfluoroundecanoic acid	10	8.9	89	64-136
307-55-1	Perfluorododecanoic acid	10	8.8	88	69-135
72629-94-8	Perfluorotridecanoic acid	10	9.2	92	66-139
376-06-7	Perfluorotetradecanoic acid	10	8.9	89	69-133
375-73-5	Perfluorobutanesulfonic acid	10	8.9	89	72-128
2706-91-4	Perfluoropentanesulfonic acid	10	8.5	85	73-123
355-46-4	Perfluorohexanesulfonic acid	10	8.1	81	67-130
375-92-8	Perfluoroheptanesulfonic acid	10	8.6	86	70-132
1763-23-1	Perfluorooctanesulfonic acid	10	8.7	87	67-136
68259-12-1	Perfluorononanesulfonic acid	10	8.5	85	69-125
335-77-3	Perfluorodecanesulfonic acid	10	9.1	91	59-134
754-91-6	PFOSA	10	9.2	92	67-137
2355-31-9	MeFOSAA	10	8.8	88	63-144
2991-50-6	EtFOSAA	10	8.9	89	61-139
757124-72-44:2	Fluorotelomer sulfonate	10	8.9	89	62-145
27619-97-2	6:2 Fluorotelomer sulfonate	10	8.9	89	64-140
39108-34-4	8:2 Fluorotelomer sulfonate	10	9.0	90	65-137

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	86%	50-150%
	13C5-PFPeA	82%	50-150%
	13C5-PFHxA	82%	50-150%
	13C4-PFHpA	79%	50-150%
	13C8-PFOA	83%	50-150%
	13C9-PFNA	82%	50-150%
	13C6-PFDA	85%	50-150%
	13C7-PFUnDA	84%	50-150%

\* = Outside of Control Limits.

# Blank Spike Summary

**Job Number:** FA77711  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204046

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81642-BS	2Q52957.D	1	08/23/20	NAF	08/20/20	OP81642	S2Q787

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77711-1, FA77711-2, FA77711-3, FA77711-4, FA77711-5, FA77711-6, FA77711-7, FA77711-8, FA77711-9, FA77711-10, FA77711-11, FA77711-12

CAS No.	ID Standard Recoveries	BSP	Limits
	13C2-PFDoDA	86%	50-150%
	13C2-PFTeDA	81%	50-150%
	13C3-PFBS	83%	50-150%
	13C3-PFHxS	86%	50-150%
	13C8-PFOS	84%	50-150%
	13C8-FOSA	86%	50-150%
	d3-MeFOSAA	85%	50-150%
	13C2-4:2FTS	79%	50-150%
	13C2-6:2FTS	83%	50-150%
	13C2-8:2FTS	83%	50-150%

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\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA77711  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204046

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81642-MS	2Q52960.D	1	08/23/20	NAF	08/20/20	OP81642	S2Q787
OP81642-MSD	2Q52961.D	1	08/23/20	NAF	08/20/20	OP81642	S2Q787
FA77936-1	2Q52959.D	1	08/23/20	NAF	08/20/20	OP81642	S2Q787

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77711-1, FA77711-2, FA77711-3, FA77711-4, FA77711-5, FA77711-6, FA77711-7, FA77711-8, FA77711-9, FA77711-10, FA77711-11, FA77711-12

CAS No.	Compound	FA77936-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
375-22-4	Perfluorobutanoic acid	0.96 U		9.34	8.8	94	9.22	8.6	93	2	71-135/30
2706-90-3	Perfluoropentanoic acid	0.27	J	9.34	9.0	93	9.22	8.8	93	2	69-132/30
307-24-4	Perfluorohexanoic acid	0.30	J	9.34	8.7	90	9.22	8.5	89	2	70-132/30
375-85-9	Perfluoroheptanoic acid	0.96 U		9.34	9.5	102	9.22	9.3	101	2	71-131/30
335-67-1	Perfluorooctanoic acid	0.55	J	9.34	9.9	100	9.22	9.5	97	4	69-133/30
375-95-1	Perfluorononanoic acid	0.96 U		9.34	9.1	97	9.22	8.8	95	3	72-129/30
335-76-2	Perfluorodecanoic acid	0.96 U		9.34	8.5	91	9.22	8.2	89	4	69-133/30
2058-94-8	Perfluoroundecanoic acid	0.96 U		9.34	9.0	96	9.22	8.7	94	3	64-136/30
307-55-1	Perfluorododecanoic acid	0.96 U		9.34	9.1	97	9.22	8.8	95	3	69-135/30
72629-94-8	Perfluorotridecanoic acid	0.96 U		9.34	9.8	105	9.22	9.7	105	1	66-139/30
376-06-7	Perfluorotetradecanoic acid	0.96 U		9.34	9.1	97	9.22	8.7	94	4	69-133/30
375-73-5	Perfluorobutanesulfonic acid	0.96 U		9.34	9.1	97	9.22	8.9	97	2	72-128/30
2706-91-4	Perfluoropentanesulfonic acid	0.96 U		9.34	8.9	95	9.22	8.6	93	3	73-123/30
355-46-4	Perfluorohexanesulfonic acid	0.78	J	9.34	8.9	87	9.22	8.8	87	1	67-130/30
375-92-8	Perfluoroheptanesulfonic acid	0.96 U		9.34	8.7	93	9.22	8.6	93	1	70-132/30
1763-23-1	Perfluorooctanesulfonic acid	4.3		9.34	12.7	90	9.22	12.4	88	2	67-136/30
68259-12-1	Perfluorononanesulfonic acid	0.96 U		9.34	8.8	94	9.22	8.5	92	3	69-125/30
335-77-3	Perfluorodecanesulfonic acid	0.96 U		9.34	9.2	98	9.22	9.1	99	1	59-134/30
754-91-6	PFOSA	0.96 U		9.34	9.4	101	9.22	8.9	97	5	67-137/30
2355-31-9	MeFOSAA	2.4 U		9.34	9.0	96	9.22	8.6	93	5	63-144/30
2991-50-6	EtFOSAA	2.4 U		9.34	9.8	105	9.22	9.6	104	2	61-139/30
757124-72-44:2	Fluorotelomer sulfonate	0.96 U		9.34	9.0	96	9.22	8.8	95	2	62-145/30
27619-97-2	6:2 Fluorotelomer sulfonate	0.96 U		9.34	9.2	98	9.22	9.0	98	2	64-140/30
39108-34-4	8:2 Fluorotelomer sulfonate	0.96 U		9.34	9.0	96	9.22	8.8	95	2	65-137/30

CAS No.	ID Standard Recoveries	MS	MSD	FA77936-1	Limits
	13C4-PFBA	81%	82%		50-150%
	13C5-PFPeA	78%	78%		50-150%
	13C5-PFHxA	78%	78%	78%	50-150%
	13C4-PFHpA	76%	76%	76%	50-150%
	13C8-PFOA	78%	79%	79%	50-150%
	13C9-PFNA	78%	78%	78%	50-150%
	13C6-PFDA	81%	82%	82%	50-150%
	13C7-PFUnDA	81%	82%	82%	50-150%

\* = Outside of Control Limits.



# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA77711  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204046

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81642-MS	2Q52960.D	1	08/23/20	NAF	08/20/20	OP81642	S2Q787
OP81642-MSD	2Q52961.D	1	08/23/20	NAF	08/20/20	OP81642	S2Q787
FA77936-1	2Q52959.D	1	08/23/20	NAF	08/20/20	OP81642	S2Q787

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77711-1, FA77711-2, FA77711-3, FA77711-4, FA77711-5, FA77711-6, FA77711-7, FA77711-8, FA77711-9, FA77711-10, FA77711-11, FA77711-12

CAS No.	ID Standard Recoveries	MS	MSD	FA77936-1	Limits
13C2-PFDoDA		81%	82%	81%	50-150%
13C2-PFTeDA		71%	71%	71%	50-150%
13C3-PFBS		78%	79%	79%	50-150%
13C3-PFHxS		84%	83%	83%	50-150%
13C8-PFOS		80%	80%	81%	50-150%
13C8-FOSA		80%	82%		50-150%
d3-MeFOSAA		73%	76%	73%	50-150%
13C2-4:2FTS		76%	76%		50-150%
13C2-6:2FTS		80%	80%		50-150%
13C2-8:2FTS		80%	81%		50-150%
13C3-HFPO-DA				82%	50-150%

\* = Outside of Control Limits.

## Laboratory Report of Analysis

To: Restoration Science & Eng  
911 West 8th Ave Suite 100  
Anchorage, AK 99501

Report Number: **1204074**

Client Project: **20-2176 CRW Postmark Bog V2**

Dear Kyle Wiseman,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Chuck at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,  
SGS North America Inc.

---

Chuck Homestead  
Project Manager  
Charles.Homestead@sgs.com

Date

## Case Narrative

SGS Client: **Restoration Science & Eng**  
SGS Project: **1204074**  
Project Name/Site: **20-2176 CRW Postmark Bog V2**  
Project Contact: **Kyle Wiseman**

Refer to sample receipt form for information on sample condition.

### **T1-07A (1204074001) PS**

EPA 537 PFAS was analyzed by SGS of Orlando, FL.

AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. The sample was analyzed twice and results confirm.

### **LCS for HBN 1810653 [XXX/43711 (1576258) LCS**

AK102- Surrogate recovery in the LCS for 5a androstane does not meet QC criteria; however, the surrogate recoveries in the samples are within criteria.

### **1204046001MS (1574910) MS**

9060A - Total Organic Carbon - MS recovery is outside of QC criteria. Refer to LCS for accuracy requirements.

DRAFT

\*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

Print Date: 09/03/2020 9:48:00AM

## Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCC/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

### Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
T1-07A	1204074001	08/10/2020	08/10/2020	Soil/Solid (dry weight)
T1-07B	1204074002	08/10/2020	08/10/2020	Solid/Soil (Wet Weight)
T1-23A	1204074003	08/10/2020	08/10/2020	Solid/Soil (Wet Weight)
T1-23B	1204074004	08/10/2020	08/10/2020	Soil/Solid (dry weight)
T1-27A	1204074005	08/10/2020	08/10/2020	Solid/Soil (Wet Weight)
T1-27B	1204074006	08/10/2020	08/10/2020	Soil/Solid (dry weight)
T1-39A	1204074007	08/10/2020	08/10/2020	Soil/Solid (dry weight)
T1-39B	1204074008	08/10/2020	08/10/2020	Soil/Solid (dry weight)
T1-XXX	1204074009	08/10/2020	08/10/2020	Solid/Soil (Wet Weight)
T1-XXXX	1204074010	08/10/2020	08/10/2020	Solid/Soil (Wet Weight)
T1-YY	1204074011	08/10/2020	08/10/2020	Soil/Solid (dry weight)
Trip Blank	1204074012	08/10/2020	08/10/2020	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
SM21 2540G	Percent Solids SM2540G
SW9060A-Mod	Total Organic Carbon-M in Soil

Print Date: 09/03/2020 9:48:04AM

### Detectable Results Summary

Client Sample ID: **T1-07A**  
 Lab Sample ID: 1204074001  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	797	mg/kg
Residual Range Organics	13600	mg/kg

**Volatile Fuels**

Gasoline Range Organics	22.8J	mg/Kg
Toluene	2160	ug/kg

**Waters Department**

Total Organic Carbon	37.9	%
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Client Sample ID: **T1-23B**  
 Lab Sample ID: 1204074004  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	766	mg/kg
Residual Range Organics	14900	mg/kg
Total Organic Carbon	34.9	%

**Waters Department**

Client Sample ID: **T1-27B**  
 Lab Sample ID: 1204074006  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	642	mg/kg
Residual Range Organics	8110	mg/kg
Total Organic Carbon	45.1	%

**Waters Department**

Client Sample ID: **T1-39A**  
 Lab Sample ID: 1204074007  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	760	mg/kg
Residual Range Organics	8710	mg/kg
Gasoline Range Organics	15.1J	mg/Kg
Toluene	1430	ug/kg
Total Organic Carbon	37.1	%

**Volatile Fuels**

**Waters Department**

Client Sample ID: **T1-YY**  
 Lab Sample ID: 1204074011  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1250	mg/kg
Residual Range Organics	14900	mg/kg
Gasoline Range Organics	14.8J	mg/Kg
Toluene	971	ug/kg
Total Organic Carbon	41.8	%

**Volatile Fuels**

**Waters Department**

## Results of T1-07A

Client Sample ID: **T1-07A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204074001  
 Lab Project ID: 1204074

Collection Date: 08/10/20 11:35  
 Received Date: 08/10/20 16:15  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):20.3  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	797	98.0	30.4	mg/kg	1		08/31/20 08:56
<b>Surrogates</b>							
5a Androstane (surr)	110	50-150		%	1		08/31/20 08:56

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 08:56  
 Container ID: 1204074001-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.203 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	13600	490	211	mg/kg	1		08/31/20 08:56
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	95.9	50-150		%	1		08/31/20 08:56

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 08:56  
 Container ID: 1204074001-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.203 g  
 Prep Extract Vol: 5 mL



Results of T1-07A

Client Sample ID: T1-07A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204074001
Lab Project ID: 1204074

Collection Date: 08/10/20 11:35
Received Date: 08/10/20 16:15
Matrix: Soil/Solid (dry weight)
Solids (%):20.3
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 22.8 J, 51.9, 15.6, mg/Kg, 1, 08/14/20 17:25

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 46.3 \*, 50-150, %, 1, 08/14/20 17:25

Batch Information

Analytical Batch: VFC15285
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/14/20 17:25
Container ID: 1204074001-B

Prep Batch: VXX36127
Prep Method: SW5035A
Prep Date/Time: 08/10/20 11:35
Prep Initial Wt./Vol.: 19.144 g
Prep Extract Vol: 40.2636 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 93.1, 72-119, %, 1, 08/14/20 17:25

Batch Information

Analytical Batch: VFC15285
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/14/20 17:25
Container ID: 1204074001-B

Prep Batch: VXX36127
Prep Method: SW5035A
Prep Date/Time: 08/10/20 11:35
Prep Initial Wt./Vol.: 19.144 g
Prep Extract Vol: 40.2636 mL



## Results of T1-07A

Client Sample ID: **T1-07A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204074001  
 Lab Project ID: 1204074

Collection Date: 08/10/20 11:35  
 Received Date: 08/10/20 16:15  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):20.3  
 Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	37.9	2.47	0.742	%	1		08/15/20 14:18

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Analyst: EWW  
 Analytical Date/Time: 08/15/20 14:18  
 Container ID: 1204074001-A

Prep Batch: WXX13402  
 Prep Method: METHOD  
 Prep Date/Time: 08/15/20 10:30  
 Prep Initial Wt./Vol.: 49.9 mg  
 Prep Extract Vol: 1 mL

DRAFT



Results of T1-23B

Client Sample ID: T1-23B
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204074004
Lab Project ID: 1204074

Collection Date: 08/10/20 11:00
Received Date: 08/10/20 16:15
Matrix: Soil/Solid (dry weight)
Solids (%):22.2
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Diesel Range Organics and Surrogates (5a Androstane).

Batch Information

Analytical Batch: XFC15711
Analytical Method: AK102
Analyst: CDM
Analytical Date/Time: 08/31/20 09:16
Container ID: 1204074004-A

Prep Batch: XXX43711
Prep Method: SW3550C
Prep Date/Time: 08/21/20 13:45
Prep Initial Wt./Vol.: 30.223 g
Prep Extract Vol: 5 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Residual Range Organics and Surrogates (n-Triacontane-d62).

Batch Information

Analytical Batch: XFC15711
Analytical Method: AK103
Analyst: CDM
Analytical Date/Time: 08/31/20 09:16
Container ID: 1204074004-A

Prep Batch: XXX43711
Prep Method: SW3550C
Prep Date/Time: 08/21/20 13:45
Prep Initial Wt./Vol.: 30.223 g
Prep Extract Vol: 5 mL



Results of T1-23B

Client Sample ID: T1-23B
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204074004
Lab Project ID: 1204074

Collection Date: 08/10/20 11:00
Received Date: 08/10/20 16:15
Matrix: Soil/Solid (dry weight)
Solids (%):22.2
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 41.4 U, 82.8, 24.8, mg/Kg, 1, 08/14/20 16:31

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 126, 50-150, %, 1, 08/14/20 16:31

Batch Information

Analytical Batch: VFC15285
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/14/20 16:31
Container ID: 1204074004-B

Prep Batch: VXX36127
Prep Method: SW5035A
Prep Date/Time: 08/10/20 11:00
Prep Initial Wt./Vol.: 17.276 g
Prep Extract Vol: 63.4439 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 93.9, 72-119, %, 1, 08/14/20 16:31

Batch Information

Analytical Batch: VFC15285
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/14/20 16:31
Container ID: 1204074004-B

Prep Batch: VXX36127
Prep Method: SW5035A
Prep Date/Time: 08/10/20 11:00
Prep Initial Wt./Vol.: 17.276 g
Prep Extract Vol: 63.4439 mL

## Results of T1-23B

Client Sample ID: **T1-23B**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204074004  
 Lab Project ID: 1204074

Collection Date: 08/10/20 11:00  
 Received Date: 08/10/20 16:15  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):22.2  
 Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	34.9	1.55	0.466	%	1		08/15/20 14:25

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Analyst: EWW  
 Analytical Date/Time: 08/15/20 14:25  
 Container ID: 1204074004-A

Prep Batch: WXX13402  
 Prep Method: METHOD  
 Prep Date/Time: 08/15/20 10:30  
 Prep Initial Wt./Vol.: 72.6 mg  
 Prep Extract Vol: 1 mL

DRAFT

## Results of T1-27B

Client Sample ID: **T1-27B**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204074006  
 Lab Project ID: 1204074

Collection Date: 08/10/20 10:00  
 Received Date: 08/10/20 16:15  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):15.9  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	642	125	38.7	mg/kg	1		08/31/20 21:16
<b>Surrogates</b>							
5a Androstane (surr)	98.1	50-150		%	1		08/31/20 21:16

## Batch Information

Analytical Batch: XFC15712  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 21:16  
 Container ID: 1204074006-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.182 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	8110	625	269	mg/kg	1		08/31/20 21:16
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	85	50-150		%	1		08/31/20 21:16

## Batch Information

Analytical Batch: XFC15712  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 21:16  
 Container ID: 1204074006-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.182 g  
 Prep Extract Vol: 5 mL



Results of T1-27B

Client Sample ID: T1-27B
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204074006
Lab Project ID: 1204074

Collection Date: 08/10/20 10:00
Received Date: 08/10/20 16:15
Matrix: Soil/Solid (dry weight)
Solids (%):15.9
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 46.4 U, 92.8, 27.8, mg/Kg, 1, 08/14/20 16:13

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 51.7, 50-150, %, 1, 08/14/20 16:13

Batch Information

Analytical Batch: VFC15285
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/14/20 16:13
Container ID: 1204074006-B

Prep Batch: VXX36127
Prep Method: SW5035A
Prep Date/Time: 08/10/20 10:00
Prep Initial Wt./Vol.: 11.838 g
Prep Extract Vol: 34.9551 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 93.8, 72-119, %, 1, 08/14/20 16:13

Batch Information

Analytical Batch: VFC15285
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/14/20 16:13
Container ID: 1204074006-B

Prep Batch: VXX36127
Prep Method: SW5035A
Prep Date/Time: 08/10/20 10:00
Prep Initial Wt./Vol.: 11.838 g
Prep Extract Vol: 34.9551 mL

## Results of T1-27B

Client Sample ID: **T1-27B**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204074006  
 Lab Project ID: 1204074

Collection Date: 08/10/20 10:00  
 Received Date: 08/10/20 16:15  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):15.9  
 Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	45.1	3.46	1.04	%	1		08/15/20 15:20

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Analyst: EWW  
 Analytical Date/Time: 08/15/20 15:20  
 Container ID: 1204074006-A

Prep Batch: WXX13402  
 Prep Method: METHOD  
 Prep Date/Time: 08/15/20 10:30  
 Prep Initial Wt./Vol.: 45.4 mg  
 Prep Extract Vol: 1 mL

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## Results of T1-39A

Client Sample ID: **T1-39A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204074007  
 Lab Project ID: 1204074

Collection Date: 08/10/20 13:35  
 Received Date: 08/10/20 16:15  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):19.1  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	760	105	32.5	mg/kg	1		08/31/20 21:26
<b>Surrogates</b>							
5a Androstane (surr)	106	50-150		%	1		08/31/20 21:26

## Batch Information

Analytical Batch: XFC15712  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 21:26  
 Container ID: 1204074007-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.017 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	8710	524	225	mg/kg	1		08/31/20 21:26
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	95.2	50-150		%	1		08/31/20 21:26

## Batch Information

Analytical Batch: XFC15712  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 21:26  
 Container ID: 1204074007-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.017 g  
 Prep Extract Vol: 5 mL





Results of T1-39A

Client Sample ID: T1-39A
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204074007
Lab Project ID: 1204074

Collection Date: 08/10/20 13:35
Received Date: 08/10/20 16:15
Matrix: Soil/Solid (dry weight)
Solids (%):19.1
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 15.1 J, 47.6, 14.3, mg/Kg, 1, 08/14/20 15:54

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 59.9, 50-150, %, 1, 08/14/20 15:54

Batch Information

Analytical Batch: VFC15285
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/14/20 15:54
Container ID: 1204074007-B

Prep Batch: VXX36127
Prep Method: SW5035A
Prep Date/Time: 08/10/20 13:35
Prep Initial Wt./Vol.: 24.784 g
Prep Extract Vol: 45.0526 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 93.2, 72-119, %, 1, 08/14/20 15:54

Batch Information

Analytical Batch: VFC15285
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/14/20 15:54
Container ID: 1204074007-B

Prep Batch: VXX36127
Prep Method: SW5035A
Prep Date/Time: 08/10/20 13:35
Prep Initial Wt./Vol.: 24.784 g
Prep Extract Vol: 45.0526 mL

## Results of T1-39A

Client Sample ID: **T1-39A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204074007  
Lab Project ID: 1204074

Collection Date: 08/10/20 13:35  
Received Date: 08/10/20 16:15  
Matrix: Soil/Solid (dry weight)  
Solids (%):19.1  
Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	37.1	2.35	0.705	%	1		08/15/20 15:35

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 15:35  
Container ID: 1204074007-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 55.7 mg  
Prep Extract Vol: 1 mL

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Results of T1-YY

Client Sample ID: T1-YY  
Client Project ID: 20-2176 CRW Postmark Bog V2  
Lab Sample ID: 1204074011  
Lab Project ID: 1204074

Collection Date: 08/10/20 13:40  
Received Date: 08/10/20 16:15  
Matrix: Soil/Solid (dry weight)  
Solids (%):21.7  
Location:

Results by Semivolatile Organic Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1250	92.0	28.5	mg/kg	1		08/31/20 21:36
<b>Surrogates</b>							
5a Androstane (surr)	142	50-150		%	1		08/31/20 21:36

Batch Information

Analytical Batch: XFC15712  
Analytical Method: AK102  
Analyst: CDM  
Analytical Date/Time: 08/31/20 21:36  
Container ID: 1204074011-A

Prep Batch: XXX43711  
Prep Method: SW3550C  
Prep Date/Time: 08/21/20 13:45  
Prep Initial Wt./Vol.: 30.033 g  
Prep Extract Vol: 5 mL

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	14900	460	198	mg/kg	1		08/31/20 21:36
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	77.2	50-150		%	1		08/31/20 21:36

Batch Information

Analytical Batch: XFC15712  
Analytical Method: AK103  
Analyst: CDM  
Analytical Date/Time: 08/31/20 21:36  
Container ID: 1204074011-A

Prep Batch: XXX43711  
Prep Method: SW3550C  
Prep Date/Time: 08/21/20 13:45  
Prep Initial Wt./Vol.: 30.033 g  
Prep Extract Vol: 5 mL



Results of T1-YY

Client Sample ID: T1-YY
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204074011
Lab Project ID: 1204074

Collection Date: 08/10/20 13:40
Received Date: 08/10/20 16:15
Matrix: Soil/Solid (dry weight)
Solids (%):21.7
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 14.8 J, 45.4, 13.6, mg/Kg, 1, 08/14/20 15:36

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 59, 50-150, %, 1, 08/14/20 15:36

Batch Information

Analytical Batch: VFC15285
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/14/20 15:36
Container ID: 1204074011-B

Prep Batch: VXX36127
Prep Method: SW5035A
Prep Date/Time: 08/10/20 13:40
Prep Initial Wt./Vol.: 21.038 g
Prep Extract Vol: 41.4692 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 94.6, 72-119, %, 1, 08/14/20 15:36

Batch Information

Analytical Batch: VFC15285
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/14/20 15:36
Container ID: 1204074011-B

Prep Batch: VXX36127
Prep Method: SW5035A
Prep Date/Time: 08/10/20 13:40
Prep Initial Wt./Vol.: 21.038 g
Prep Extract Vol: 41.4692 mL

## Results of T1-YY

Client Sample ID: T1-YY  
Client Project ID: 20-2176 CRW Postmark Bog V2  
Lab Sample ID: 1204074011  
Lab Project ID: 1204074

Collection Date: 08/10/20 13:40  
Received Date: 08/10/20 16:15  
Matrix: Soil/Solid (dry weight)  
Solids (%):21.7  
Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	41.8	1.90	0.569	%	1		08/15/20 15:43

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 15:43  
Container ID: 1204074011-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 60.7 mg  
Prep Extract Vol: 1 mL

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### Results of Trip Blank

Client Sample ID: **Trip Blank**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204074012  
 Lab Project ID: 1204074

Collection Date: 08/10/20 09:15  
 Received Date: 08/10/20 16:15  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):  
 Location:

### Results by Volatile Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.25 U	2.51	0.753	mg/Kg	1		08/14/20 14:24

### Surrogates

4-Bromofluorobenzene (surr)	113	50-150		%	1		08/14/20 14:24
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### Batch Information

Analytical Batch: VFC15285  
 Analytical Method: AK101  
 Analyst: ALJ  
 Analytical Date/Time: 08/14/20 14:24  
 Container ID: 1204074012-A

Prep Batch: VXX36127  
 Prep Method: SW5035A  
 Prep Date/Time: 08/10/20 09:15  
 Prep Initial Wt./Vol.: 49.829 g  
 Prep Extract Vol: 25 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	6.25 U	12.5	4.01	ug/kg	1		08/14/20 14:24
Ethylbenzene	12.6 U	25.1	7.83	ug/kg	1		08/14/20 14:24
o-Xylene	12.6 U	25.1	7.83	ug/kg	1		08/14/20 14:24
P & M -Xylene	25.1 U	50.2	15.1	ug/kg	1		08/14/20 14:24
Toluene	12.6 U	25.1	7.83	ug/kg	1		08/14/20 14:24
Xylenes (total)	37.6 U	75.3	22.9	ug/kg	1		08/14/20 14:24

### Surrogates

1,4-Difluorobenzene (surr)	93.6	72-119		%	1		08/14/20 14:24
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### Batch Information

Analytical Batch: VFC15285  
 Analytical Method: SW8021B  
 Analyst: ALJ  
 Analytical Date/Time: 08/14/20 14:24  
 Container ID: 1204074012-A

Prep Batch: VXX36127  
 Prep Method: SW5035A  
 Prep Date/Time: 08/10/20 09:15  
 Prep Initial Wt./Vol.: 49.829 g  
 Prep Extract Vol: 25 mL

## Method Blank

Blank ID: MB for HBN 1810629 [SPT/11109]  
Blank Lab ID: 1576181

Matrix: Soil/Solid (dry weight)

QC for Samples:

1204074001, 1204074003, 1204074004, 1204074006, 1204074007, 1204074008, 1204074011

## Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

## Batch Information

Analytical Batch: SPT11109  
Analytical Method: SM21 2540G  
Instrument:  
Analyst: EBH  
Analytical Date/Time: 8/20/2020 6:37:00PM

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Print Date: 09/03/2020 9:48:10AM

## Method Blank

Blank ID: MB for HBN 1810341 [VXX/36127]  
Blank Lab ID: 1574843

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204074001, 1204074004, 1204074006, 1204074007, 1204074011, 1204074012

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	80.1	50-150		%

## Batch Information

Analytical Batch: VFC15285  
Analytical Method: AK101  
Instrument: Agilent 7890A PID/FID  
Analyst: ALJ  
Analytical Date/Time: 8/14/2020 2:06:00PM

Prep Batch: VXX36127  
Prep Method: SW5035A  
Prep Date/Time: 8/14/2020 6:00:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204074 [VXX36127]  
 Blank Spike Lab ID: 1574846  
 Date Analyzed: 08/14/2020 21:38

Spike Duplicate ID: LCSD for HBN 1204074 [VXX36127]  
 Spike Duplicate Lab ID: 1574847  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204074001, 1204074004, 1204074006, 1204074007, 1204074011, 1204074012

## Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	14.6	117	12.5	14.6	117	( 60-120 )	0.28	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene (surr)	1.25	89	89	1.25	88.2	88	( 50-150 )	0.88	

## Batch Information

Analytical Batch: VFC15285  
 Analytical Method: AK101  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ

Prep Batch: VXX36127  
 Prep Method: SW5035A  
 Prep Date/Time: 08/14/2020 06:00  
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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## Method Blank

Blank ID: MB for HBN 1810341 [VXX/36127]  
 Blank Lab ID: 1574843

Matrix: Soil/Solid (dry weight)

QC for Samples:  
 1204074001, 1204074004, 1204074006, 1204074007, 1204074011, 1204074012

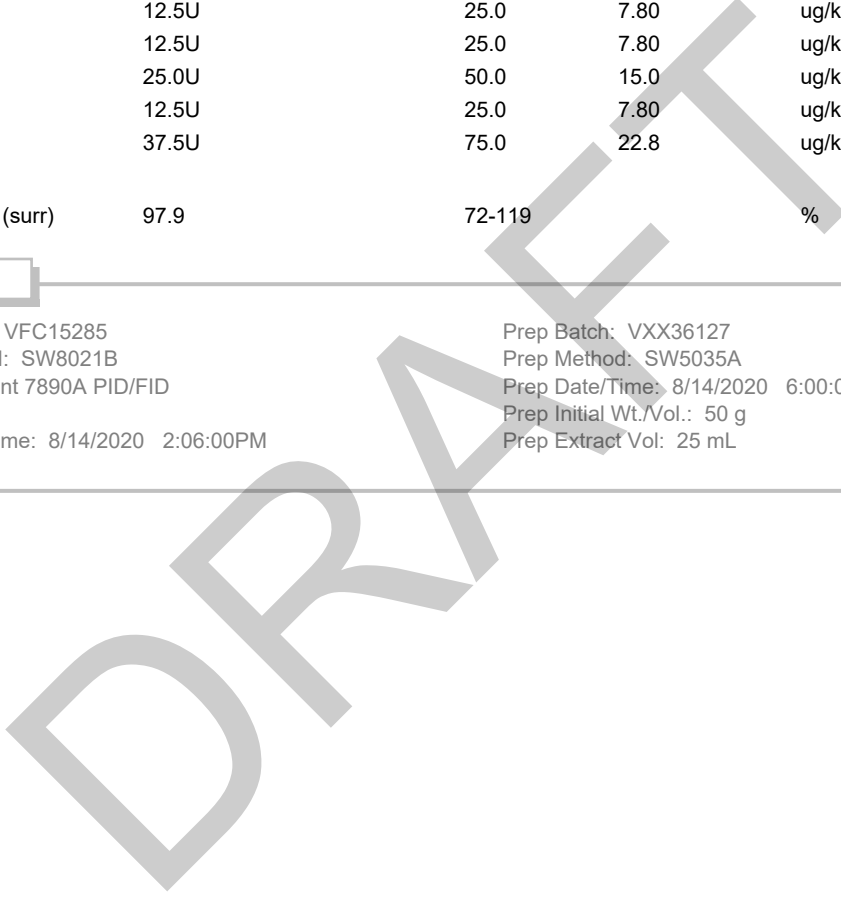
## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	6.25U	12.5	4.00	ug/kg
Ethylbenzene	12.5U	25.0	7.80	ug/kg
o-Xylene	12.5U	25.0	7.80	ug/kg
P & M -Xylene	25.0U	50.0	15.0	ug/kg
Toluene	12.5U	25.0	7.80	ug/kg
Xylenes (total)	37.5U	75.0	22.8	ug/kg
<b>Surrogates</b>				
1,4-Difluorobenzene (surr)	97.9	72-119		%

## Batch Information

Analytical Batch: VFC15285  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ  
 Analytical Date/Time: 8/14/2020 2:06:00PM

Prep Batch: VXX36127  
 Prep Method: SW5035A  
 Prep Date/Time: 8/14/2020 6:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL



## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204074 [VXX36127]  
 Blank Spike Lab ID: 1574844  
 Date Analyzed: 08/14/2020 13:29

Spike Duplicate ID: LCSD for HBN 1204074 [VXX36127]  
 Spike Duplicate Lab ID: 1574845  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204074001, 1204074004, 1204074006, 1204074007, 1204074011, 1204074012

## Results by SW8021B

Parameter	Blank Spike (ug/kg)			Spike Duplicate (ug/kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1250	1330	107	1250	1320	106	( 75-125 )	0.66	(< 20 )
Ethylbenzene	1250	1080	86	1250	1070	86	( 75-125 )	0.46	(< 20 )
o-Xylene	1250	1070	86	1250	1060	85	( 75-125 )	0.70	(< 20 )
P & M -Xylene	2500	2140	86	2500	2130	85	( 80-125 )	0.56	(< 20 )
Toluene	1250	1190	95	1250	1150	92	( 70-125 )	3.40	(< 20 )
Xylenes (total)	3750	3210	86	3750	3190	85	( 78-124 )	0.61	(< 20 )
<b>Surrogates</b>									
1,4-Difluorobenzene (surr)	1250	102	102	1250	103	103	( 72-119 )	0.97	

## Batch Information

Analytical Batch: VFC15285  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ

Prep Batch: VXX36127  
 Prep Method: SW5035A  
 Prep Date/Time: 08/14/2020 06:00  
 Spike Init Wt./Vol.: 1250 ug/kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 1250 ug/kg Extract Vol: 25 mL

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## Matrix Spike Summary

Original Sample ID: 1575472  
 MS Sample ID: 1574848 MS  
 MSD Sample ID: 1574849 MSD

Analysis Date: 08/14/2020 16:31  
 Analysis Date: 08/14/2020 16:49  
 Analysis Date: 08/14/2020 17:07  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204074001, 1204074004, 1204074006, 1204074007, 1204074011, 1204074012

## Results by SW8021B

Parameter	Sample	Matrix Spike (ug/kg)			Spike Duplicate (ug/kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	8.45U	1690	1820	108	1690	1860	110	75-125	1.90	(< 20)
Ethylbenzene	16.9U	1690	1530	91	1690	1560	93	75-125	1.70	(< 20)
o-Xylene	16.9U	1690	1450	86	1690	1480	88	75-125	2.30	(< 20)
P & M -Xylene	33.8U	3370	2980	88	3370	3050	90	80-125	2.20	(< 20)
Toluene	16.9U	1690	1670	99	1690	1660	98	70-125	0.81	(< 20)
Xylenes (total)	50.5U	5060	4430	88	5060	4530	90	78-124	2.30	(< 20)
<b>Surrogates</b>										
1,4-Difluorobenzene (surr)		1690	1640	97	1690	1640	97	72-119	0.04	

## Batch Information

Analytical Batch: VFC15285  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ  
 Analytical Date/Time: 8/14/2020 4:49:00PM

Prep Batch: VXX36127  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 8/14/2020 6:00:00AM  
 Prep Initial Wt./Vol.: 37.06g  
 Prep Extract Vol: 25.00mL

## Method Blank

Blank ID: MB for HBN 1810348 [WXX/13402]

Blank Lab ID: 1574906

QC for Samples:

1204074001, 1204074004

Matrix: Soil/Solid (dry weight)

## Results by SW9060A-Mod

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Organic Carbon	0.0250U	0.0500	0.0150	%

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Instrument: TOC Analyzer 2  
Analyst: EWW  
Analytical Date/Time: 8/15/2020 11:06:25AM

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 8/15/2020 10:30:00AM  
Prep Initial Wt./Vol.: 500 mg  
Prep Extract Vol: 1 mL

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Print Date: 09/03/2020 9:48:23AM

## Method Blank

Blank ID: MB for HBN 1810348 [WXX/13402]  
Blank Lab ID: 1574911

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204074001, 1204074004, 1204074006, 1204074007, 1204074011

## Results by SW9060A-Mod

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Organic Carbon	0.0250U	0.0500	0.0150	%

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Instrument: TOC Analyzer 2  
Analyst: EWW  
Analytical Date/Time: 8/15/2020 2:44:42PM

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 8/15/2020 10:30:00AM  
Prep Initial Wt./Vol.: 500 mg  
Prep Extract Vol: 1 mL

DRAFT

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204074 [WXX13402]  
 Blank Spike Lab ID: 1574907  
 Date Analyzed: 08/15/2020 11:19

Spike Duplicate ID: LCSD for HBN 1204074 [WXX13402]  
 Spike Duplicate Lab ID: 1574908  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204074001, 1204074004

## Results by SW9060A-Mod

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	3.35	3.23	96	3.35	3.22	96	( 75-125 )	0.31	(< 25 )

## Batch Information

Analytical Batch: **WTC3027**  
 Analytical Method: **SW9060A-Mod**  
 Instrument: **TOC Analyzer 2**  
 Analyst: **EWV**

Prep Batch: **WXX13402**  
 Prep Method: **METHOD**  
 Prep Date/Time: **08/15/2020 10:30**  
 Spike Init Wt./Vol.: 3.35 % Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 3.35 % Extract Vol: 1 mL

DRAFT

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204074 [WXX13402]  
 Blank Spike Lab ID: 1574912  
 Date Analyzed: 08/15/2020 14:59

Spike Duplicate ID: LCSD for HBN 1204074 [WXX13402]  
 Spike Duplicate Lab ID: 1574913  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204074001, 1204074004, 1204074006, 1204074007, 1204074011

## Results by SW9060A-Mod

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	3.35	3.21	96	3.35	3.18	95	( 75-125 )	0.94	(< 25 )

## Batch Information

Analytical Batch: **WTC3027**  
 Analytical Method: **SW9060A-Mod**  
 Instrument: **TOC Analyzer 2**  
 Analyst: **EWV**

Prep Batch: **WXX13402**  
 Prep Method: **METHOD**  
 Prep Date/Time: **08/15/2020 10:30**  
 Spike Init Wt./Vol.: 3.35 % Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 3.35 % Extract Vol: 1 mL

DRAFT



## Matrix Spike Summary

Original Sample ID: 1204046001  
 MS Sample ID: 1574910 MS  
 MSD Sample ID:

Analysis Date: 08/15/2020 13:17  
 Analysis Date: 08/15/2020 13:26  
 Analysis Date:  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204074001, 1204074004, 1204074006

## Results by SW9060A-Mod

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	33.8	4.98	40.5	130 *			75-125			

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Instrument: TOC Analyzer 2  
 Analyst: EWW  
 Analytical Date/Time: 8/15/2020 1:26:17PM

Prep Batch: WXX13402  
 Prep Method: TOC Soils Prep (S)  
 Prep Date/Time: 8/15/2020 10:30:00AM  
 Prep Initial Wt./Vol.: 71.80mg  
 Prep Extract Vol: 1.00mL

DRAFT

## Matrix Spike Summary

Original Sample ID: 1204074006  
 MS Sample ID: 1574914 MS  
 MSD Sample ID:

Analysis Date: 08/15/2020 15:20  
 Analysis Date: 08/15/2020 15:28  
 Analysis Date:  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204074001, 1204074004, 1204074006, 1204074007, 1204074011

## Results by SW9060A-Mod

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	45.1	14.1	57.0	85			75-125			

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Instrument: TOC Analyzer 2  
 Analyst: EWW  
 Analytical Date/Time: 8/15/2020 3:28:50PM

Prep Batch: WXX13402  
 Prep Method: TOC Soils Prep (S)  
 Prep Date/Time: 8/15/2020 10:30:00AM  
 Prep Initial Wt./Vol.: 44.70mg  
 Prep Extract Vol: 1.00mL

DRAFT

## Method Blank

Blank ID: MB for HBN 1810653 [XXX/43711]  
Blank Lab ID: 1576257

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204074001, 1204074004, 1204074006, 1204074007, 1204074011

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/kg
<b>Surrogates</b>				
5a Androstane (surr)	106	60-120		%

## Batch Information

Analytical Batch: XFC15711  
Analytical Method: AK102  
Instrument: Agilent 7890B R  
Analyst: CDM  
Analytical Date/Time: 8/31/2020 6:08:00AM

Prep Batch: XXX43711  
Prep Method: SW3550C  
Prep Date/Time: 8/21/2020 1:45:08PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 5 mL

DRAFT

Print Date: 09/03/2020 9:48:29AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204074 [XXX43711]  
 Blank Spike Lab ID: 1576258  
 Date Analyzed: 08/31/2020 06:18

Spike Duplicate ID: LCSD for HBN 1204074  
 [XXX43711]  
 Spike Duplicate Lab ID: 1576259  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204074001, 1204074004, 1204074006, 1204074007, 1204074011

## Results by AK102

Parameter	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)			CL	RPD (%)	RPD CL	
	Spike	Result	Rec (%)	Spike	Result	Rec (%)				
Diesel Range Organics	833	788	95	833	733	88	( 75-125 )	7.30	(< 20 )	
<b>Surrogates</b>										
5a Androstane (surr)	16.7	122	122	* 16.7	113	113	( 60-120 )	8.10		

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK102  
 Instrument: Agilent 7890B R  
 Analyst: CDM

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/2020 13:45  
 Spike Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL

DRAFT

## Method Blank

Blank ID: MB for HBN 1810653 [XXX/43711]  
Blank Lab ID: 1576257

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204074001, 1204074004, 1204074006, 1204074007, 1204074011

## Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	50.0U	100	43.0	mg/kg
<b>Surrogates</b>				
n-Triacontane-d62 (surr)	103	60-120		%

## Batch Information

Analytical Batch: XFC15711  
Analytical Method: AK103  
Instrument: Agilent 7890B R  
Analyst: CDM  
Analytical Date/Time: 8/31/2020 6:08:00AM

Prep Batch: XXX43711  
Prep Method: SW3550C  
Prep Date/Time: 8/21/2020 1:45:08PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 5 mL

DRAFT

Print Date: 09/03/2020 9:48:34AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204074 [XXX43711]  
 Blank Spike Lab ID: 1576258  
 Date Analyzed: 08/31/2020 06:18

Spike Duplicate ID: LCSD for HBN 1204074  
 [XXX43711]  
 Spike Duplicate Lab ID: 1576259  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204074001, 1204074004, 1204074006, 1204074007, 1204074011

## Results by AK103

Parameter	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	833	763	92	833	705	85	( 60-120 )	7.90	(< 20 )
<b>Surrogates</b>									
n-Triacontane-d62 (surr)	16.7	110	110	16.7	106	106	( 60-120 )	3.30	

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK103  
 Instrument: Agilent 7890B R  
 Analyst: CDM

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/2020 13:45  
 Spike Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL

DRAFT



**CLIENT:** RSE

**CONTACT:** Kyle Wiseman **PHONE #:** 278-1023

**PROJECT NAME:** CRW Postmark Bog V2 **PROJECT/PWSID/PERMIT#:** 20-2176

**REPORTS TO:** RSE **E-MAIL:** kwiseman@restorsei.com

**INVOICE TO:** RSE **QUOTE #:** #364091 **P.O. #:** #364091

**Instructions:** Out. Omissions may delay the onset of analysis. Page 1 of 2

**Section 3** Preservative

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/MATRIX CODE	CONTAINER #	Comp Grab MI (Multi-incremental)	Analysis*				REMARKS/LOC ID
							PFAS	DRG/RO	TOL	GRP/BTEX	
(1AC)	T1-07A	8/10/2020	11:35	SOIL	3	G	X	X	X	X	
(2AC)	T1-07B	8/10/2020	12:00	SOIL	3	G	X	X	X	X	HOLD DRG, RO, GRP, TOL, BTEX
(3AC)	T1-23A	8/10/2020	10:46	SOIL	3	G	X	X	X	X	HOLD DRG, RO, GRP, TOL, BTEX
(4AC)	T1-23B	8/10/2020	11:00	SOIL	3	G	X	X	X	X	
(5AC)	T1-27A	8/10/2020	9:15	SOIL	3	G	X	X	X	X	HOLD DRG, RO, GRP, TOL, BTEX
(6AC)	T1-27B	8/10/2020	10:00	SOIL	3	G	X	X	X	X	
(7AC)	T1-39A	8/10/2020	13:35	SOIL	3	G	X	X	X	X	
(8AC)	T1-39B	8/10/2020	13:50	SOIL	3	G	X	X	X	X	HOLD DRG, RO, GRP, TOL, BTEX
(9AC)	T1-XXX	8/10/2020	9:20	SOIL	1	G	X				
(10AC)	T1-XXXX	8/10/2020	13:45	SOIL	1	G	X				

**Section 4** DOD Project? Yes  No  Data Deliverable Requirements: **REGULAR**

Cooler ID: **8/10**

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: **4.7 DS8** Chain of Custody Seal: (Circle) **INTACT**  **BROKEN**  **ABSENT**

Delivery Method: Hand Delivery  Commercial Delivery

**Section 5**

Relinquished By: (1) [Signature] Date: 8/10 Time: 1555 Received By: [Signature]

Relinquished By: (2) [Signature] Date: [ ] Time: [ ] Received By: [ ]

Relinquished By: (3) [Signature] Date: [ ] Time: [ ] Received By: [ ]

Relinquished By: (4) [Signature] Date: 8/10/20 Time: 1615 Received For Laboratory By: [Signature]



SGS North America Inc. CHAIN OF CUSTODY RECORD

1204074



www.us.sgs.com

CLIENT: <b>RSE</b>					Instructions Omissions may vary					1 out. /sis.		Page <u>2</u> of <u>2</u>					
CONTACT: <b>Kyle Wilson</b>					PHONE #: <b>278-1023</b>					Section 3		Preservative					
PROJECT NAME: <b>CRW Postner &amp; Bog V2</b>					PROJECT/PWSID/PERMIT#: <b>20-2176</b>					# C O N T A I N E R S		Comp Grab MI (Multi-incremental)		Analysis*		NOTE: *The following analyses require specific method and/or compound list: BTEX, Metals, PFAS	
REPORTS TO: <b>RSE</b>					E-MAIL: <b>k.wilson@restwsci.com</b>												
INVOICE TO: <b>RSE</b>					QUOTE #: P.O. #: 												
RESERVED for lab use	SAMPLE IDENTIFICATION			DATE mm/dd/yy	TIME HH:MM	MATRIX/MATRIX CODE											
<b>(11AB)</b>	<b>T7-YY</b>			<b>8/10/2020</b>	<b>13:40</b>	<b>SDIC</b>	<b>2</b>	<b>G</b>	<b>X</b>	<b>X</b>	<b>X</b>						
<b>(12A)</b>																	
Relinquished By: (1)					Date <b>8/10</b>	Time <b>1555</b>	Received By:					Section 4 DOD Project? Yes <input type="radio"/> No <input checked="" type="radio"/>		Data Deliverable Requirements: <b>REGULAR</b>			
Relinquished By: (2)					Date	Time	Received By:					Cooler ID: <b>8/10</b>		Requested Turnaround Time and/or Special Instructions:			
Relinquished By: (3)					Date	Time	Received By:					Temp Blank °C: <b>4.7</b> <b>DS8</b>		Chain of Custody Seal: (Circle) INTACT <input type="checkbox"/> BROKEN <input type="checkbox"/> <b>ABSENT</b> <input checked="" type="checkbox"/>			
Relinquished By: (4)					Date <b>8/10/20</b>	Time <b>1615</b>	Received For Laboratory By: <b>MT</b>					Delivery Method: Hand Delivery <input checked="" type="checkbox"/> Commercial Delivery <input type="checkbox"/>					

http://www.sgs.com/terms-and-conditions





e-Sample Receipt Form

SGS Workorder #:

1204074



1 2 0 4 0 7 4

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
<b>Chain of Custody / Temperature Requirements</b>	<b>Yes</b>	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	Absent
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
<b>N/A</b> **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 10-Aug @ 4.7 °C Therm. ID: D58
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
<b>Holding Time / Documentation / Sample Condition Requirements</b>		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples match COC** (i.e., sample IDs, dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
Were proper containers (type/mass/volume/preservative***) used?	Yes	N/A ***Exemption permitted for metals (e.g,200.8/6020A).
<b>Volatile / LL-Hg Requirements</b>		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	Yes	
<b>Note to Client:</b> Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		

## Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1204074001-A	No Preservative Required	OK			
1204074001-B	Methanol field pres. 4 C	OK			
1204074001-C	No Preservative Required	OK			
1204074002-A	No Preservative Required	OK			
1204074002-B	Methanol field pres. 4 C	OK			
1204074002-C	No Preservative Required	OK			
1204074003-A	No Preservative Required	OK			
1204074003-B	Methanol field pres. 4 C	OK			
1204074003-C	No Preservative Required	OK			
1204074004-A	No Preservative Required	OK			
1204074004-B	2x Methanol field pres. 4 C	OK			
1204074004-C	No Preservative Required	OK			
1204074005-A	No Preservative Required	OK			
1204074005-B	Methanol field pres. 4 C	OK			
1204074005-C	No Preservative Required	OK			
1204074006-A	No Preservative Required	OK			
1204074006-B	Methanol field pres. 4 C	OK			
1204074006-C	No Preservative Required	OK			
1204074007-A	No Preservative Required	OK			
1204074007-B	Methanol field pres. 4 C	OK			
1204074007-C	No Preservative Required	OK			
1204074008-A	No Preservative Required	OK			
1204074008-B	Methanol field pres. 4 C	OK			
1204074008-C	No Preservative Required	OK			
1204074009-A	No Preservative Required	OK			
1204074010-A	No Preservative Required	OK			
1204074011-A	No Preservative Required	OK			
1204074011-B	Methanol field pres. 4 C	OK			
1204074012-A	Methanol field pres. 4 C	OK			

### Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

QN - Insufficient sample quantity provided.

The results set forth herein are provided by SGS North America Inc.

*e-Hardcopy 2.0*  
*Automated Report*

## Technical Report for

SGS North America, Inc

1204074

SGS Job Number: FA77709

Sampling Date: 08/10/20

Report to:

SGS North America, Inc  
200 W Potter Dr  
Anchorage, AK 99518  
julie.shumway@sgs.com

ATTN: Julie Shumway

Total number of pages in report: **49**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer  
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001)  
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),  
AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Test results relate only to samples analyzed.

# Table of Contents

-1-

<b>Section 1: Sample Summary</b> .....	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary</b> .....	<b>4</b>
<b>Section 3: Summary of Hits</b> .....	<b>8</b>
<b>Section 4: Sample Results</b> .....	<b>11</b>
<b>4.1:</b> FA77709-1: T1-07A .....	12
<b>4.2:</b> FA77709-2: T1-07B .....	14
<b>4.3:</b> FA77709-3: T1-23A .....	16
<b>4.4:</b> FA77709-4: T1-23B .....	18
<b>4.5:</b> FA77709-5: T1-27A .....	20
<b>4.6:</b> FA77709-6: T1-27B .....	22
<b>4.7:</b> FA77709-7: T1-39A .....	24
<b>4.8:</b> FA77709-8: T1-39B .....	26
<b>4.9:</b> FA77709-9: T1-XXX .....	28
<b>4.10:</b> FA77709-10: T1-XXXX .....	30
<b>Section 5: Misc. Forms</b> .....	<b>32</b>
<b>5.1:</b> Chain of Custody .....	33
<b>5.2:</b> QC Evaluation: DOD QSM5.x Limits .....	35
<b>Section 6: MS Semi-volatiles - QC Data Summaries</b> .....	<b>38</b>
<b>6.1:</b> Method Blank Summary .....	39
<b>6.2:</b> Blank Spike Summary .....	46
<b>6.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	48

DRAFT



## Sample Summary

SGS North America, Inc  
1204074

**Job No:** FA77709

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA77709-1	08/10/20	11:35	08/12/20	SO	Soil	T1-07A
FA77709-2	08/10/20	12:00	08/12/20	SO	Soil	T1-07B
FA77709-3	08/10/20	10:40	08/12/20	SO	Soil	T1-23A
FA77709-4	08/10/20	11:00	08/12/20	SO	Soil	T1-23B
FA77709-5	08/10/20	09:15	08/12/20	SO	Soil	T1-27A
FA77709-6	08/10/20	10:00	08/12/20	SO	Soil	T1-27B
FA77709-7	08/10/20	13:35	08/12/20	SO	Soil	T1-39A
FA77709-8	08/10/20	13:50	08/12/20	SO	Soil	T1-39B
FA77709-9	08/10/20	09:20	08/12/20	SO	Soil	T1-XXX
FA77709-10	08/10/20	13:45	08/12/20	SO	Soil	T1-XXXX

---

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** SGS North America, Inc

**Job No:** FA77709

**Site:** 1204074

**Report Date:** 8/25/2020 4:38:31 PM

10 Samples were collected on 08/10/2020 and were received at SGS North America Inc - Orlando on 08/12/2020 properly preserved, at 1.4 Deg. C and intact. These Samples received an SGS Orlando job number of FA77709. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### MS Semi-volatiles By Method EPA 537M QSM5.3 B-15

**Matrix:** SO

**Batch ID:** OP81627

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA77769-4MS, FA77769-4MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Recovery(s) for Perfluorooctanesulfonic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Matrix Spike Duplicate Recovery(s) for Perfluorooctanesulfonic acid are outside control limits. Probable cause is due to matrix interference.

Sample(s) FA77709-1, FA77709-10, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8,

FA77709-1 for 13C7-PFUnDA: Outside control limits due to matrix interference.

FA77709-1 for 13C8-FOSA: Outside control limits due to matrix interference.

FA77709-1 for 13C2-PFTeDA: Outside control limits due to matrix interference.

FA77709-1 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77709-1 for 13C6-PFDA: Outside control limits due to matrix interference.

FA77709-2 for 13C8-FOSA: Outside control limits due to matrix interference.

FA77709-2 for 13C7-PFUnDA: Outside control limits due to matrix interference.

FA77709-2 for 13C6-PFDA: Outside control limits due to matrix interference.

FA77709-2 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77709-3 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77709-3 for 13C2-PFTeDA: Outside control limits due to matrix interference.

FA77709-3 for 13C8-FOSA: Outside control limits due to matrix interference.

FA77709-3 for 13C7-PFUnDA: Outside control limits due to matrix interference.

FA77709-3 for 13C6-PFDA: Outside control limits due to matrix interference.

FA77709-4 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77709-4 for 13C2-PFTeDA: Outside control limits due to matrix interference.

FA77709-4 for 13C8-FOSA: Outside control limits due to matrix interference.

FA77709-4 for 13C7-PFUnDA: Outside control limits due to matrix interference.

FA77709-4 for 13C9-PFNA: Outside control limits due to matrix interference.

FA77709-4 for 13C6-PFDA: Outside control limits due to matrix interference.

FA77709-5 for 13C2-PFTeDA: Outside control limits due to matrix interference.

FA77709-5 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77709-5 for 13C6-PFDA: Outside control limits due to matrix interference.

FA77709-5 for 13C7-PFUnDA: Outside control limits due to matrix interference.

FA77709-5 for 13C8-FOSA: Outside control limits due to matrix interference.

FA77709-5 for 13C9-PFNA: Outside control limits due to matrix interference.

OP81627-MS for 13C2-8:2FTS: Outside control limits due to matrix interference.

FA77709-6 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77709-6 for 13C2-PFTeDA: Outside control limits due to matrix interference.

FA77709-6 for 13C7-PFUnDA: Outside control limits due to matrix interference.

## MS Semi-volatiles By Method EPA 537M QSM5.3 B-15

**Matrix:** SO **Batch ID:** OP81627 (cont.)

FA77709-6 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77709-6 for 13C8-PFOA: Outside control limits due to matrix interference.  
FA77709-6 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77709-6 for 13C2-4:2FTS: Outside control limits due to matrix interference.  
FA77709-9 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77709-9 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77709-4 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77709-5 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77709-7 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77709-1: Dilution required due to matrix interference (ID recovery standard failure).  
FA77709-1 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77709-2: Dilution required due to matrix interference (ID recovery standard failure).  
FA77709-3: Dilution required due to matrix interference (ID recovery standard failure).  
FA77709-4: Dilution required due to matrix interference (ID recovery standard failure).  
FA77709-4 for PFOA: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77709-5: Dilution required due to matrix interference (ID recovery standard failure).  
FA77709-5 for EtFOSAA: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77709-5 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77709-6: Dilution required due to matrix interference (ID recovery standard failure).  
FA77709-6 for PFOA: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77709-6 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77709-7: Dilution required due to matrix interference (ID recovery standard failure).  
FA77709-7 for Perfluorotetradecanoic acid: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77709-7 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77709-8: Dilution required due to matrix interference (ID recovery standard failure).  
FA77709-8 for Perfluorotetradecanoic acid: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.  
FA77709-8 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77709-9 have surrogates outside control limits.  
FA77709-9: Dilution required due to matrix interference (ID recovery standard failure).  
FA77709-10: Dilution required due to matrix interference (ID recovery standard failure).  
FA77709-10 for Perfluorotetradecanoic acid: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.

## MS Semi-volatiles By Method EPA 537M QSM5.3 B-15

**Matrix:** SO

**Batch ID:** OP81627

FA77709-7 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77709-7 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77709-8 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77709-7 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77709-6 for 13C5-PFPeA: Outside control limits due to matrix interference.  
FA77709-7 for 13C9-PFNA: Outside control limits due to matrix interference.  
FA77709-6 for 13C5-PFHxA: Outside control limits due to matrix interference.  
FA77709-8 for 13C2-4:2FTS: Outside control limits due to matrix interference.  
FA77709-8 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77709-8 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77709-8 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77709-8 for 13C3-PFBS: Outside control limits due to matrix interference.  
FA77709-8 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77709-8 for 13C5-PFHxA: Outside control limits due to matrix interference.  
FA77709-8 for 13C5-PFPeA: Outside control limits due to matrix interference.  
FA77709-8 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77709-8 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
OP81627-MSD for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77709-7 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77709-8 for 13C8-PFOA: Outside control limits due to matrix interference.  
OP81627-MS for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77709-9 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77709-9 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77709-9 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77709-9 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77709-10 for 13C2-PFDoDA: Outside control limits due to matrix interference.  
FA77709-10 for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77709-10 for 13C6-PFDA: Outside control limits due to matrix interference.  
FA77709-10 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
FA77709-10 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77709-6 for 13C2-8:2FTS: Outside control limits due to matrix interference.  
FA77709-10 for d3-MeFOSAA: Outside control limits due to matrix interference.  
FA77709-6 for 13C6-PFDA: Outside control limits due to matrix interference.  
OP81627-MS for 13C2-PFDoDA: Outside control limits due to matrix interference.  
OP81627-MSD for 13C2-PFTeDA: Outside control limits due to matrix interference.  
FA77709-6 for 13C4-PFHpA: Outside control limits due to matrix interference.  
FA77709-7 for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77709-10 for 13C9-PFNA: Outside control limits due to matrix interference.  
OP81627-MSD for 13C8-FOSA: Outside control limits due to matrix interference.  
FA77709-8 for 13C8-FOSA: Outside control limits due to matrix interference.  
OP81627-MSD for 13C6-PFDA: Outside control limits due to matrix interference.  
OP81627-MSD for 13C2-PFDoDA: Outside control limits due to matrix interference.  
OP81627-MSD for 13C2-8:2FTS: Outside control limits due to matrix interference.  
OP81627-MS for d3-MeFOSAA: Outside control limits due to matrix interference.  
OP81627-MS for 13C8-FOSA: Outside control limits due to matrix interference.  
OP81627-MS for 13C7-PFUnDA: Outside control limits due to matrix interference.  
OP81627-MS for 13C6-PFDA: Outside control limits due to matrix interference.  
OP81627-MSD for 13C7-PFUnDA: Outside control limits due to matrix interference.



## General Chemistry By Method SM19 2540G

**Matrix:** SO                      **Batch ID:** GN85929

Sample(s) FA77586-9DUP were used as the QC samples for Solids, Percent.

**Matrix:** SO                      **Batch ID:** GN85933

Sample(s) FA77717-1DUP were used as the QC samples for Solids, Percent.

RPD(s) for Duplicate for Solids, Percent are outside control limits for sample GN85933-D1. Probable cause is due to sample non-homogeneity.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

\_\_\_\_\_  
Jenna Kravitz, Client Services (*Signature on File*)

DRAFT

## Summary of Hits

**Job Number:** FA77709  
**Account:** SGS North America, Inc  
**Project:** 1204074  
**Collected:** 08/10/20



Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method	
<b>FA77709-1</b>	<b>T1-07A</b>						
		Perfluoropentanoic acid	0.0040 J	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanoic acid	0.0039 J	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoroheptanoic acid	0.0025 J	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanoic acid	0.0020 J	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77709-2</b>	<b>T1-07B</b>						
		Perfluoropentanoic acid	0.0010 J	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanoic acid	0.0012 J	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77709-3</b>	<b>T1-23A</b>						
		Perfluorobutanoic acid	0.0040 J	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoropentanoic acid	0.0187	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanoic acid	0.0161	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoroheptanoic acid	0.0089	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanoic acid	0.0031 J	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorobutanesulfonic acid	0.0027 J	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoropentanesulfonic acid	0.0021 J	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanesulfonic acid	0.0104	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanesulfonic acid	0.0139	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
		6:2 Fluorotelomer sulfonate	0.0139	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77709-4</b>	<b>T1-23B</b>						
		Perfluoropentanoic acid	0.0044 J	0.0056	0.0028	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanoic acid	0.0028 J	0.0056	0.0028	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoroheptanoic acid	0.0015 J	0.0056	0.0028	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanesulfonic acid	0.0019 J	0.0056	0.0028	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77709-5</b>	<b>T1-27A</b>						
		Perfluorobutanoic acid	0.0098	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoropentanoic acid	0.0313	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanoic acid	0.0472	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoroheptanoic acid	0.0198	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanoic acid	0.0141	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorobutanesulfonic acid	0.0143	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoropentanesulfonic acid	0.0134	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorohexanesulfonic acid	0.0882	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		Perfluoroheptanesulfonic acid	0.0079	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		Perfluorooctanesulfonic acid	0.330	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15
		6:2 Fluorotelomer sulfonate	0.0658	0.0045	0.0023	mg/kg	EPA 537M QSM5.3 B-15

## Summary of Hits

**Job Number:** FA77709  
**Account:** SGS North America, Inc  
**Project:** 1204074  
**Collected:** 08/10/20



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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### FA77709-6 T1-27B

Perfluorohexanesulfonic acid	0.0056	0.0041	0.0021	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid	0.0351	0.0041	0.0021	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate	0.0030 J	0.0041	0.0021	mg/kg	EPA 537M QSM5.3 B-15

### FA77709-7 T1-39A

Perfluorobutanoic acid	0.0119	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid	0.0302	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid	0.0671	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid	0.0211	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanoic acid	0.0268	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid	0.0371	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid	0.0324	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid	0.263	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanesulfonic acid	0.0151	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid	0.363	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate	0.215	0.0038	0.0019	mg/kg	EPA 537M QSM5.3 B-15

### FA77709-8 T1-39B

Perfluorobutanoic acid	0.0197	0.0056	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid <sup>a</sup>	0.0298 J	0.056	0.028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid <sup>a</sup>	0.0427 J	0.056	0.028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid <sup>a</sup>	0.0283 J	0.056	0.028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid	0.0450	0.0056	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanesulfonic acid	0.0068	0.0056	0.0028	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid	0.0951	0.0056	0.0028	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate	0.0637	0.0056	0.0028	mg/kg	EPA 537M QSM5.3 B-15

### FA77709-9 T1-XXX

Perfluorobutanoic acid	0.0076	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid	0.0239	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid	0.0345	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid	0.0136	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanoic acid	0.0086	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
Perfluorononanoic acid	0.0023 J	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid	0.0103	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid	0.0092	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid	0.0552	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanesulfonic acid	0.0047	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid	0.242	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15

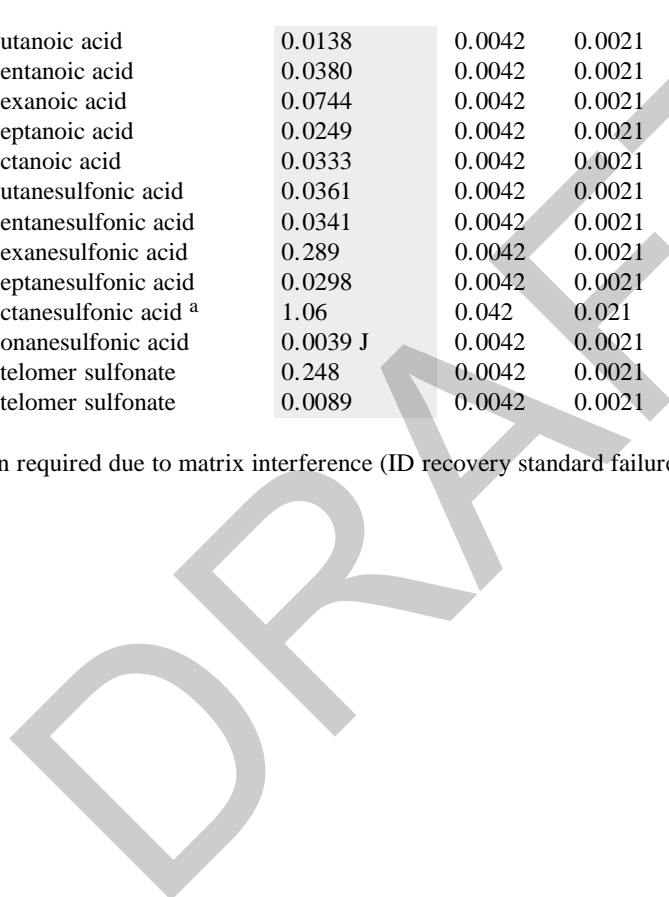
## Summary of Hits

**Job Number:** FA77709  
**Account:** SGS North America, Inc  
**Project:** 1204074  
**Collected:** 08/10/20



Lab Sample ID Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
6:2 Fluorotelomer sulfonate		0.0375	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77709-10 T1-XXXX</b>						
Perfluorobutanoic acid		0.0138	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanoic acid		0.0380	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanoic acid		0.0744	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanoic acid		0.0249	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanoic acid		0.0333	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
Perfluorobutanesulfonic acid		0.0361	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
Perfluoropentanesulfonic acid		0.0341	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
Perfluorohexanesulfonic acid		0.289	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
Perfluoroheptanesulfonic acid		0.0298	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
Perfluorooctanesulfonic acid <sup>a</sup>		1.06	0.042	0.021	mg/kg	EPA 537M QSM5.3 B-15
Perfluorononanesulfonic acid		0.0039 J	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
6:2 Fluorotelomer sulfonate		0.248	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15
8:2 Fluorotelomer sulfonate		0.0089	0.0042	0.0021	mg/kg	EPA 537M QSM5.3 B-15

(a) Dilution required due to matrix interference (ID recovery standard failure).



Sample Results

Report of Analysis

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# Report of Analysis

<b>Client Sample ID:</b> T1-07A	
<b>Lab Sample ID:</b> FA77709-1	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 20.3
<b>Project:</b> 1204074	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5117.D	1	08/21/20 19:03	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5068.D	10	08/20/20 23:33	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.35 g	1.0 ml
Run #2	2.35 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0021 U	0.0042	0.0021	0.0010	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0040	0.0042	0.0021	0.00084	mg/kg	J
307-24-4	Perfluorohexanoic acid	0.0039	0.0042	0.0021	0.00084	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.0025	0.0042	0.0021	0.0010	mg/kg	J
335-67-1	Perfluorooctanoic acid	0.0020	0.0042	0.0021	0.0010	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0021 U	0.0042	0.0021	0.0010	mg/kg	
335-76-2	Perfluorodecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.010	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.010	mg/kg	
307-55-1	Perfluorododecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.010	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.010	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.010	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0021 U	0.0042	0.0021	0.0010	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0021 U	0.0042	0.0021	0.0010	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0021 U	0.0042	0.0021	0.0010	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0021 U	0.0042	0.0021	0.0010	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0021 U	0.0042	0.0021	0.0010	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0021 U	0.0042	0.0021	0.0010	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0021 U	0.0042	0.0021	0.0010	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.021 U <sup>b</sup>	0.042	0.021	0.010	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.042 U <sup>b</sup>	0.10	0.042	0.021	mg/kg	
2991-50-6	EtFOSAA	0.042 U <sup>b</sup>	0.10	0.042	0.021	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0021 U	0.0042	0.0021	0.0010	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0021 U	0.0042	0.0021	0.0010	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-07A	
<b>Lab Sample ID:</b> FA77709-1	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 20.3
<b>Project:</b> 1204074	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.0021 U	0.0042	0.0021	0.0010	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	63%	76%	50-150%
	13C5-PFPeA	56%	75%	50-150%
	13C5-PFHxA	57%	77%	50-150%
	13C4-PFHpA	56%	77%	50-150%
	13C8-PFOA	57%	81%	50-150%
	13C9-PFNA	50%	76%	50-150%
	13C6-PFDA	47% <sup>c</sup>	74%	50-150%
	13C7-PFUnDA	40% <sup>c</sup>	66%	50-150%
	13C2-PFDoDA	41% <sup>c</sup>	67%	50-150%
	13C2-PFTeDA	34% <sup>c</sup>	66%	50-150%
	13C3-PFBS	64%	83%	50-150%
	13C3-PFHxS	64%	72%	50-150%
	13C8-PFOS	63%	76%	50-150%
	13C8-FOSA	16% <sup>c</sup>	54%	50-150%
	d3-MeFOSAA	49% <sup>c</sup>	68%	50-150%
	13C2-4:2FTS	58%	74%	50-150%
	13C2-6:2FTS	62%	79%	50-150%
	13C2-8:2FTS	56%	77%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-07B	
<b>Lab Sample ID:</b> FA77709-2	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 18.5
<b>Project:</b> 1204074	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5118.D	1	08/21/20 19:19	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5069.D	10	08/20/20 23:49	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.39 g	1.0 ml
Run #2	2.39 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0010	0.0045	0.0023	0.00090	mg/kg	J
307-24-4	Perfluorohexanoic acid	0.0012	0.0045	0.0023	0.00090	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
375-95-1	Perfluorononanoic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
335-76-2	Perfluorodecanoic acid	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
307-55-1	Perfluorododecanoic acid	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0045 U	0.011	0.0045	0.0023	mg/kg	
2991-50-6	EtFOSAA	0.0045 U	0.011	0.0045	0.0023	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0023 U	0.0045	0.0023	0.0011	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.2  
4



# Report of Analysis

<b>Client Sample ID:</b> T1-07B	
<b>Lab Sample ID:</b> FA77709-2	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 18.5
<b>Project:</b> 1204074	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.0023 U	0.0045	0.0023	0.0011	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	71%	82%	50-150%
	13C5-PFPeA	69%	82%	50-150%
	13C5-PFHxA	71%	85%	50-150%
	13C4-PFHpA	68%	85%	50-150%
	13C8-PFOA	69%	90%	50-150%
	13C9-PFNA	58%	87%	50-150%
	13C6-PFDA	49% <sup>c</sup>	82%	50-150%
	13C7-PFUnDA	45% <sup>c</sup>	76%	50-150%
	13C2-PFDoDA	48% <sup>c</sup>	80%	50-150%
	13C2-PFTeDA	55%	85%	50-150%
	13C3-PFBS	80%	90%	50-150%
	13C3-PFHxS	76%	89%	50-150%
	13C8-PFOS	70%	85%	50-150%
	13C8-FOSA	28% <sup>c</sup>	75%	50-150%
	d3-MeFOSAA	53%	76%	50-150%
	13C2-4:2FTS	71%	80%	50-150%
	13C2-6:2FTS	72%	85%	50-150%
	13C2-8:2FTS	59%	85%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-23A		
<b>Lab Sample ID:</b> FA77709-3		<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 20.3
<b>Project:</b> 1204074		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5119.D	1	08/21/20 19:34	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5070.D	10	08/21/20 00:04	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.23 g	1.0 ml
Run #2	2.23 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0040	0.0044	0.0022	0.0011	mg/kg	J
2706-90-3	Perfluoropentanoic acid	0.0187	0.0044	0.0022	0.00088	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0161	0.0044	0.0022	0.00088	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0089	0.0044	0.0022	0.0011	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0031	0.0044	0.0022	0.0011	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
335-76-2	Perfluorodecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
307-55-1	Perfluorododecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0027	0.0044	0.0022	0.0011	mg/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.0021	0.0044	0.0022	0.0011	mg/kg	J
355-46-4	Perfluorohexanesulfonic acid	0.0104	0.0044	0.0022	0.0011	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0139	0.0044	0.0022	0.0011	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0044 U	0.011	0.0044	0.0022	mg/kg	
2991-50-6	EtFOSAA	0.0044 U	0.011	0.0044	0.0022	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0139	0.0044	0.0022	0.0011	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.3  
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# Report of Analysis

<b>Client Sample ID:</b> T1-23A	
<b>Lab Sample ID:</b> FA77709-3	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 20.3
<b>Project:</b> 1204074	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.0022 U	0.0044	0.0022	0.0011	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		64%	69%	50-150%
13C5-PFPeA		52%	68%	50-150%
13C5-PFHxA		56%	70%	50-150%
13C4-PFHpA		55%	69%	50-150%
13C8-PFOA		58%	75%	50-150%
13C9-PFNA		53%	71%	50-150%
13C6-PFDA		44% <sup>c</sup>	70%	50-150%
13C7-PFUnDA		45% <sup>c</sup>	67%	50-150%
13C2-PFDoDA		45% <sup>c</sup>	67%	50-150%
13C2-PFTeDA		40% <sup>c</sup>	68%	50-150%
13C3-PFBS		64%	77%	50-150%
13C3-PFHxS		64%	73%	50-150%
13C8-PFOS		65%	70%	50-150%
13C8-FOSA		19% <sup>c</sup>	51%	50-150%
d3-MeFOSAA		51%	69%	50-150%
13C2-4:2FTS		58%	67%	50-150%
13C2-6:2FTS		63%	72%	50-150%
13C2-8:2FTS		54%	71%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-23B	
<b>Lab Sample ID:</b> FA77709-4	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 16.3
<b>Project:</b> 1204074	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5120.D	1	08/21/20 19:50	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5071.D	10	08/21/20 00:20	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.20 g	1.0 ml
Run #2	2.20 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0044	0.0056	0.0028	0.0011	mg/kg	J
307-24-4	Perfluorohexanoic acid	0.0028	0.0056	0.0028	0.0011	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.0015	0.0056	0.0028	0.0014	mg/kg	J
335-67-1	Perfluorooctanoic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
375-95-1	Perfluorononanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
335-76-2	Perfluorodecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
307-55-1	Perfluorododecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0019	0.0056	0.0028	0.0014	mg/kg	J
68259-12-1	Perfluorononanesulfonic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.0056 U	0.014	0.0056	0.0028	mg/kg	
2991-50-6	EtFOSAA	0.0056 U	0.014	0.0056	0.0028	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0028 U	0.0056	0.0028	0.0014	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.4  
4

# Report of Analysis

<b>Client Sample ID:</b> T1-23B	
<b>Lab Sample ID:</b> FA77709-4	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 16.3
<b>Project:</b> 1204074	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	60%	72%	50-150%
	13C5-PFPeA	54%	70%	50-150%
	13C5-PFHxA	56%	73%	50-150%
	13C4-PFHpA	55%	73%	50-150%
	13C8-PFOA	55%	76%	50-150%
	13C9-PFNA	49% <sup>d</sup>	72%	50-150%
	13C6-PFDA	34% <sup>d</sup>	69%	50-150%
	13C7-PFUnDA	39% <sup>d</sup>	61%	50-150%
	13C2-PFDoDA	40% <sup>d</sup>	62%	50-150%
	13C2-PFTeDA	35% <sup>d</sup>	60%	50-150%
	13C3-PFBS	63%	78%	50-150%
	13C3-PFHxS	65%	73%	50-150%
	13C8-PFOS	61%	75%	50-150%
	13C8-FOSA	15% <sup>d</sup>	47% <sup>d</sup>	50-150%
	d3-MeFOSAA	50%	67%	50-150%
	13C2-4:2FTS	57%	70%	50-150%
	13C2-6:2FTS	61%	75%	50-150%
	13C2-8:2FTS	46% <sup>d</sup>	68%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-27A		
<b>Lab Sample ID:</b> FA77709-5		<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 19.5
<b>Project:</b> 1204074		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5121.D	1	08/21/20 20:06	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5072.D	10	08/21/20 00:36	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.26 g	1.0 ml
Run #2	2.26 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0098	0.0045	0.0023	0.0011	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0313	0.0045	0.0023	0.00091	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0472	0.0045	0.0023	0.00091	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0198	0.0045	0.0023	0.0011	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0141	0.0045	0.0023	0.0011	mg/kg	
375-95-1	Perfluorononanoic acid	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
335-76-2	Perfluorodecanoic acid	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
307-55-1	Perfluorododecanoic acid <sup>c</sup>	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
72629-94-8	Perfluorotridecanoic acid <sup>c</sup>	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
376-06-7	Perfluorotetradecanoic acid <sup>c</sup>	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0143	0.0045	0.0023	0.0011	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0134	0.0045	0.0023	0.0011	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0882	0.0045	0.0023	0.0011	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0079	0.0045	0.0023	0.0011	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.330	0.0045	0.0023	0.0011	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA <sup>c</sup>	0.045 U <sup>b</sup>	0.11	0.045	0.023	mg/kg	
2991-50-6	EtFOSAA <sup>c</sup>	0.045 U <sup>b</sup>	0.11	0.045	0.023	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0023 U	0.0045	0.0023	0.0011	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0658	0.0045	0.0023	0.0011	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.5  
4

# Report of Analysis

<b>Client Sample ID:</b> T1-27A	
<b>Lab Sample ID:</b> FA77709-5	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 19.5
<b>Project:</b> 1204074	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.023 U <sup>b</sup>	0.045	0.023	0.011	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	55%	57%	50-150%
	13C5-PFPeA	51%	55%	50-150%
	13C5-PFHxA	52%	58%	50-150%
	13C4-PFHpA	52%	58%	50-150%
	13C8-PFOA	53%	61%	50-150%
	13C9-PFNA	47% <sup>d</sup>	59%	50-150%
	13C6-PFDA	42% <sup>d</sup>	57%	50-150%
	13C7-PFUnDA	41% <sup>d</sup>	52%	50-150%
	13C2-PFDoDA	38% <sup>d</sup>	49% <sup>d</sup>	50-150%
	13C2-PFTeDA	25% <sup>d</sup>	40% <sup>d</sup>	50-150%
	13C3-PFBS	58%	63%	50-150%
	13C3-PFHxS	58%	57%	50-150%
	13C8-PFOS	54%	59%	50-150%
	13C8-FOSA	18% <sup>d</sup>	42% <sup>d</sup>	50-150%
	d3-MeFOSAA	41% <sup>d</sup>	48% <sup>d</sup>	50-150%
	13C2-4:2FTS	53%	55%	50-150%
	13C2-6:2FTS	60%	64%	50-150%
	13C2-8:2FTS	49% <sup>d</sup>	56%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-27B	
<b>Lab Sample ID:</b> FA77709-6	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 18.9
<b>Project:</b> 1204074	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5122.D	1	08/21/20 20:21	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5073.D	10	08/21/20 00:51	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.58 g	1.0 ml
Run #2	2.58 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0021 U	0.0041	0.0021	0.0010	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.021 U <sup>b</sup>	0.041	0.021	0.0082	mg/kg	
307-24-4	Perfluorohexanoic acid	0.021 U <sup>b</sup>	0.041	0.021	0.0082	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	
335-67-1	Perfluorooctanoic acid	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	
375-95-1	Perfluorononanoic acid	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	
335-76-2	Perfluorodecanoic acid	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	
307-55-1	Perfluorododecanoic acid	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0021 U	0.0041	0.0021	0.0010	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0021 U	0.0041	0.0021	0.0010	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0056	0.0041	0.0021	0.0010	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0021 U	0.0041	0.0021	0.0010	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0351	0.0041	0.0021	0.0010	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0021 U	0.0041	0.0021	0.0010	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0021 U	0.0041	0.0021	0.0010	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.041 U <sup>b</sup>	0.10	0.041	0.021	mg/kg	
2991-50-6	EtFOSAA	0.041 U <sup>b</sup>	0.10	0.041	0.021	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0030	0.0041	0.0021	0.0010	mg/kg	J

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



# Report of Analysis

<b>Client Sample ID:</b> T1-27B	
<b>Lab Sample ID:</b> FA77709-6	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 18.9
<b>Project:</b> 1204074	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.021 U <sup>b</sup>	0.041	0.021	0.010	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		54%	63%	50-150%
13C5-PFPeA		43% <sup>d</sup>	61%	50-150%
13C5-PFHxA		44% <sup>d</sup>	63%	50-150%
13C4-PFHpA		46% <sup>d</sup>	65%	50-150%
13C8-PFOA		48% <sup>d</sup>	68%	50-150%
13C9-PFNA		44% <sup>d</sup>	62%	50-150%
13C6-PFDA		35% <sup>d</sup>	61%	50-150%
13C7-PFUnDA		38% <sup>d</sup>	58%	50-150%
13C2-PFDoDA		29% <sup>d</sup>	57%	50-150%
13C2-PFTeDA		43% <sup>d</sup>	63%	50-150%
13C3-PFBS		50%	67%	50-150%
13C3-PFHxS		55%	65%	50-150%
13C8-PFOS		55%	62%	50-150%
13C8-FOSA		14% <sup>d</sup>	41% <sup>d</sup>	50-150%
d3-MeFOSAA		46% <sup>d</sup>	61%	50-150%
13C2-4:2FTS		46% <sup>d</sup>	59%	50-150%
13C2-6:2FTS		54%	66%	50-150%
13C2-8:2FTS		44% <sup>d</sup>	62%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-39A		
<b>Lab Sample ID:</b> FA77709-7		<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 23.1
<b>Project:</b> 1204074		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5123.D	1	08/21/20 20:37	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5074.D	10	08/21/20 01:07	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.28 g	1.0 ml
Run #2	2.28 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0119	0.0038	0.0019	0.00095	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0302	0.0038	0.0019	0.00076	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0671	0.0038	0.0019	0.00076	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0211	0.0038	0.0019	0.00095	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0268	0.0038	0.0019	0.00095	mg/kg	
375-95-1	Perfluorononanoic acid	0.019 U <sup>b</sup>	0.038	0.019	0.0095	mg/kg	
335-76-2	Perfluorodecanoic acid	0.019 U <sup>b</sup>	0.038	0.019	0.0095	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.019 U <sup>b</sup>	0.038	0.019	0.0095	mg/kg	
307-55-1	Perfluorododecanoic acid	0.019 U <sup>b</sup>	0.038	0.019	0.0095	mg/kg	
72629-94-8	Perfluorotridecanoic acid <sup>c</sup>	0.019 U <sup>b</sup>	0.038	0.019	0.0095	mg/kg	
376-06-7	Perfluorotetradecanoic acid <sup>c</sup>	0.019 U <sup>b</sup>	0.038	0.019	0.0095	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0371	0.0038	0.0019	0.00095	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0324	0.0038	0.0019	0.00095	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.263	0.0038	0.0019	0.00095	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0151	0.0038	0.0019	0.00095	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.363	0.0038	0.0019	0.00095	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0019 U	0.0038	0.0019	0.00095	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0019 U	0.0038	0.0019	0.00095	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.019 U <sup>b</sup>	0.038	0.019	0.0095	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.038 U <sup>b</sup>	0.095	0.038	0.019	mg/kg	
2991-50-6	EtFOSAA	0.038 U <sup>b</sup>	0.095	0.038	0.019	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0019 U	0.0038	0.0019	0.00095	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.215	0.0038	0.0019	0.00095	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-39A	
<b>Lab Sample ID:</b> FA77709-7	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 23.1
<b>Project:</b> 1204074	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U <sup>b</sup>	0.038	0.019	0.0095	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	60%	62%	50-150%
	13C5-PFPeA	53%	61%	50-150%
	13C5-PFHxA	53%	65%	50-150%
	13C4-PFHpA	52%	62%	50-150%
	13C8-PFOA	54%	67%	50-150%
	13C9-PFNA	47% <sup>d</sup>	63%	50-150%
	13C6-PFDA	40% <sup>d</sup>	62%	50-150%
	13C7-PFUnDA	41% <sup>d</sup>	55%	50-150%
	13C2-PFDoDA	41% <sup>d</sup>	57%	50-150%
	13C2-PFTeDA	28% <sup>d</sup>	47% <sup>d</sup>	50-150%
	13C3-PFBS	60%	65%	50-150%
	13C3-PFHxS	60%	67%	50-150%
	13C8-PFOS	58%	64%	50-150%
	13C8-FOSA	12% <sup>d</sup>	37% <sup>d</sup>	50-150%
	d3-MeFOSAA	43% <sup>d</sup>	53%	50-150%
	13C2-4:2FTS	55%	59%	50-150%
	13C2-6:2FTS	75%	87%	50-150%
	13C2-8:2FTS	49% <sup>d</sup>	64%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-39B	
<b>Lab Sample ID:</b> FA77709-8	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 15.1
<b>Project:</b> 1204074	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5124.D	1	08/21/20 20:52	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5075.D	10	08/21/20 01:23	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.35 g	1.0 ml
Run #2	2.35 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0197	0.0056	0.0028	0.0014	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0298 <sup>b</sup>	0.056	0.028	0.011	mg/kg	J
307-24-4	Perfluorohexanoic acid	0.0427 <sup>b</sup>	0.056	0.028	0.011	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
335-67-1	Perfluorooctanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
375-95-1	Perfluorononanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
335-76-2	Perfluorodecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
307-55-1	Perfluorododecanoic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
72629-94-8	Perfluorotridecanoic acid <sup>c</sup>	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
376-06-7	Perfluorotetradecanoic acid <sup>c</sup>	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0283 <sup>b</sup>	0.056	0.028	0.014	mg/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0450	0.0056	0.0028	0.0014	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0068	0.0056	0.0028	0.0014	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0951	0.0056	0.0028	0.0014	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0028 U	0.0056	0.0028	0.0014	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.056 U <sup>b</sup>	0.14	0.056	0.028	mg/kg	
2991-50-6	EtFOSAA	0.056 U <sup>b</sup>	0.14	0.056	0.028	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0637	0.0056	0.0028	0.0014	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.8  
4

# Report of Analysis

<b>Client Sample ID:</b> T1-39B	
<b>Lab Sample ID:</b> FA77709-8	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 15.1
<b>Project:</b> 1204074	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.028 U <sup>b</sup>	0.056	0.028	0.014	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		52%	57%	50-150%
13C5-PFPeA		39% <sup>d</sup>	54%	50-150%
13C5-PFHxA		40% <sup>d</sup>	55%	50-150%
13C4-PFHpA		41% <sup>d</sup>	55%	50-150%
13C8-PFOA		45% <sup>d</sup>	58%	50-150%
13C9-PFNA		43% <sup>d</sup>	57%	50-150%
13C6-PFDA		36% <sup>d</sup>	57%	50-150%
13C7-PFUnDA		37% <sup>d</sup>	53%	50-150%
13C2-PFDoDA		34% <sup>d</sup>	52%	50-150%
13C2-PFTeDA		30% <sup>d</sup>	48% <sup>d</sup>	50-150%
13C3-PFBS		47% <sup>d</sup>	59%	50-150%
13C3-PFHxS		51%	60%	50-150%
13C8-PFOS		52%	58%	50-150%
13C8-FOSA		15% <sup>d</sup>	38% <sup>d</sup>	50-150%
d3-MeFOSAA		45% <sup>d</sup>	55%	50-150%
13C2-4:2FTS		43% <sup>d</sup>	53%	50-150%
13C2-6:2FTS		54%	61%	50-150%
13C2-8:2FTS		45% <sup>d</sup>	56%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T1-XXX		<b>Date Sampled:</b> 08/10/20
<b>Lab Sample ID:</b> FA77709-9		<b>Date Received:</b> 08/12/20
<b>Matrix:</b> SO - Soil		<b>Percent Solids:</b> 21.7
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		
<b>Project:</b> 1204074		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5127.D	1	08/21/20 21:39	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5078.D	10	08/21/20 02:10	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.08 g	1.0 ml
Run #2	2.08 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0076	0.0044	0.0022	0.0011	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0239	0.0044	0.0022	0.00089	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0345	0.0044	0.0022	0.00089	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0136	0.0044	0.0022	0.0011	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0086	0.0044	0.0022	0.0011	mg/kg	
375-95-1	Perfluorononanoic acid	0.0023	0.0044	0.0022	0.0011	mg/kg	J
335-76-2	Perfluorodecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
307-55-1	Perfluorododecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0103	0.0044	0.0022	0.0011	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0092	0.0044	0.0022	0.0011	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0552	0.0044	0.0022	0.0011	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0047	0.0044	0.0022	0.0011	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.242	0.0044	0.0022	0.0011	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.044 U <sup>b</sup>	0.11	0.044	0.022	mg/kg	
2991-50-6	EtFOSAA	0.044 U <sup>b</sup>	0.11	0.044	0.022	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0375	0.0044	0.0022	0.0011	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T1-XXX	
<b>Lab Sample ID:</b> FA77709-9	<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 21.7
<b>Project:</b> 1204074	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.0022 U	0.0044	0.0022	0.0011	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	59%	58%	50-150%
	13C5-PFPeA	56%	57%	50-150%
	13C5-PFHxA	57%	58%	50-150%
	13C4-PFHpA	55%	59%	50-150%
	13C8-PFOA	57%	62%	50-150%
	13C9-PFNA	50%	60%	50-150%
	13C6-PFDA	47% <sup>c</sup>	60%	50-150%
	13C7-PFUnDA	43% <sup>c</sup>	56%	50-150%
	13C2-PFDoDA	45% <sup>c</sup>	54%	50-150%
	13C2-PFTeDA	39% <sup>c</sup>	55%	50-150%
	13C3-PFBS	63%	63%	50-150%
	13C3-PFHxS	60%	64%	50-150%
	13C8-PFOS	57%	59%	50-150%
	13C8-FOSA	26% <sup>c</sup>	54%	50-150%
	d3-MeFOSAA	48% <sup>c</sup>	55%	50-150%
	13C2-4:2FTS	56%	55%	50-150%
	13C2-6:2FTS	60%	63%	50-150%
	13C2-8:2FTS	53%	58%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

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<b>Client Sample ID:</b> T1-XXXX		
<b>Lab Sample ID:</b> FA77709-10		<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 19.3
<b>Project:</b> 1204074		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5128.D	1	08/21/20 21:55	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	2Q52984.D	10	08/24/20 05:01	NAF	08/19/20 11:00	OP81627	S2Q787

	Initial Weight	Final Volume
Run #1	2.44 g	1.0 ml
Run #2	2.44 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0138	0.0042	0.0021	0.0011	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0380	0.0042	0.0021	0.00085	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0744	0.0042	0.0021	0.00085	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0249	0.0042	0.0021	0.0011	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0333	0.0042	0.0021	0.0011	mg/kg	
375-95-1	Perfluorononanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
335-76-2	Perfluorodecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
307-55-1	Perfluorododecanoic acid	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
72629-94-8	Perfluorotridecanoic acid <sup>c</sup>	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
376-06-7	Perfluorotetradecanoic acid <sup>c</sup>	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0361	0.0042	0.0021	0.0011	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0341	0.0042	0.0021	0.0011	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.289	0.0042	0.0021	0.0011	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0298	0.0042	0.0021	0.0011	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	1.06 <sup>b</sup>	0.042	0.021	0.011	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0039	0.0042	0.0021	0.0011	mg/kg	J
335-77-3	Perfluorodecanesulfonic acid	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.021 U <sup>b</sup>	0.042	0.021	0.011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.042 U <sup>b</sup>	0.11	0.042	0.021	mg/kg	
2991-50-6	EtFOSAA	0.042 U <sup>b</sup>	0.11	0.042	0.021	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0021 U	0.0042	0.0021	0.0011	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.248	0.0042	0.0021	0.0011	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



# Report of Analysis

<b>Client Sample ID:</b> T1-XXXX		
<b>Lab Sample ID:</b> FA77709-10		<b>Date Sampled:</b> 08/10/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/12/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 19.3
<b>Project:</b> 1204074		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.0089	0.0042	0.0021	0.0011	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	65%	74%	50-150%
	13C5-PFPeA	61%	68%	50-150%
	13C5-PFHxA	60%	65%	50-150%
	13C4-PFHpA	58%	61%	50-150%
	13C8-PFOA	58%	63%	50-150%
	13C9-PFNA	47% <sup>d</sup>	58%	50-150%
	13C6-PFDA	41% <sup>d</sup>	50%	50-150%
	13C7-PFUnDA	42% <sup>d</sup>	59%	50-150%
	13C2-PFDoDA	40% <sup>d</sup>	53%	50-150%
	13C2-PFTeDA	29% <sup>d</sup>	35% <sup>d</sup>	50-150%
	13C3-PFBS	69%	70%	50-150%
	13C3-PFHxS	66%	70%	50-150%
	13C8-PFOS	58%	54%	50-150%
	13C8-FOSA	17% <sup>d</sup>	35% <sup>d</sup>	50-150%
	d3-MeFOSAA	48% <sup>d</sup>	58%	50-150%
	13C2-4:2FTS	62%	62%	50-150%
	13C2-6:2FTS	81%	88%	50-150%
	13C2-8:2FTS	54%	50%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

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FA77709

SGS North America Inc.  
CHAIN OF CUSTODY RECORD



Locations Nationwide  
Alaska Florida  
New Jersey Colorado  
Texas North Carolina  
Virginia Louisiana  
[www.us.sgs.com](http://www.us.sgs.com)

CLIENT: SGS North America Inc. - Alaska Division				SGS Reference: <b>SGS ORLANDO FL</b>				Page 1 of 1					
CONTACT: Julie Shumway		PHONE NO: (907) 562-2343		Additional Comments: All soils report out in dry weight unless									
PROJECT NAME: 1204074		PWSID#:		CONTAINER #	Preservative Used: NONE	TYPE	C = COMP G = GRAB MI = Multi Incremental Soils	EPA 537 PFAS	MS	MSD	SGS lab #	Location ID	
REPORTS TO: Julie Shumway		E-MAIL: Julie.Shumway@sgs.com											
INVOICE TO: SGS - Alaska		QUOTE #: 1204074											
E-MAIL: Env.Alaska.RefLabTeam@sgs.com		P.O. #:		INITIAL ASSESSMENT <i>AB</i> LABEL VERIFICATION <i>MR</i>									
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/MATRIX CODE	#	Preservative Used:	TYPE	C = COMP G = GRAB MI = Multi Incremental Soils	EPA 537 PFAS	MS	MSD	SGS lab #	Location ID
1	T1-07A	08/10/2020	11:35:00	SO 1	1	X						1204074001	
2	T1-07B	08/10/2020	12:00:00	SO 1	1	X						1204074002	
3	T1-23A	08/10/2020	10:40:00	SO 1	1	X						1204074003	
4	T1-23B	08/10/2020	11:00:00	SO 1	1	X						1204074004	
5	T1-27A	08/10/2020	09:15:00	SO 1	1	X						1204074005	
6	T1-27B	08/10/2020	10:00:00	SO 1	1	X						1204074006	
7	T1-39A	08/10/2020	13:35:00	SO 1	1	X						1204074007	
8	T1-39B	08/10/2020	13:50:00	SO 1	1	X						1204074008	
9	T1-XXX	08/10/2020	09:20:00	Solid 1	1	X						1204074009	
10	T1-XXXX	08/10/2020	13:45:00	Solid 1	1	X						1204074010	
Relinquished By: (1) <i>J. Shumway</i>		Date: 8/11/20	Time: 0959	Received By: <i>Fedex</i>		DOD Project? NO		Report to DL (J Flags)? NO		Data Deliverable Requirements: QC2			
Relinquished By: (2) <i>Fedex</i>		Date: 8/12/20	Time: 0945	Received By: <i>MW Oettl</i>		Cooler ID:		Requested Turnaround Time and-or Special Instructions:					
Relinquished By: (3)		Date:	Time:	Received By:		Temp Blank °C: <i>4</i>		Chain of Custody Seal: (Circle) INTACT    BROKEN    ABSENT					
Relinquished By: (4)		Date:	Time:	Received For Laboratory By:		or Ambient [ ]							

[X 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301  
5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

[http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)

F088\_COC\_REF\_LAB\_20190411

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## SGS Sample Receipt Summary

Job Number: FA77709

Client: SGS NORTH AMERICA, INC. - ALASKA DI

Project: 1204074

Date / Time Received: 8/12/2020 9:45:00 AM

Delivery Method: FEDEX

Airbill #'s: 148348008273

Therm ID:

Therm CF:

# of Coolers: N/A

Cooler Temps (Raw Measured) °C:

Cooler Temps (Corrected) °C:

**Cooler Information**

	<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Temp criteria achieved	<input type="checkbox"/>		<input type="checkbox"/>
4. Cooler temp verification	<u>N/A</u>		
5. Cooler media	<u>N/A</u>		

**Sample Information**

	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Sample labels present on bottles	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Samples preserved properly	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
3. Sufficient volume/containers recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Condition of sample	<u>Intact</u>			
5. Sample recvd within HT	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
6. Dates/Times/IDs on COC match Sample Label	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
7. VOCs have headspace	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
9. Compositing instructions clear	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Voa Soil Kits/Jars received past 48hrs?	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. % Solids Jar received?	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Residual Chlorine Present?	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Trip Blank Information**

	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<u>W</u>	<u>or</u>	<u>S</u>	<u>N/A</u>
3. Type Of TB Received	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Misc. Information**

Number of Encores: 25-Gram \_\_\_\_\_ 5-Gram \_\_\_\_\_ Number of 5035 Field Kits: \_\_\_\_\_ Number of Lab Filtered Metals: \_\_\_\_\_  
 Test Strip Lot #: pH 0-3 230315 pH 10-12 219813A Other: (Specify) \_\_\_\_\_  
 Residual Chlorine Test Strip Lot #: \_\_\_\_\_

Comments

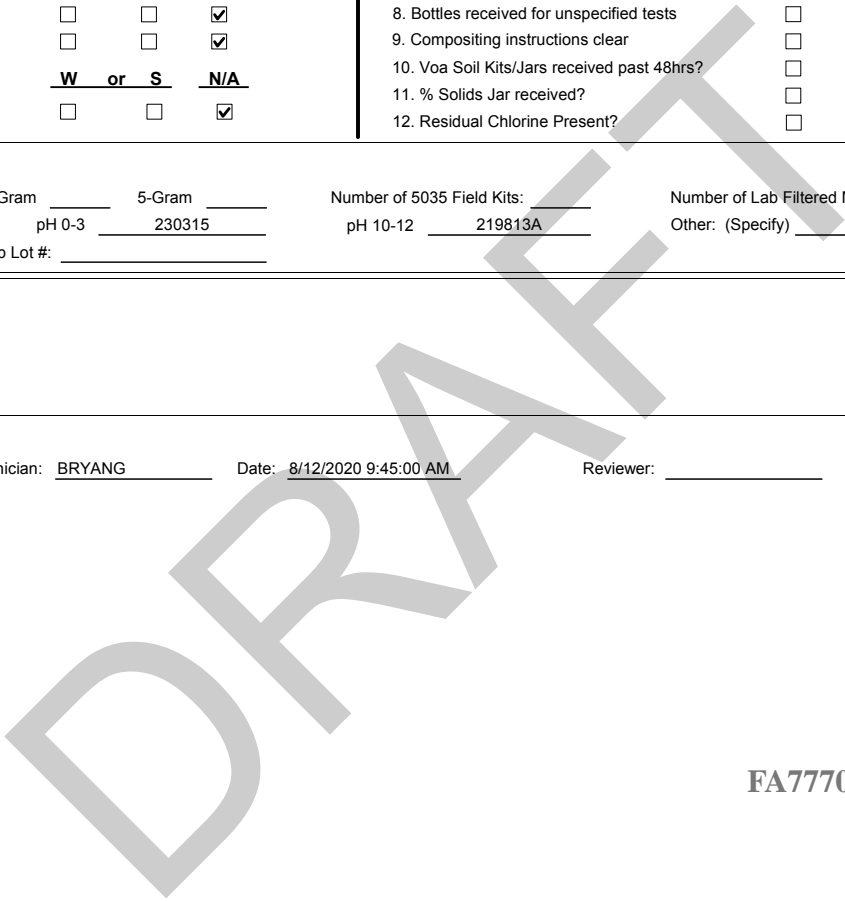
SM001  
Rev. Date 05/24/17

Technician: BRYANG

Date: 8/12/2020 9:45:00 AM

Reviewer: \_\_\_\_\_

Date: \_\_\_\_\_



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**FA77709: Chain of Custody**

**Page 2 of 2**

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77709  
**Account:** SGS North America, Inc  
**Project:** 1204074  
**Collected:** 08/10/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
--------------	------	---------	-------------	-------------	--------	-------	--------

OP81627 EPA 537M QSM5.3 B-15

OP81627-BS	375-22-4	Perfluorobutanoic acid	BSP	REC	93	%	71-135
OP81627-BS	2706-90-3	Perfluoropentanoic acid	BSP	REC	86	%	69-132
OP81627-BS	307-24-4	Perfluorohexanoic acid	BSP	REC	87	%	70-132
OP81627-BS	375-85-9	Perfluoroheptanoic acid	BSP	REC	89	%	71-131
OP81627-BS	335-67-1	Perfluorooctanoic acid	BSP	REC	93	%	69-133
OP81627-BS	375-95-1	Perfluorononanoic acid	BSP	REC	87	%	72-129
OP81627-BS	335-76-2	Perfluorodecanoic acid	BSP	REC	88	%	69-133
OP81627-BS	2058-94-8	Perfluoroundecanoic acid	BSP	REC	88	%	64-136
OP81627-BS	307-55-1	Perfluorododecanoic acid	BSP	REC	88	%	69-135
OP81627-BS	72629-94-8	Perfluorotridecanoic acid	BSP	REC	88	%	66-139
OP81627-BS	376-06-7	Perfluorotetradecanoic acid	BSP	REC	85	%	69-133
OP81627-BS	375-73-5	Perfluorobutanesulfonic acid	BSP	REC	91	%	72-128
OP81627-BS	2706-91-4	Perfluoropentanesulfonic acid	BSP	REC	81	%	73-123
OP81627-BS	355-46-4	Perfluorohexanesulfonic acid	BSP	REC	85	%	67-130
OP81627-BS	375-92-8	Perfluoroheptanesulfonic acid	BSP	REC	93	%	70-132
OP81627-BS	1763-23-1	Perfluorooctanesulfonic acid	BSP	REC	85	%	67-136
OP81627-BS	68259-12-1	Perfluorononanesulfonic acid	BSP	REC	87	%	69-125
OP81627-BS	335-77-3	Perfluorodecanesulfonic acid	BSP	REC	87	%	59-134
OP81627-BS	754-91-6	PFOSA	BSP	REC	86	%	67-137
OP81627-BS	2355-31-9	MeFOSAA	BSP	REC	94	%	63-144
OP81627-BS	2991-50-6	EtFOSAA	BSP	REC	86	%	61-139
OP81627-BS	757124-72-4	4:2 Fluorotelomer sulfonate	BSP	REC	95	%	62-145
OP81627-BS	27619-97-2	6:2 Fluorotelomer sulfonate	BSP	REC	96	%	64-140
OP81627-BS	39108-34-4	8:2 Fluorotelomer sulfonate	BSP	REC	97	%	65-137
OP81627-MS*	375-22-4	Perfluorobutanoic acid	MS	REC	100	%	71-135
OP81627-MS*	2706-90-3	Perfluoropentanoic acid	MS	REC	94	%	69-132
OP81627-MS*	307-24-4	Perfluorohexanoic acid	MS	REC	92	%	70-132
OP81627-MS*	375-85-9	Perfluoroheptanoic acid	MS	REC	98	%	71-131
OP81627-MS*	335-67-1	Perfluorooctanoic acid	MS	REC	103	%	69-133
OP81627-MS*	375-95-1	Perfluorononanoic acid	MS	REC	91	%	72-129
OP81627-MS*	335-76-2	Perfluorodecanoic acid	MS	REC	91	%	69-133
OP81627-MS*	2058-94-8	Perfluoroundecanoic acid	MS	REC	94	%	64-136
OP81627-MS*	307-55-1	Perfluorododecanoic acid	MS	REC	96	%	69-135
OP81627-MS*	72629-94-8	Perfluorotridecanoic acid	MS	REC	86	%	66-139
OP81627-MS*	376-06-7	Perfluorotetradecanoic acid	MS	REC	92	%	69-133
OP81627-MS*	375-73-5	Perfluorobutanesulfonic acid	MS	REC	100	%	72-128
OP81627-MS*	2706-91-4	Perfluoropentanesulfonic acid	MS	REC	87	%	73-123
OP81627-MS*	355-46-4	Perfluorohexanesulfonic acid	MS	REC	98	%	67-130
OP81627-MS*	375-92-8	Perfluoroheptanesulfonic acid	MS	REC	107	%	70-132
OP81627-MS*	1763-23-1	Perfluorooctanesulfonic acid	MS	REC	62 <sup>a</sup>	%	67-136
OP81627-MS*	68259-12-1	Perfluorononanesulfonic acid	MS	REC	77	%	69-125
OP81627-MS*	335-77-3	Perfluorodecanesulfonic acid	MS	REC	119	%	59-134

\* Sample used for QC is not from job FA77709

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77709  
**Account:** SGS North America, Inc  
**Project:** 1204074  
**Collected:** 08/10/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP81627-MS*	754-91-6	PFOSA	MS	REC	96	%	67-137
OP81627-MS*	2355-31-9	MeFOSAA	MS	REC	98	%	63-144
OP81627-MS*	2991-50-6	EtFOSAA	MS	REC	97	%	61-139
OP81627-MS*	757124-72-4	4:2 Fluorotelomer sulfonate	MS	REC	103	%	62-145
OP81627-MS*	27619-97-2	6:2 Fluorotelomer sulfonate	MS	REC	105	%	64-140
OP81627-MS*	39108-34-4	8:2 Fluorotelomer sulfonate	MS	REC	100	%	65-137
OP81627-MSD*	375-22-4	Perfluorobutanoic acid	MSD	REC	99	%	71-135
OP81627-MSD*	375-22-4	Perfluorobutanoic acid	MSD	RPD	5	%	30
OP81627-MSD*	2706-90-3	Perfluoropentanoic acid	MSD	REC	93	%	69-132
OP81627-MSD*	2706-90-3	Perfluoropentanoic acid	MSD	RPD	4	%	30
OP81627-MSD*	307-24-4	Perfluorohexanoic acid	MSD	REC	91	%	70-132
OP81627-MSD*	307-24-4	Perfluorohexanoic acid	MSD	RPD	4	%	30
OP81627-MSD*	375-85-9	Perfluoroheptanoic acid	MSD	REC	96	%	71-131
OP81627-MSD*	375-85-9	Perfluoroheptanoic acid	MSD	RPD	5	%	30
OP81627-MSD*	335-67-1	Perfluorooctanoic acid	MSD	REC	103	%	69-133
OP81627-MSD*	335-67-1	Perfluorooctanoic acid	MSD	RPD	3	%	30
OP81627-MSD*	375-95-1	Perfluorononanoic acid	MSD	REC	91	%	72-129
OP81627-MSD*	375-95-1	Perfluorononanoic acid	MSD	RPD	4	%	30
OP81627-MSD*	335-76-2	Perfluorodecanoic acid	MSD	REC	88	%	69-133
OP81627-MSD*	335-76-2	Perfluorodecanoic acid	MSD	RPD	8	%	30
OP81627-MSD*	2058-94-8	Perfluoroundecanoic acid	MSD	REC	93	%	64-136
OP81627-MSD*	2058-94-8	Perfluoroundecanoic acid	MSD	RPD	4	%	30
OP81627-MSD*	307-55-1	Perfluorododecanoic acid	MSD	REC	95	%	69-135
OP81627-MSD*	307-55-1	Perfluorododecanoic acid	MSD	RPD	4	%	30
OP81627-MSD*	72629-94-8	Perfluorotridecanoic acid	MSD	REC	92	%	66-139
OP81627-MSD*	72629-94-8	Perfluorotridecanoic acid	MSD	RPD	3	%	30
OP81627-MSD*	376-06-7	Perfluorotetradecanoic acid	MSD	REC	92	%	69-133
OP81627-MSD*	376-06-7	Perfluorotetradecanoic acid	MSD	RPD	3	%	30
OP81627-MSD*	375-73-5	Perfluorobutanesulfonic acid	MSD	REC	100	%	72-128
OP81627-MSD*	375-73-5	Perfluorobutanesulfonic acid	MSD	RPD	4	%	30
OP81627-MSD*	2706-91-4	Perfluoropentanesulfonic acid	MSD	REC	86	%	73-123
OP81627-MSD*	2706-91-4	Perfluoropentanesulfonic acid	MSD	RPD	5	%	30
OP81627-MSD*	355-46-4	Perfluorohexanesulfonic acid	MSD	REC	103	%	67-130
OP81627-MSD*	355-46-4	Perfluorohexanesulfonic acid	MSD	RPD	2	%	30
OP81627-MSD*	375-92-8	Perfluoroheptanesulfonic acid	MSD	REC	107	%	70-132
OP81627-MSD*	375-92-8	Perfluoroheptanesulfonic acid	MSD	RPD	3	%	30
OP81627-MSD*	1763-23-1	Perfluorooctanesulfonic acid	MSD	REC	139 <sup>a</sup>	%	67-136
OP81627-MSD*	1763-23-1	Perfluorooctanesulfonic acid	MSD	RPD	23	%	30
OP81627-MSD*	68259-12-1	Perfluorononanesulfonic acid	MSD	REC	72	%	69-125
OP81627-MSD*	68259-12-1	Perfluorononanesulfonic acid	MSD	RPD	9	%	30
OP81627-MSD*	335-77-3	Perfluorodecanesulfonic acid	MSD	REC	120	%	59-134
OP81627-MSD*	335-77-3	Perfluorodecanesulfonic acid	MSD	RPD	3	%	30
OP81627-MSD*	754-91-6	PFOSA	MSD	REC	91	%	67-137
OP81627-MSD*	754-91-6	PFOSA	MSD	RPD	9	%	30
OP81627-MSD*	2355-31-9	MeFOSAA	MSD	REC	100	%	63-144

\* Sample used for QC is not from job FA77709

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77709  
**Account:** SGS North America, Inc  
**Project:** 1204074  
**Collected:** 08/10/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP81627-MSD*	2355-31-9	MeFOSAA	MSD	RPD	1	%	30
OP81627-MSD*	2991-50-6	EtFOSAA	MSD	REC	96	%	61-139
OP81627-MSD*	2991-50-6	EtFOSAA	MSD	RPD	4	%	30
OP81627-MSD*	757124-72-4	4:2 Fluorotelomer sulfonate	MSD	REC	102	%	62-145
OP81627-MSD*	757124-72-4	4:2 Fluorotelomer sulfonate	MSD	RPD	4	%	30
OP81627-MSD*	27619-97-2	6:2 Fluorotelomer sulfonate	MSD	REC	102	%	64-140
OP81627-MSD*	27619-97-2	6:2 Fluorotelomer sulfonate	MSD	RPD	6	%	30
OP81627-MSD*	39108-34-4	8:2 Fluorotelomer sulfonate	MSD	REC	101	%	65-137
OP81627-MSD*	39108-34-4	8:2 Fluorotelomer sulfonate	MSD	RPD	3	%	30

(a) Outside control limits due to high level in sample relative to spike amount.

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\* Sample used for QC is not from job FA77709

## MS Semi-volatiles

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



# Instrument Blank

**Job Number:** FA77709  
**Account:** SGS/SGS North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q70-IBLK	4Q5022.D	1	08/20/20	NAF	n/a	n/a	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-1, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8, FA77709-9

CAS No.	Compound	Result	RL	MDL	Units	Q
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	104% 50-150%
	13C5-PFPeA	104% 50-150%
	13C5-PFHxA	105% 50-150%
	13C4-PFHpA	105% 50-150%
	13C8-PFOA	109% 50-150%
	13C9-PFNA	107% 50-150%
	13C6-PFDA	108% 50-150%
	13C7-PFUnDA	106% 50-150%
	13C2-PFDoDA	106% 50-150%
	13C2-PFTeDA	106% 50-150%
	13C3-PFBS	107% 50-150%
	13C3-PFHxS	103% 50-150%
	13C8-PFOS	103% 50-150%
	13C8-FOSA	113% 50-150%
	d3-MeFOSAA	105% 50-150%

# Instrument Blank

**Job Number:** FA77709  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q70-IBLK	4Q5022.D	1	08/20/20	NAF	n/a	n/a	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-1, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8, FA77709-9

CAS No.	ID Standard Recoveries	Limits
	13C2-4:2FTS	94% 50-150%
	13C2-6:2FTS	98% 50-150%
	13C2-8:2FTS	95% 50-150%

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# Instrument Blank

**Job Number:** FA77709  
**Account:** SGS/SAKA SGS North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q71-IBLK	4Q5092.D	1	08/21/20	NG	n/a	n/a	S4Q71

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-1, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8, FA77709-9, FA77709-10

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.25	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 50-150%
	13C5-PFPeA	100% 50-150%
	13C5-PFHxA	102% 50-150%
	13C4-PFHpA	102% 50-150%
	13C8-PFOA	107% 50-150%
	13C9-PFNA	104% 50-150%
	13C6-PFDA	108% 50-150%
	13C7-PFUnDA	106% 50-150%
	13C2-PFDoDA	107% 50-150%
	13C2-PFTeDA	108% 50-150%
	13C3-PFBS	105% 50-150%
	13C3-PFHxS	103% 50-150%

# Instrument Blank

**Job Number:** FA77709  
**Account:** SGS/SAKA SGS North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q71-IBLK	4Q5092.D	1	08/21/20	NG	n/a	n/a	S4Q71

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-1, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8, FA77709-9, FA77709-10

CAS No.	ID Standard Recoveries	Limits
	13C8-PFOS	103% 50-150%
	13C8-FOSA	107% 50-150%
	d3-MeFOSAA	108% 50-150%
	13C2-4:2FTS	92% 50-150%
	13C2-6:2FTS	96% 50-150%
	13C2-8:2FTS	95% 50-150%

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# Instrument Blank

**Job Number:** FA77709  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q787-IBLK	2Q52901.D	1	08/23/20	NAF	n/a	n/a	S2Q787

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-10

CAS No.	Compound	Result	RL	MDL	Units	Q
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99%
	13C5-PFPeA	88%
	13C5-PFHxA	89%
	13C4-PFHpA	91%
	13C8-PFOA	90%
	13C9-PFNA	89%
	13C6-PFDA	92%
	13C7-PFUnDA	93%
	13C2-PFDoDA	91%
	13C2-PFTeDA	83%
	13C3-PFBS	93%
	13C3-PFHxS	95%
	13C8-PFOS	94%
	13C8-FOSA	96%
	d3-MeFOSAA	88%
	13C2-4:2FTS	85%
	13C2-6:2FTS	87%
	13C2-8:2FTS	85%

## Method Blank Summary

**Job Number:** FA77709  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-MB	4Q5067.D	1	08/20/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-1, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8, FA77709-9, FA77709-10

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	0.38	1.0	0.25	ug/kg	J
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	85% 50-150%
	13C5-PFPeA	90% 50-150%
	13C5-PFHxA	93% 50-150%
	13C4-PFHpA	93% 50-150%
	13C8-PFOA	100% 50-150%
	13C9-PFNA	96% 50-150%
	13C6-PFDA	97% 50-150%
	13C7-PFUnDA	93% 50-150%

## Method Blank Summary

**Job Number:** FA77709  
**Account:** SGS/KA SGS North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-MB	4Q5067.D	1	08/20/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-1, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8, FA77709-9, FA77709-10

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	93% 50-150%
	13C2-PFTeDA	89% 50-150%
	13C3-PFBS	97% 50-150%
	13C3-PFHxS	97% 50-150%
	13C8-PFOS	94% 50-150%
	13C8-FOSA	93% 50-150%
	d3-MeFOSAA	98% 50-150%
	13C2-4:2FTS	86% 50-150%
	13C2-6:2FTS	91% 50-150%
	13C2-8:2FTS	87% 50-150%

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# Blank Spike Summary

**Job Number:** FA77709  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-BS	4Q5066.D	1	08/20/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-1, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8, FA77709-9, FA77709-10

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	9.3	93	71-135
2706-90-3	Perfluoropentanoic acid	10	8.6	86	69-132
307-24-4	Perfluorohexanoic acid	10	8.7	87	70-132
375-85-9	Perfluoroheptanoic acid	10	8.9	89	71-131
335-67-1	Perfluorooctanoic acid	10	9.3	93	69-133
375-95-1	Perfluorononanoic acid	10	8.7	87	72-129
335-76-2	Perfluorodecanoic acid	10	8.8	88	69-133
2058-94-8	Perfluoroundecanoic acid	10	8.8	88	64-136
307-55-1	Perfluorododecanoic acid	10	8.8	88	69-135
72629-94-8	Perfluorotridecanoic acid	10	8.8	88	66-139
376-06-7	Perfluorotetradecanoic acid	10	8.5	85	69-133
375-73-5	Perfluorobutanesulfonic acid	10	9.1	91	72-128
2706-91-4	Perfluoropentanesulfonic acid	10	8.1	81	73-123
355-46-4	Perfluorohexanesulfonic acid	10	8.5	85	67-130
375-92-8	Perfluoroheptanesulfonic acid	10	9.3	93	70-132
1763-23-1	Perfluorooctanesulfonic acid	10	8.5	85	67-136
68259-12-1	Perfluorononanesulfonic acid	10	8.7	87	69-125
335-77-3	Perfluorodecanesulfonic acid	10	8.7	87	59-134
754-91-6	PFOSA	10	8.6	86	67-137
2355-31-9	MeFOSAA	10	9.4	94	63-144
2991-50-6	EtFOSAA	10	8.6	86	61-139
757124-72-44:2	Fluorotelomer sulfonate	10	9.5	95	62-145
27619-97-2	6:2 Fluorotelomer sulfonate	10	9.6	96	64-140
39108-34-4	8:2 Fluorotelomer sulfonate	10	9.7	97	65-137

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	90%	50-150%
	13C5-PFPeA	95%	50-150%
	13C5-PFHxA	98%	50-150%
	13C4-PFHpA	97%	50-150%
	13C8-PFOA	103%	50-150%
	13C9-PFNA	99%	50-150%
	13C6-PFDA	101%	50-150%
	13C7-PFUnDA	97%	50-150%

\* = Outside of Control Limits.



# Blank Spike Summary

**Job Number:** FA77709  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-BS	4Q5066.D	1	08/20/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-1, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8, FA77709-9, FA77709-10

CAS No.	ID Standard Recoveries	BSP	Limits
	13C2-PFDoDA	96%	50-150%
	13C2-PFTeDA	95%	50-150%
	13C3-PFBS	97%	50-150%
	13C3-PFHxS	102%	50-150%
	13C8-PFOS	100%	50-150%
	13C8-FOSA	94%	50-150%
	d3-MeFOSAA	103%	50-150%
	13C2-4:2FTS	95%	50-150%
	13C2-6:2FTS	99%	50-150%
	13C2-8:2FTS	96%	50-150%

DRY

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA77709  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-MS	4Q5133.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
OP81627-MSD	4Q5134.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
FA77769-4	4Q5132.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
FA77769-4 <sup>a</sup>	4Q5083.D	10	08/21/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-1, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8, FA77709-9, FA77709-10

CAS No.	Compound	FA77769-4 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
375-22-4	Perfluorobutanoic acid	3.5 U		36.1	36.0	100	34.9	34.4	99	5	71-135/30
2706-90-3	Perfluoropentanoic acid	1.4	J	36.1	35.3	94	34.9	33.8	93	4	69-132/30
307-24-4	Perfluorohexanoic acid	2.2	J	36.1	35.5	92	34.9	34.0	91	4	70-132/30
375-85-9	Perfluoroheptanoic acid	1.5	J	36.1	36.7	98	34.9	34.8	96	5	71-131/30
335-67-1	Perfluorooctanoic acid	1.7	J	36.1	38.9	103	34.9	37.7	103	3	69-133/30
375-95-1	Perfluorononanoic acid	1.2	J	36.1	34.2	91	34.9	33.0	91	4	72-129/30
335-76-2	Perfluorodecanoic acid	35 U <sup>b</sup>		36.1	33.0	91	34.9	30.6	88	8	69-133/30
2058-94-8	Perfluoroundecanoic acid	35 U <sup>b</sup>		36.1	34.0	94	34.9	32.6	93	4	64-136/30
307-55-1	Perfluorododecanoic acid	35 U <sup>b</sup>		36.1	34.5	96	34.9	33.0	95	4	69-135/30
72629-94-8	Perfluorotridecanoic acid	35 U <sup>b</sup>		36.1	31.1	86	34.9	32.2	92	3	66-139/30
376-06-7	Perfluorotetradecanoic acid	35 U <sup>b</sup>		36.1	33.1	92	34.9	32.1	92	3	69-133/30
375-73-5	Perfluorobutanesulfonic acid	3.5 U		36.1	36.1	100	34.9	34.7	100	4	72-128/30
2706-91-4	Perfluoropentanesulfonic acid	3.5 U		36.1	31.3	87	34.9	29.9	86	5	73-123/30
355-46-4	Perfluorohexanesulfonic acid	6.9		36.1	42.2	98	34.9	42.9	103	2	67-130/30
375-92-8	Perfluoroheptanesulfonic acid	3.5 U		36.1	38.5	107	34.9	37.4	107	3	70-132/30
1763-23-1	Perfluorooctanesulfonic acid	77.7		36.1	100	62* <sup>c</sup>	34.9	126	139* <sup>c</sup>	23	67-136/30
68259-12-1	Perfluorononanesulfonic acid	3.5 U		36.1	27.7	77	34.9	25.2	72	9	69-125/30
335-77-3	Perfluorodecanesulfonic acid	3.5 U		36.1	43.1	119	34.9	41.7	120	3	59-134/30
754-91-6	PFOSA	35 U <sup>b</sup>		36.1	34.7	96	34.9	31.6	91	9	67-137/30
2355-31-9	MeFOSAA	87 U <sup>b</sup>		36.1	35.2	98	34.9	34.8	100	1	63-144/30
2991-50-6	EtFOSAA	87 U <sup>b</sup>		36.1	34.9	97	34.9	33.6	96	4	61-139/30
757124-72-44:2	Fluorotelomer sulfonate	3.5 U		36.1	37.1	103	34.9	35.5	102	4	62-145/30
27619-97-2	6:2 Fluorotelomer sulfonate	3.5 U		36.1	37.7	105	34.9	35.4	102	6	64-140/30
39108-34-4	8:2 Fluorotelomer sulfonate	35 U <sup>b</sup>		36.1	36.2	100	34.9	35.1	101	3	65-137/30

CAS No.	ID Standard Recoveries	MS	MSD	FA77769-4	FA77769-4	Limits
13C4-PFBA		65%	67%	61%	61%	50-150%
13C5-PFPeA		50%	52%	50%	59%	50-150%
13C5-PFHxA		51%	53%	51%	62%	50-150%
13C4-PFHpA		52%	53%	51%	62%	50-150%
13C8-PFOA		55%	56%	55%	65%	50-150%
13C9-PFNA		53%	53%	51%	62%	50-150%
13C6-PFDA		47% * <sup>d</sup>	45% * <sup>d</sup>	41% * <sup>d</sup>	62%	50-150%
13C7-PFUnDA		49% * <sup>d</sup>	46% * <sup>d</sup>	44% * <sup>d</sup>	55%	50-150%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA77709  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204074

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-MS	4Q5133.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
OP81627-MSD	4Q5134.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
FA77769-4	4Q5132.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
FA77769-4 <sup>a</sup>	4Q5083.D	10	08/21/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77709-1, FA77709-2, FA77709-3, FA77709-4, FA77709-5, FA77709-6, FA77709-7, FA77709-8, FA77709-9, FA77709-10

CAS No.	ID Standard Recoveries	MS	MSD	FA77769-4	FA77769-4	Limits
13C2-PFDoDA		44% * d	40% * d	34% * d	52%	50-150%
13C2-PFTeDA		40% * d	32% * d	25% * d	50%	50-150%
13C3-PFBS		56%	58%	56%	63%	50-150%
13C3-PFHxS		62%	62%	59%	67%	50-150%
13C8-PFOS		63%	65%	61%	61%	50-150%
13C8-FOSA		17% * d	19% * d	15% * d	44% * d	50-150%
d3-MeFOSAA		41% * d	41% * d	38% * d	53%	50-150%
13C2-4:2FTS		56%	58%	53%	59%	50-150%
13C2-6:2FTS		62%	63%	57%	62%	50-150%
13C2-8:2FTS		47% * d	45% * d	40% * d	58%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run #2.
- (c) Outside control limits due to high level in sample relative to spike amount.
- (d) Outside control limits due to matrix interference.

\* = Outside of Control Limits.

## Laboratory Report of Analysis

To: Restoration Science & Eng  
911 West 8th Ave Suite 100  
Anchorage, AK 99501

Report Number: **1204107**

Client Project: **20-2176 CRW Postmark Bog V2**

Dear Kyle Wiseman,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Chuck at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,  
SGS North America Inc.

---

Chuck Homestead  
Project Manager  
Charles.Homestead@sgs.com

Date

## Case Narrative

SGS Client: **Restoration Science & Eng**  
SGS Project: **1204107**  
Project Name/Site: **20-2176 CRW Postmark Bog V2**  
Project Contact: **Kyle Wiseman**

Refer to sample receipt form for information on sample condition.

### **T2-01A (1204107001) PS**

EPA 537 PFAS 24 were analyzed by SGS of Orlando, FL.

AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. The analyte associated with this surrogate was not detected above the LOQ in this sample.

### **LCS for HBN 1810653 [XXX/43711 (1576258) LCS**

AK102/103 - Surrogate recovery in the LCS for 5a androstane does not meet QC criteria; however, the surrogate recoveries in the samples are within criteria.

DRAFT

\*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

Print Date: 09/03/2020 9:49:29AM

## Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
<b>SW8021B</b>				
1576032	LABREFQC	VFC15295	P & M -Xylene	SP

DRAFT

### Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

## Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCC/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

## Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
T2-01A	1204107001	08/11/2020	08/11/2020	Soil/Solid (dry weight)
T2-01B	1204107002	08/11/2020	08/11/2020	Soil/Solid (dry weight)
T2-03A	1204107003	08/11/2020	08/11/2020	Soil/Solid (dry weight)
T2-X	1204107004	08/11/2020	08/11/2020	Solid/Soil (Wet Weight)
Trip Blank	1204107005	08/11/2020	08/11/2020	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
SM21 2540G	Percent Solids SM2540G
SW9060A-Mod	Total Organic Carbon-M in Soil

DRAFT



## Detectable Results Summary

Client Sample ID: **T2-01A**  
 Lab Sample ID: 1204107001  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	616	mg/kg
Residual Range Organics	7070	mg/kg
Total Organic Carbon	36.0	%

**Waters Department**

Client Sample ID: **T2-01B**  
 Lab Sample ID: 1204107002  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	449	mg/kg
Residual Range Organics	5980	mg/kg
Total Organic Carbon	35.7	%

**Waters Department**

Client Sample ID: **T2-03A**  
 Lab Sample ID: 1204107003  
**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	702	mg/kg
Residual Range Organics	10600	mg/kg
Total Organic Carbon	42.6	%

**Waters Department**

DRAFT

## Results of T2-01A

Client Sample ID: **T2-01A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204107001  
 Lab Project ID: 1204107

Collection Date: 08/11/20 10:35  
 Received Date: 08/11/20 13:17  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):22.5  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	616	87.8	27.2	mg/kg	1		08/31/20 07:08
<b>Surrogates</b>							
5a Androstane (surr)	106	50-150		%	1		08/31/20 07:08

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 07:08  
 Container ID: 1204107001-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.409 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	7070	439	189	mg/kg	1		08/31/20 07:08
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	83.3	50-150		%	1		08/31/20 07:08

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 07:08  
 Container ID: 1204107001-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.409 g  
 Prep Extract Vol: 5 mL



**Results of T2-01A**

Client Sample ID: **T2-01A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204107001  
Lab Project ID: 1204107

Collection Date: 08/11/20 10:35  
Received Date: 08/11/20 13:17  
Matrix: Soil/Solid (dry weight)  
Solids (%):22.5  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	22.8 U	45.5	13.7	mg/Kg	1		08/19/20 20:36
<b>Surrogates</b>							
4-Bromofluorobenzene (surr)	157 *	50-150		%	1		08/19/20 20:36

**Batch Information**

Analytical Batch: VFC15295  
Analytical Method: AK101  
Analyst: ALJ  
Analytical Date/Time: 08/19/20 20:36  
Container ID: 1204107001-B

Prep Batch: VXX36168  
Prep Method: SW5035A  
Prep Date/Time: 08/11/20 10:35  
Prep Initial Wt./Vol.: 19.688 g  
Prep Extract Vol: 40.2648 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	114 U	228	72.8	ug/kg	1		08/19/20 20:36
Ethylbenzene	228 U	455	142	ug/kg	1		08/19/20 20:36
o-Xylene	228 U	455	142	ug/kg	1		08/19/20 20:36
P & M -Xylene	455 U	910	273	ug/kg	1		08/19/20 20:36
Toluene	228 U	455	142	ug/kg	1		08/19/20 20:36
Xylenes (total)	685 U	1370	415	ug/kg	1		08/19/20 20:36

**Surrogates**

1,4-Difluorobenzene (surr)	92.8	72-119		%	1		08/19/20 20:36
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**Batch Information**

Analytical Batch: VFC15295  
Analytical Method: SW8021B  
Analyst: ALJ  
Analytical Date/Time: 08/19/20 20:36  
Container ID: 1204107001-B

Prep Batch: VXX36168  
Prep Method: SW5035A  
Prep Date/Time: 08/11/20 10:35  
Prep Initial Wt./Vol.: 19.688 g  
Prep Extract Vol: 40.2648 mL

## Results of T2-01A

Client Sample ID: **T2-01A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204107001  
 Lab Project ID: 1204107

Collection Date: 08/11/20 10:35  
 Received Date: 08/11/20 13:17  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):22.5  
 Location:

## Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	36.0	2.23	0.668	%	1		08/15/20 15:50

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Analyst: EWW  
 Analytical Date/Time: 08/15/20 15:50  
 Container ID: 1204107001-A

Prep Batch: WXX13402  
 Prep Method: METHOD  
 Prep Date/Time: 08/15/20 10:30  
 Prep Initial Wt./Vol.: 50 mg  
 Prep Extract Vol: 1 mL

DRAFT

## Results of T2-01B

Client Sample ID: **T2-01B**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204107002  
 Lab Project ID: 1204107

Collection Date: 08/11/20 10:50  
 Received Date: 08/11/20 13:17  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):23.1  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	449	86.0	26.7	mg/kg	1		08/31/20 07:18
<b>Surrogates</b>							
5a Androstane (surr)	107	50-150		%	1		08/31/20 07:18

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 07:18  
 Container ID: 1204107002-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.211 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	5980	430	185	mg/kg	1		08/31/20 07:18
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	88.7	50-150		%	1		08/31/20 07:18

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 07:18  
 Container ID: 1204107002-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.211 g  
 Prep Extract Vol: 5 mL



Results of T2-01B

Client Sample ID: T2-01B
Client Project ID: 20-2176 CRW Postmark Bog V2
Lab Sample ID: 1204107002
Lab Project ID: 1204107

Collection Date: 08/11/20 10:50
Received Date: 08/11/20 13:17
Matrix: Soil/Solid (dry weight)
Solids (%):23.1
Location:

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 25.8 U, 51.6, 15.5, mg/Kg, 1, 08/19/20 20:54

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene (surr), 135, 50-150, %, 1, 08/19/20 20:54

Batch Information

Analytical Batch: VFC15295
Analytical Method: AK101
Analyst: ALJ
Analytical Date/Time: 08/19/20 20:54
Container ID: 1204107002-B

Prep Batch: VXX36168
Prep Method: SW5035A
Prep Date/Time: 08/11/20 10:50
Prep Initial Wt./Vol.: 15.487 g
Prep Extract Vol: 36.9092 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, Xylenes (total)

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene (surr), 93.5, 72-119, %, 1, 08/19/20 20:54

Batch Information

Analytical Batch: VFC15295
Analytical Method: SW8021B
Analyst: ALJ
Analytical Date/Time: 08/19/20 20:54
Container ID: 1204107002-B

Prep Batch: VXX36168
Prep Method: SW5035A
Prep Date/Time: 08/11/20 10:50
Prep Initial Wt./Vol.: 15.487 g
Prep Extract Vol: 36.9092 mL

### Results of T2-01B

Client Sample ID: **T2-01B**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204107002  
Lab Project ID: 1204107

Collection Date: 08/11/20 10:50  
Received Date: 08/11/20 13:17  
Matrix: Soil/Solid (dry weight)  
Solids (%):23.1  
Location:

### Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	35.7	1.83	0.549	%	1		08/15/20 15:58

### Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 15:58  
Container ID: 1204107002-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 59.1 mg  
Prep Extract Vol: 1 mL

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## Results of T2-03A

Client Sample ID: **T2-03A**  
 Client Project ID: **20-2176 CRW Postmark Bog V2**  
 Lab Sample ID: 1204107003  
 Lab Project ID: 1204107

Collection Date: 08/11/20 11:30  
 Received Date: 08/11/20 13:17  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):27.2  
 Location:

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	702	73.0	22.6	mg/kg	1		08/31/20 07:28
<b>Surrogates</b>							
5a Androstane (surr)	89.9	50-150		%	1		08/31/20 07:28

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK102  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 07:28  
 Container ID: 1204107003-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.258 g  
 Prep Extract Vol: 5 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	10600	365	157	mg/kg	1		08/31/20 07:28
<b>Surrogates</b>							
n-Triacontane-d62 (surr)	75.1	50-150		%	1		08/31/20 07:28

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK103  
 Analyst: CDM  
 Analytical Date/Time: 08/31/20 07:28  
 Container ID: 1204107003-A

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/20 13:45  
 Prep Initial Wt./Vol.: 30.258 g  
 Prep Extract Vol: 5 mL





**Results of T2-03A**

Client Sample ID: **T2-03A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204107003  
Lab Project ID: 1204107

Collection Date: 08/11/20 11:30  
Received Date: 08/11/20 13:17  
Matrix: Soil/Solid (dry weight)  
Solids (%):27.2  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	21.9 U	43.7	13.1	mg/Kg	1		08/19/20 21:12

**Surrogates**

4-Bromofluorobenzene (surr)	121	50-150		%	1		08/19/20 21:12
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**Batch Information**

Analytical Batch: VFC15295  
Analytical Method: AK101  
Analyst: ALJ  
Analytical Date/Time: 08/19/20 21:12  
Container ID: 1204107003-B

Prep Batch: VXX36168  
Prep Method: SW5035A  
Prep Date/Time: 08/11/20 11:30  
Prep Initial Wt./Vol.: 15.205 g  
Prep Extract Vol: 36.0742 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	109 U	218	69.9	ug/kg	1		08/19/20 21:12
Ethylbenzene	219 U	437	136	ug/kg	1		08/19/20 21:12
o-Xylene	219 U	437	136	ug/kg	1		08/19/20 21:12
P & M -Xylene	437 U	873	262	ug/kg	1		08/19/20 21:12
Toluene	219 U	437	136	ug/kg	1		08/19/20 21:12
Xylenes (total)	655 U	1310	398	ug/kg	1		08/19/20 21:12

**Surrogates**

1,4-Difluorobenzene (surr)	94.4	72-119		%	1		08/19/20 21:12
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**Batch Information**

Analytical Batch: VFC15295  
Analytical Method: SW8021B  
Analyst: ALJ  
Analytical Date/Time: 08/19/20 21:12  
Container ID: 1204107003-B

Prep Batch: VXX36168  
Prep Method: SW5035A  
Prep Date/Time: 08/11/20 11:30  
Prep Initial Wt./Vol.: 15.205 g  
Prep Extract Vol: 36.0742 mL

### Results of T2-03A

Client Sample ID: **T2-03A**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204107003  
Lab Project ID: 1204107

Collection Date: 08/11/20 11:30  
Received Date: 08/11/20 13:17  
Matrix: Soil/Solid (dry weight)  
Solids (%):27.2  
Location:

### Results by Waters Department

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Total Organic Carbon	42.6	1.80	0.540	%	1		08/15/20 16:05

### Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Analyst: EWW  
Analytical Date/Time: 08/15/20 16:05  
Container ID: 1204107003-A

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 08/15/20 10:30  
Prep Initial Wt./Vol.: 51.1 mg  
Prep Extract Vol: 1 mL

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**Results of Trip Blank**

Client Sample ID: **Trip Blank**  
Client Project ID: **20-2176 CRW Postmark Bog V2**  
Lab Sample ID: 1204107005  
Lab Project ID: 1204107

Collection Date: 08/11/20 10:35  
Received Date: 08/11/20 13:17  
Matrix: Soil/Solid (dry weight)  
Solids (%):  
Location:

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.25 U	2.51	0.752	mg/Kg	1		08/19/20 20:19

**Surrogates**

4-Bromofluorobenzene (surr)	144	50-150		%	1		08/19/20 20:19
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**Batch Information**

Analytical Batch: VFC15295  
Analytical Method: AK101  
Analyst: ALJ  
Analytical Date/Time: 08/19/20 20:19  
Container ID: 1204107005-A

Prep Batch: VXX36168  
Prep Method: SW5035A  
Prep Date/Time: 08/11/20 10:35  
Prep Initial Wt./Vol.: 49.845 g  
Prep Extract Vol: 25 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	6.25 U	12.5	4.01	ug/kg	1		08/19/20 20:19
Ethylbenzene	12.6 U	25.1	7.82	ug/kg	1		08/19/20 20:19
o-Xylene	12.6 U	25.1	7.82	ug/kg	1		08/19/20 20:19
P & M -Xylene	25.1 U	50.2	15.0	ug/kg	1		08/19/20 20:19
Toluene	12.6 U	25.1	7.82	ug/kg	1		08/19/20 20:19
Xylenes (total)	37.6 U	75.2	22.9	ug/kg	1		08/19/20 20:19

**Surrogates**

1,4-Difluorobenzene (surr)	94.6	72-119		%	1		08/19/20 20:19
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**Batch Information**

Analytical Batch: VFC15295  
Analytical Method: SW8021B  
Analyst: ALJ  
Analytical Date/Time: 08/19/20 20:19  
Container ID: 1204107005-A

Prep Batch: VXX36168  
Prep Method: SW5035A  
Prep Date/Time: 08/11/20 10:35  
Prep Initial Wt./Vol.: 49.845 g  
Prep Extract Vol: 25 mL

## Method Blank

Blank ID: MB for HBN 1810708 [SPT/11110]  
Blank Lab ID: 1576530

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204107001, 1204107002, 1204107003

## Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

## Batch Information

Analytical Batch: SPT11110  
Analytical Method: SM21 2540G  
Instrument:  
Analyst: H.M  
Analytical Date/Time: 8/21/2020 4:50:00PM

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## Duplicate Sample Summary

Original Sample ID: 1204200001

Duplicate Sample ID: 1576531

QC for Samples:

1204107001, 1204107002, 1204107003

Analysis Date: 08/21/2020 16:50

Matrix: Soil/Solid (dry weight)

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	78.4	78.7	%	0.34	(< 15 )

## Batch Information

Analytical Batch: SPT11110

Analytical Method: SM21 2540G

Instrument:

Analyst: H.M

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## Method Blank

Blank ID: MB for HBN 1810608 [VXX/36168]  
Blank Lab ID: 1576025

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204107001, 1204107002, 1204107003, 1204107005

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	102	50-150		%

## Batch Information

Analytical Batch: VFC15295  
Analytical Method: AK101  
Instrument: Agilent 7890A PID/FID  
Analyst: ALJ  
Analytical Date/Time: 8/19/2020 8:01:00PM

Prep Batch: VXX36168  
Prep Method: SW5035A  
Prep Date/Time: 8/19/2020 6:00:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

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Print Date: 09/03/2020 9:49:42AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204107 [VXX36168]  
 Blank Spike Lab ID: 1576026  
 Date Analyzed: 08/19/2020 18:50

Spike Duplicate ID: LCSD for HBN 1204107 [VXX36168]  
 Spike Duplicate Lab ID: 1576027  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204107001, 1204107002, 1204107003, 1204107005

## Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	12.5	14.1	113	12.5	14.0	112	( 60-120 )	0.99	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene (surr)	1.25	106	106	1.25	108	108	( 50-150 )	2.10	

## Batch Information

Analytical Batch: VFC15295  
 Analytical Method: AK101  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ

Prep Batch: VXX36168  
 Prep Method: SW5035A  
 Prep Date/Time: 08/19/2020 06:00  
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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## Method Blank

Blank ID: MB for HBN 1810608 [VXX/36168]  
 Blank Lab ID: 1576025

Matrix: Soil/Solid (dry weight)

QC for Samples:  
 1204107001, 1204107002, 1204107003, 1204107005

## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	6.25U	12.5	4.00	ug/kg
Ethylbenzene	12.5U	25.0	7.80	ug/kg
o-Xylene	12.5U	25.0	7.80	ug/kg
P & M -Xylene	25.0U	50.0	15.0	ug/kg
Toluene	12.5U	25.0	7.80	ug/kg
Xylenes (total)	37.5U	75.0	22.8	ug/kg
<b>Surrogates</b>				
1,4-Difluorobenzene (surr)	101	72-119		%

## Batch Information

Analytical Batch: VFC15295  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ  
 Analytical Date/Time: 8/19/2020 8:01:00PM

Prep Batch: VXX36168  
 Prep Method: SW5035A  
 Prep Date/Time: 8/19/2020 6:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL

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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204107 [VXX36168]  
 Blank Spike Lab ID: 1576028  
 Date Analyzed: 08/19/2020 19:43

Spike Duplicate ID: LCSD for HBN 1204107  
 [VXX36168]  
 Spike Duplicate Lab ID: 1576029  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204107001, 1204107002, 1204107003, 1204107005

## Results by SW8021B

Parameter	Blank Spike (ug/kg)			Spike Duplicate (ug/kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1250	1320	106	1250	1300	104	( 75-125 )	1.20	(< 20 )
Ethylbenzene	1250	1260	101	1250	1250	100	( 75-125 )	0.60	(< 20 )
o-Xylene	1250	1310	105	1250	1310	104	( 75-125 )	0.73	(< 20 )
P & M -Xylene	2500	2600	104	2500	2580	103	( 80-125 )	0.90	(< 20 )
Toluene	1250	1210	97	1250	1230	98	( 70-125 )	1.20	(< 20 )
Xylenes (total)	3750	3910	104	3750	3880	104	( 78-124 )	0.84	(< 20 )
<b>Surrogates</b>									
1,4-Difluorobenzene (surr)	1250	103	103	1250	104	104	( 72-119 )	0.98	

## Batch Information

Analytical Batch: VFC15295  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ

Prep Batch: VXX36168  
 Prep Method: SW5035A  
 Prep Date/Time: 08/19/2020 06:00  
 Spike Init Wt./Vol.: 1250 ug/kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 1250 ug/kg Extract Vol: 25 mL

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## Matrix Spike Summary

Original Sample ID: 1576032  
 MS Sample ID: 1576030 MS  
 MSD Sample ID: 1576031 MSD

Analysis Date: 08/19/2020 22:05  
 Analysis Date: 08/19/2020 22:23  
 Analysis Date: 08/19/2020 22:40  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204107001, 1204107002, 1204107003, 1204107005

## Results by SW8021B

Parameter	Sample	Matrix Spike (ug/kg)			Spike Duplicate (ug/kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	9.81	377	435	113	377	434	112	75-125	0.12	(< 20)
Ethylbenzene	3.77U	377	419	111	377	420	111	75-125	0.05	(< 20)
o-Xylene	3.77U	377	417	111	377	415	110	75-125	0.62	(< 20)
P & M -Xylene	7.55U	755	856	113	755	853	113	80-125	0.32	(< 20)
Toluene	3.25J	377	418	110	377	413	109	70-125	1.40	(< 20)
Xylenes (total)	11.3U	1130	1270	112	1130	1270	112	78-124	0.42	(< 20)
<b>Surrogates</b>										
1,4-Difluorobenzene (surr)		377	370	98	377	370	98	72-119	0.12	

## Batch Information

Analytical Batch: VFC15295  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ALJ  
 Analytical Date/Time: 8/19/2020 10:23:00PM

Prep Batch: VXX36168  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 8/19/2020 6:00:00AM  
 Prep Initial Wt./Vol.: 165.64g  
 Prep Extract Vol: 25.00mL

## Method Blank

Blank ID: MB for HBN 1810348 [WXX/13402]  
Blank Lab ID: 1574911

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204107001, 1204107002, 1204107003

## Results by SW9060A-Mod

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Organic Carbon	0.0250U	0.0500	0.0150	%

## Batch Information

Analytical Batch: WTC3027  
Analytical Method: SW9060A-Mod  
Instrument: TOC Analyzer 2  
Analyst: EWW  
Analytical Date/Time: 8/15/2020 2:44:42PM

Prep Batch: WXX13402  
Prep Method: METHOD  
Prep Date/Time: 8/15/2020 10:30:00AM  
Prep Initial Wt./Vol.: 500 mg  
Prep Extract Vol: 1 mL

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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204107 [WXX13402]  
 Blank Spike Lab ID: 1574912  
 Date Analyzed: 08/15/2020 14:59

Spike Duplicate ID: LCSD for HBN 1204107 [WXX13402]  
 Spike Duplicate Lab ID: 1574913  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204107001, 1204107002, 1204107003

## Results by SW9060A-Mod

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	3.35	3.21	96	3.35	3.18	95	( 75-125 )	0.94	(< 25 )

## Batch Information

Analytical Batch: **WTC3027**  
 Analytical Method: **SW9060A-Mod**  
 Instrument: **TOC Analyzer 2**  
 Analyst: **EWV**

Prep Batch: **WXX13402**  
 Prep Method: **METHOD**  
 Prep Date/Time: **08/15/2020 10:30**  
 Spike Init Wt./Vol.: 3.35 % Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 3.35 % Extract Vol: 1 mL

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## Matrix Spike Summary

Original Sample ID: 1204074006  
 MS Sample ID: 1574914 MS  
 MSD Sample ID:

Analysis Date: 08/15/2020 15:20  
 Analysis Date: 08/15/2020 15:28  
 Analysis Date:  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204107001, 1204107002, 1204107003

## Results by SW9060A-Mod

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Total Organic Carbon	45.1	14.1	57.0	85			75-125			

## Batch Information

Analytical Batch: WTC3027  
 Analytical Method: SW9060A-Mod  
 Instrument: TOC Analyzer 2  
 Analyst: EWW  
 Analytical Date/Time: 8/15/2020 3:28:50PM

Prep Batch: WXX13402  
 Prep Method: TOC Soils Prep (S)  
 Prep Date/Time: 8/15/2020 10:30:00AM  
 Prep Initial Wt./Vol.: 44.70mg  
 Prep Extract Vol: 1.00mL

DRAFT

## Method Blank

Blank ID: MB for HBN 1810653 [XXX/43711]  
Blank Lab ID: 1576257

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204107001, 1204107002, 1204107003

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	10.0U	20.0	6.20	mg/kg
<b>Surrogates</b>				
5a Androstane (surr)	106	60-120		%

## Batch Information

Analytical Batch: XFC15711  
Analytical Method: AK102  
Instrument: Agilent 7890B R  
Analyst: CDM  
Analytical Date/Time: 8/31/2020 6:08:00AM

Prep Batch: XXX43711  
Prep Method: SW3550C  
Prep Date/Time: 8/21/2020 1:45:08PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 5 mL

DRAFT

Print Date: 09/03/2020 9:49:58AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204107 [XXX43711]  
 Blank Spike Lab ID: 1576258  
 Date Analyzed: 08/31/2020 06:18

Spike Duplicate ID: LCSD for HBN 1204107  
 [XXX43711]  
 Spike Duplicate Lab ID: 1576259  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204107001, 1204107002, 1204107003

## Results by AK102

Parameter	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)			CL	RPD (%)	RPD CL	
	Spike	Result	Rec (%)	Spike	Result	Rec (%)				
Diesel Range Organics	833	788	95	833	733	88	( 75-125 )	7.30	(< 20 )	
<b>Surrogates</b>										
5a Androstane (surr)	16.7	122	122	* 16.7	113	113	( 60-120 )	8.10		

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK102  
 Instrument: Agilent 7890B R  
 Analyst: CDM

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/2020 13:45  
 Spike Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL

DRAFT

## Method Blank

Blank ID: MB for HBN 1810653 [XXX/43711]  
Blank Lab ID: 1576257

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1204107001, 1204107002, 1204107003

## Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	50.0U	100	43.0	mg/kg
<b>Surrogates</b>				
n-Triacontane-d62 (surr)	103	60-120		%

## Batch Information

Analytical Batch: XFC15711  
Analytical Method: AK103  
Instrument: Agilent 7890B R  
Analyst: CDM  
Analytical Date/Time: 8/31/2020 6:08:00AM

Prep Batch: XXX43711  
Prep Method: SW3550C  
Prep Date/Time: 8/21/2020 1:45:08PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 5 mL

DRAFT

Print Date: 09/03/2020 9:50:03AM



## Blank Spike Summary

Blank Spike ID: LCS for HBN 1204107 [XXX43711]  
 Blank Spike Lab ID: 1576258  
 Date Analyzed: 08/31/2020 06:18

Spike Duplicate ID: LCSD for HBN 1204107  
 [XXX43711]  
 Spike Duplicate Lab ID: 1576259  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1204107001, 1204107002, 1204107003

## Results by AK103

Parameter	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	833	763	92	833	705	85	( 60-120 )	7.90	(< 20 )
<b>Surrogates</b>									
n-Triacontane-d62 (surr)	16.7	110	110	16.7	106	106	( 60-120 )	3.30	

## Batch Information

Analytical Batch: XFC15711  
 Analytical Method: AK103  
 Instrument: Agilent 7890B R  
 Analyst: CDM

Prep Batch: XXX43711  
 Prep Method: SW3550C  
 Prep Date/Time: 08/21/2020 13:45  
 Spike Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 833 mg/kg Extract Vol: 5 mL

DRAFT



SGS North America Inc.  
CHAIN OF CUSTODY RECORD

1204107



www.us.sgs.com

**CLIENT:** RSE

**CONTACT:** Kyle Wiseman  
PHONE #: 278-1023

**PROJECT NAME:** CRW Postmark  
PWSID/PERMIT#: 20-2176

**REPORTS TO:** RSE  
E-MAIL: kwise@reter.sc.camp

**INVOICE TO:** RSE  
Profile #: kwise@reter.sc.camp  
QUOTE #: #364021 SAD  
P.O. #: #364021 SAD

**Instructions:** Samples must be filled out. Omissions may delay the onset of analysis.

Section 1

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/MATRIX CODE	CONTAINERS				Analysis*	REMARKS/LOC ID
					Comp Grab	MI (Multi-incremental)	MI	MI		
(1AC)	T2-01A	8/11/2020	10:35	SOIL	X	X	X	X	Soil BTEX	NOTE: *The following analyses require specific method and/or compound list: BTEX, Metals, PFAS HOLD FOR BTEX
(2AC)	T2-01B	8/11/2020	10:50	SOIL	X	X	X	X		
(3AC)	T2-03A	8/11/2020	11:30	SOIL	X	X	X	X		
(4A)	T2-X	8/11/2020	10:40	SOIL	X	X	X	X		
(5A)										

Section 2

Section 3

Section 4

Section 5

Temp Blank °C: 30 D50  
or Ambient [ ]

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Delivery Method: Hand Delivery [ ] Commercial Delivery [ ]

Requested Turnaround Time and/or Special Instructions: REGULAR

Relinquished By: (1) [Signature] Date: 8/11/20 Time: 12:50 Received By: [Signature] Date: 8/11/20 Time: 13:17

Relinquished By: (2) [Signature] Date: 8/11/20 Time: 12:50 Received By: [Signature] Date: 8/11/20 Time: 13:17

Relinquished By: (3) [Signature] Date: 8/11/20 Time: 13:17 Received By: [Signature] Date: 8/11/20 Time: 13:17

Relinquished By: (4) [Signature] Date: 8/11/20 Time: 13:17 Received By: [Signature] Date: 8/11/20 Time: 13:17

Page 1 of 1

http://www.sgs.com/terms-and-conditions



e-Sample Receipt Form

SGS Workorder #:

1204107

1204107

Review Criteria		Condition (Yes, No, N/A)	Exceptions Noted below	
<b>Chain of Custody / Temperature Requirements</b>			<b>Yes</b>	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location		N/A		
COC accompanied samples?		Yes		
DOD: Were samples received in COC corresponding coolers?		N/A		
<input checked="" type="checkbox"/> <b>Yes</b> **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required Temperature blank compliant* (i.e., 0-6 °C after CF)?		Yes	Cooler ID: 1	@ 3.0 °C Therm. ID: D50
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.			Cooler ID:	@ °C Therm. ID:
			Cooler ID:	@ °C Therm. ID:
			Cooler ID:	@ °C Therm. ID:
			Cooler ID:	@ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?		N/A		
If <0°C, were sample containers ice free?		N/A		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.				
<b>Holding Time / Documentation / Sample Condition Requirements</b>		Note: Refer to form F-083 "Sample Guide" for specific holding times.		
Were samples received within holding time?		Yes		
Do samples <b>match COC</b> ** (i.e., sample IDs, dates/times collected)? **Note: If times differ <1hr, record details & login per COC. ***Note: If sample information on containers differs from COC, SGS will default to COC information		Yes		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)		Yes		
Were proper containers (type/mass/volume/preservative***) used?		Yes	N/A	***Exemption permitted for metals (e.g.200.8/6020A).
<b>Volatile / LL-Hg Requirements</b>				
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?		Yes		
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?		N/A		
Were all soil VOAs field extracted with MeOH+BFB?		Yes		
<b>Note to Client:</b> Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.				
Additional notes (if applicable):				

## Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1204107001-A	No Preservative Required	OK			
1204107001-B	Methanol field pres. 4 C	OK			
1204107001-C	No Preservative Required	OK			
1204107002-A	No Preservative Required	OK			
1204107002-B	Methanol field pres. 4 C	OK			
1204107002-C	No Preservative Required	OK			
1204107003-A	No Preservative Required	OK			
1204107003-B	Methanol field pres. 4 C	OK			
1204107003-C	No Preservative Required	OK			
1204107004-A	No Preservative Required	OK			
1204107005-A	Methanol field pres. 4 C	OK			

DRAFT

### Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

- OK - The container was received at an acceptable pH for the analysis requested.
- BU - The container was received with headspace greater than 6mm.
- DM - The container was received damaged.
- FR - The container was received frozen and not usable for Bacteria or BOD analyses.
- IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
- NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
- PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
- PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
- QN - Insufficient sample quantity provided.

The results set forth herein are provided by SGS North America Inc.

*e-Hardcopy 2.0*  
*Automated Report*

## Technical Report for

SGS North America, Inc

1204107

SGS Job Number: FA77769

Sampling Date: 08/11/20

Report to:

SGS North America, Inc  
200 W Potter Dr  
Anchorage, AK 99518  
julie.shumway@sgs.com

ATTN: Julie Shumway

Total number of pages in report: **31**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Norm Farmer  
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001)  
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),  
AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Test results relate only to samples analyzed.

# Table of Contents

-1-

<b>Section 1: Sample Summary</b> .....	<b>3</b>
<b>Section 2: Case Narrative/Conformance Summary</b> .....	<b>4</b>
<b>Section 3: Summary of Hits</b> .....	<b>6</b>
<b>Section 4: Sample Results</b> .....	<b>7</b>
<b>4.1:</b> FA77769-1: T2-01A .....	8
<b>4.2:</b> FA77769-2: T2-01B .....	10
<b>4.3:</b> FA77769-3: T2-03A .....	12
<b>4.4:</b> FA77769-4: T2-X .....	14
<b>Section 5: Misc. Forms</b> .....	<b>16</b>
<b>5.1:</b> Chain of Custody .....	17
<b>5.2:</b> QC Evaluation: DOD QSM5.x Limits .....	19
<b>Section 6: MS Semi-volatiles - QC Data Summaries</b> .....	<b>22</b>
<b>6.1:</b> Method Blank Summary .....	23
<b>6.2:</b> Blank Spike Summary .....	28
<b>6.3:</b> Matrix Spike/Matrix Spike Duplicate Summary .....	30

DRAFT



### Sample Summary

SGS North America, Inc  
1204107

Job No: FA77769

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FA77769-1	08/11/20	10:35	08/13/20	SO	Soil	T2-01A
FA77769-2	08/11/20	10:50	08/13/20	SO	Soil	T2-01B
FA77769-3	08/11/20	11:30	08/13/20	SO	Soil	T2-03A
FA77769-4	08/11/20	10:40	08/13/20	SO	Soil	T2-X

DRAFT

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Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** SGS North America, Inc

**Job No:** FA77769

**Site:** 1204107

**Report Date** 8/28/2020 12:29:17

4 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 08/11/2020 and were received at SGS North America Inc - Orlando on 08/13/2020 properly preserved, at 3 Deg. C and intact. These Samples received an SGS Orlando job number of FA77769. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### MS Semi-volatiles By Method EPA 537M QSM5.3 B-15

**Matrix:** SO

**Batch ID:** OP81627

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA77769-4MS, FA77769-4MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Recovery(s) for Perfluorooctanesulfonic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Matrix Spike Duplicate Recovery(s) for Perfluorooctanesulfonic acid are outside control limits. Probable cause is due to matrix interference.

Sample(s) FA77769-1, FA77769-2, FA77769-3, FA77769-4 have surrogates outside control limits.

FA77769-1: Dilution required due to matrix interference (ID recovery standard failure).

FA77769-1 for 4:2 Fluorotelomer sulfonate: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.

FA77769-1 for 13C2-4:2FTS: Outside control limits due to matrix interference.

FA77769-1 for 13C5-PFPeA: Outside control limits due to matrix interference.

FA77769-1 for 13C6-PFDA: Outside control limits due to matrix interference.

FA77769-1 for 13C8-FOSA: Outside control limits due to matrix interference.

FA77769-1 for 13C9-PFNA: Outside control limits due to matrix interference.

FA77769-1 for d3-MeFOSAA: Outside control limits due to matrix interference.

FA77769-1 for 13C5-PFHxA: Outside control limits due to matrix interference.

FA77769-1 for 13C4-PFHpA: Outside control limits due to matrix interference.

FA77769-1 for 13C2-PFTeDA: Outside control limits due to matrix interference.

FA77769-1 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77769-1 for 13C2-8:2FTS: Outside control limits due to matrix interference.

FA77769-1 for 13C7-PFUnDA: Outside control limits due to matrix interference.

FA77769-2 for 13C2-PFTeDA: Outside control limits due to matrix interference.

FA77769-2 for 13C8-FOSA: Outside control limits due to matrix interference.

FA77769-2 for d3-MeFOSAA: Outside control limits due to matrix interference.

FA77769-2: Dilution required due to matrix interference (ID recovery standard failure).

FA77769-2 for 13C6-PFDA: Outside control limits due to matrix interference.

FA77769-3 for 13C2-8:2FTS: Outside control limits due to matrix interference.

FA77769-3 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77769-3 for 13C2-PFTeDA: Outside control limits due to matrix interference.

FA77769-3 for 13C6-PFDA: Outside control limits due to matrix interference.

FA77769-3 for 13C7-PFUnDA: Outside control limits due to matrix interference.

FA77769-3 for 13C8-FOSA: Outside control limits due to matrix interference.

FA77769-3 for 13C9-PFNA: Outside control limits due to matrix interference.

FA77769-3 for d3-MeFOSAA: Outside control limits due to matrix interference.

FA77769-3 for PFOSA: Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.

FA77769-3: Dilution required due to matrix interference (ID recovery standard failure).

FA77769-4 for 13C2-8:2FTS: Outside control limits due to matrix interference.

FA77769-4 for 13C2-PFDoDA: Outside control limits due to matrix interference.

FA77769-4 for 13C2-PFTeDA: Outside control limits due to matrix interference.



FA77769-4 for 13C6-PFDA: Outside control limits due to matrix interference.  
 FA77769-4 for 13C7-PFUnDA: Outside control limits due to matrix interference.  
 FA77769-4 for 13C8-FOSA: Outside control limits due to matrix interference.  
 FA77769-4 for 13C8-FOSA: Outside control limits due to matrix interference.  
 FA77769-4 for d3-MeFOSAA: Outside control limits due to matrix interference.  
 FA77769-4 for PFOSA: Associated ID Standard outside control limits, Confirmed by batch QC.  
 FA77769-4: Dilution required due to matrix interference (ID recovery standard failure).  
 OP81627-MS for 13C7-PFUnDA: Outside control limits due to matrix interference.  
 OP81627-MS for 13C8-FOSA: Outside control limits due to matrix interference.  
 OP81627-MS for 13C6-PFDA: Outside control limits due to matrix interference.  
 OP81627-MS for 13C2-PFTeDA: Outside control limits due to matrix interference.  
 OP81627-MS for 13C2-PFDoDA: Outside control limits due to matrix interference.  
 OP81627-MS for 13C2-8:2FTS: Outside control limits due to matrix interference.  
 OP81627-MS for d3-MeFOSAA: Outside control limits due to matrix interference.  
 OP81627-MSD for 13C8-FOSA: Outside control limits due to matrix interference.  
 OP81627-MSD for 13C6-PFDA: Outside control limits due to matrix interference.  
 OP81627-MSD for 13C2-PFTeDA: Outside control limits due to matrix interference.  
 OP81627-MSD for 13C2-PFDoDA: Outside control limits due to matrix interference.  
 OP81627-MSD for 13C2-8:2FTS: Outside control limits due to matrix interference.  
 OP81627-MSD for 13C7-PFUnDA: Outside control limits due to matrix interference.  
 OP81627-MSD for d3-MeFOSAA: Outside control limits due to matrix interference.

**General Chemistry By Method SM19 2540G**

**Matrix:** SO **Batch ID:** GN85944

Sample(s) FA77773-1DUP were used as the QC samples for Solids, Percent.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

\_\_\_\_\_  
 Ariel Hartney, Client Services (*Signature on file*)

## Summary of Hits

**Job Number:** FA77769  
**Account:** SGS North America, Inc  
**Project:** 1204107  
**Collected:** 08/11/20



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
<b>FA77769-1</b>	<b>T2-01A</b>					
	Perfluorooctanoic acid	0.0017 J	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorohexanesulfonic acid	0.0063	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorooctanesulfonic acid	0.0743	0.0044	0.0022	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77769-2</b>	<b>T2-01B</b>					
	Perfluorooctanesulfonic acid	0.0056	0.0052	0.0026	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77769-3</b>	<b>T2-03A</b>					
	Perfluoropentanoic acid	0.00085 J	0.0029	0.0015	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorohexanoic acid	0.0011 J	0.0029	0.0015	mg/kg	EPA 537M QSM5.3 B-15
	Perfluoroheptanoic acid	0.0012 J	0.0029	0.0015	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorooctanoic acid	0.0011 J	0.0029	0.0015	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorohexanesulfonic acid	0.0055	0.0029	0.0015	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorooctanesulfonic acid	0.0095	0.0029	0.0015	mg/kg	EPA 537M QSM5.3 B-15
<b>FA77769-4</b>	<b>T2-X</b>					
	Perfluoropentanoic acid	0.0014 J	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorohexanoic acid	0.0022 J	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15
	Perfluoroheptanoic acid	0.0015 J	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorooctanoic acid	0.0017 J	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorononanoic acid	0.0012 J	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorohexanesulfonic acid	0.0069	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15
	Perfluorooctanesulfonic acid	0.0777	0.0035	0.0017	mg/kg	EPA 537M QSM5.3 B-15

Sample Results

Report of Analysis

DRAFT

# Report of Analysis

<b>Client Sample ID:</b> T2-01A	
<b>Lab Sample ID:</b> FA77769-1	<b>Date Sampled:</b> 08/11/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/13/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 20.9
<b>Project:</b> 1204107	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5129.D	1	08/21/20 22:11	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5080.D	10	08/21/20 02:30	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.19 g	1.0 ml
Run #2	2.19 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.0087	mg/kg	
307-24-4	Perfluorohexanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.0087	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0017	0.0044	0.0022	0.0011	mg/kg	J
375-95-1	Perfluorononanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
335-76-2	Perfluorodecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
307-55-1	Perfluorododecanoic acid <sup>c</sup>	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0063	0.0044	0.0022	0.0011	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0743	0.0044	0.0022	0.0011	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0022 U	0.0044	0.0022	0.0011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.044 U <sup>b</sup>	0.11	0.044	0.022	mg/kg	
2991-50-6	EtFOSAA	0.044 U <sup>b</sup>	0.11	0.044	0.022	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate <sup>c</sup>	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0022 U	0.0044	0.0022	0.0011	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T2-01A	
<b>Lab Sample ID:</b> FA77769-1	<b>Date Sampled:</b> 08/11/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/13/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 20.9
<b>Project:</b> 1204107	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.022 U <sup>b</sup>	0.044	0.022	0.011	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		56%	54%	50-150%
13C5-PFPeA		47% <sup>d</sup>	53%	50-150%
13C5-PFHxA		48% <sup>d</sup>	54%	50-150%
13C4-PFHpA		48% <sup>d</sup>	55%	50-150%
13C8-PFOA		51%	58%	50-150%
13C9-PFNA		46% <sup>d</sup>	56%	50-150%
13C6-PFDA		37% <sup>d</sup>	55%	50-150%
13C7-PFUnDA		38% <sup>d</sup>	50%	50-150%
13C2-PFDoDA		28% <sup>d</sup>	49% <sup>d</sup>	50-150%
13C2-PFTeDA		44% <sup>d</sup>	50%	50-150%
13C3-PFBS		53%	58%	50-150%
13C3-PFHxS		55%	55%	50-150%
13C8-PFOS		56%	56%	50-150%
13C8-FOSA		19% <sup>d</sup>	48% <sup>d</sup>	50-150%
d3-MeFOSAA		38% <sup>d</sup>	54%	50-150%
13C2-4:2FTS		48% <sup>d</sup>	49% <sup>d</sup>	50-150%
13C2-6:2FTS		53%	55%	50-150%
13C2-8:2FTS		42% <sup>d</sup>	52%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T2-01B	
<b>Lab Sample ID:</b> FA77769-2	<b>Date Sampled:</b> 08/11/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/13/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 16.6
<b>Project:</b> 1204107	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5130.D	1	08/21/20 22:26	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5081.D	10	08/21/20 02:46	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.33 g	1.0 ml
Run #2	2.33 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0026 U	0.0052	0.0026	0.0010	mg/kg	
307-24-4	Perfluorohexanoic acid	0.0026 U	0.0052	0.0026	0.0010	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
335-67-1	Perfluorooctanoic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
375-95-1	Perfluorononanoic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
335-76-2	Perfluorodecanoic acid	0.026 U <sup>b</sup>	0.052	0.026	0.013	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
307-55-1	Perfluorododecanoic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.026 U <sup>b</sup>	0.052	0.026	0.013	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.026 U <sup>b</sup>	0.052	0.026	0.013	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0056	0.0052	0.0026	0.0013	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA	0.026 U <sup>b</sup>	0.052	0.026	0.013	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.052 U <sup>b</sup>	0.13	0.052	0.026	mg/kg	
2991-50-6	EtFOSAA	0.052 U <sup>b</sup>	0.13	0.052	0.026	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0026 U	0.0052	0.0026	0.0013	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0026 U	0.0052	0.0026	0.0013	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T2-01B	
<b>Lab Sample ID:</b> FA77769-2	<b>Date Sampled:</b> 08/11/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/13/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 16.6
<b>Project:</b> 1204107	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.0026 U	0.0052	0.0026	0.0013	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		68%	68%	50-150%
13C5-PFPeA		63%	66%	50-150%
13C5-PFHxA		66%	69%	50-150%
13C4-PFHpA		64%	70%	50-150%
13C8-PFOA		66%	73%	50-150%
13C9-PFNA		60%	69%	50-150%
13C6-PFDA		48% <sup>c</sup>	68%	50-150%
13C7-PFUnDA		50%	62%	50-150%
13C2-PFDoDA		51%	65%	50-150%
13C2-PFTeDA		49% <sup>c</sup>	61%	50-150%
13C3-PFBS		72%	74%	50-150%
13C3-PFHxS		72%	75%	50-150%
13C8-PFOS		69%	71%	50-150%
13C8-FOSA		26% <sup>c</sup>	55%	50-150%
d3-MeFOSAA		48% <sup>c</sup>	64%	50-150%
13C2-4:2FTS		64%	65%	50-150%
13C2-6:2FTS		68%	69%	50-150%
13C2-8:2FTS		53%	65%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T2-03A	
<b>Lab Sample ID:</b> FA77769-3	<b>Date Sampled:</b> 08/11/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/13/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 28.5
<b>Project:</b> 1204107	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5131.D	1	08/21/20 22:42	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5082.D	10	08/21/20 03:01	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.40 g	1.0 ml
Run #2	2.40 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0015 U	0.0029	0.0015	0.00073	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00085	0.0029	0.0015	0.00058	mg/kg	J
307-24-4	Perfluorohexanoic acid	0.0011	0.0029	0.0015	0.00058	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.0012	0.0029	0.0015	0.00073	mg/kg	J
335-67-1	Perfluorooctanoic acid	0.0011	0.0029	0.0015	0.00073	mg/kg	J
375-95-1	Perfluorononanoic acid	0.015 U <sup>b</sup>	0.029	0.015	0.0073	mg/kg	
335-76-2	Perfluorodecanoic acid	0.015 U <sup>b</sup>	0.029	0.015	0.0073	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.015 U <sup>b</sup>	0.029	0.015	0.0073	mg/kg	
307-55-1	Perfluorododecanoic acid	0.015 U <sup>b</sup>	0.029	0.015	0.0073	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.015 U <sup>b</sup>	0.029	0.015	0.0073	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.015 U <sup>b</sup>	0.029	0.015	0.0073	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0015 U	0.0029	0.0015	0.00073	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0015 U	0.0029	0.0015	0.00073	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0055	0.0029	0.0015	0.00073	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0015 U	0.0029	0.0015	0.00073	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0095	0.0029	0.0015	0.00073	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0015 U	0.0029	0.0015	0.00073	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0015 U	0.0029	0.0015	0.00073	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.015 U <sup>b</sup>	0.029	0.015	0.0073	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.029 U <sup>b</sup>	0.073	0.029	0.015	mg/kg	
2991-50-6	EtFOSAA	0.029 U <sup>b</sup>	0.073	0.029	0.015	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0015 U	0.0029	0.0015	0.00073	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0015 U	0.0029	0.0015	0.00073	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



# Report of Analysis

<b>Client Sample ID:</b> T2-03A	
<b>Lab Sample ID:</b> FA77769-3	<b>Date Sampled:</b> 08/11/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/13/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 28.5
<b>Project:</b> 1204107	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.015 U <sup>b</sup>	0.029	0.015	0.0073	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		64%	63%	50-150%
13C5-PFPeA		59%	61%	50-150%
13C5-PFHxA		58%	62%	50-150%
13C4-PFHpA		55%	63%	50-150%
13C8-PFOA		55%	65%	50-150%
13C9-PFNA		47% <sup>d</sup>	61%	50-150%
13C6-PFDA		41% <sup>d</sup>	62%	50-150%
13C7-PFUnDA		40% <sup>d</sup>	57%	50-150%
13C2-PFDoDA		39% <sup>d</sup>	58%	50-150%
13C2-PFTeDA		28% <sup>d</sup>	55%	50-150%
13C3-PFBS		67%	67%	50-150%
13C3-PFHxS		64%	67%	50-150%
13C8-PFOS		58%	66%	50-150%
13C8-FOSA		18% <sup>d</sup>	49% <sup>d</sup>	50-150%
d3-MeFOSAA		44% <sup>d</sup>	55%	50-150%
13C2-4:2FTS		58%	60%	50-150%
13C2-6:2FTS		58%	64%	50-150%
13C2-8:2FTS		46% <sup>d</sup>	65%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits due to matrix interference. Confirmed by reanalysis.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b> T2-X		
<b>Lab Sample ID:</b> FA77769-4		<b>Date Sampled:</b> 08/11/20
<b>Matrix:</b> SO - Soil		<b>Date Received:</b> 08/13/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE		<b>Percent Solids:</b> 23.9
<b>Project:</b> 1204107		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q5132.D	1	08/21/20 22:57	NG	08/19/20 11:00	OP81627	S4Q71
Run #2 <sup>a</sup>	4Q5083.D	10	08/21/20 03:17	NAF	08/19/20 11:00	OP81627	S4Q70

	Initial Weight	Final Volume
Run #1	2.41 g	1.0 ml
Run #2	2.41 g	1.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
<b>PERFLUOROALKYL CARBOXYLIC ACIDS</b>							
375-22-4	Perfluorobutanoic acid	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.0014	0.0035	0.0017	0.00069	mg/kg	J
307-24-4	Perfluorohexanoic acid	0.0022	0.0035	0.0017	0.00069	mg/kg	J
375-85-9	Perfluoroheptanoic acid	0.0015	0.0035	0.0017	0.00087	mg/kg	J
335-67-1	Perfluorooctanoic acid	0.0017	0.0035	0.0017	0.00087	mg/kg	J
375-95-1	Perfluorononanoic acid	0.0012	0.0035	0.0017	0.00087	mg/kg	J
335-76-2	Perfluorodecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
307-55-1	Perfluorododecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
<b>PERFLUOROALKYLSULFONATES</b>							
375-73-5	Perfluorobutanesulfonic acid	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.0069	0.0035	0.0017	0.00087	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.0777	0.0035	0.0017	0.00087	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDES</b>							
754-91-6	PFOSA <sup>c</sup>	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	
<b>PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS</b>							
2355-31-9	MeFOSAA	0.035 U <sup>b</sup>	0.087	0.035	0.017	mg/kg	
2991-50-6	EtFOSAA	0.035 U <sup>b</sup>	0.087	0.035	0.017	mg/kg	
<b>FLUOROTELOMER SULFONATES</b>							
757124-72-4	4:2 Fluorotelomer sulfonate	0.0017 U	0.0035	0.0017	0.00087	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0017 U	0.0035	0.0017	0.00087	mg/kg	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

<b>Client Sample ID:</b> T2-X	
<b>Lab Sample ID:</b> FA77769-4	<b>Date Sampled:</b> 08/11/20
<b>Matrix:</b> SO - Soil	<b>Date Received:</b> 08/13/20
<b>Method:</b> EPA 537M QSM5.3 B-15 IN HOUSE	<b>Percent Solids:</b> 23.9
<b>Project:</b> 1204107	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.017 U <sup>b</sup>	0.035	0.017	0.0087	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
13C4-PFBA		61%	61%	50-150%
13C5-PFPeA		50%	59%	50-150%
13C5-PFHxA		51%	62%	50-150%
13C4-PFHpA		51%	62%	50-150%
13C8-PFOA		55%	65%	50-150%
13C9-PFNA		51%	62%	50-150%
13C6-PFDA		41% <sup>d</sup>	62%	50-150%
13C7-PFUnDA		44% <sup>d</sup>	55%	50-150%
13C2-PFDoDA		34% <sup>d</sup>	52%	50-150%
13C2-PFTeDA		25% <sup>d</sup>	50%	50-150%
13C3-PFBS		56%	63%	50-150%
13C3-PFHxS		59%	67%	50-150%
13C8-PFOS		61%	61%	50-150%
13C8-FOSA		15% <sup>d</sup>	44% <sup>d</sup>	50-150%
d3-MeFOSAA		38% <sup>d</sup>	53%	50-150%
13C2-4:2FTS		53%	59%	50-150%
13C2-6:2FTS		57%	62%	50-150%
13C2-8:2FTS		40% <sup>d</sup>	58%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run# 2
- (c) Associated ID Standard outside control limits, Confirmed by batch QC.
- (d) Outside control limits due to matrix interference.

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

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FA77769

SGS North America Inc.  
CHAIN OF CUSTODY RECORD



Locations Nationwide  
Alaska Florida  
New Jersey Colorado  
Texas North Carolina  
Virginia Louisiana  
[www.us.sgs.com](http://www.us.sgs.com)

CLIENT: SGS North America Inc. - Alaska Division				SGS Reference: <b>SGS Orlando, FL</b>				Page 1 of 1		
CONTACT: Julie Shumway		PHONE NO: (907) 562-2343		Additional Comments: All soils report out in dry weight unless						
PROJECT NAME: 1204107		PWSID#: _____		CONTAINER #	Preservative Used: NONE	EPA 537 PFAS 24	MS	MSD	SGS lab #	Location ID
REPORTS TO: Julie Shumway		E-MAIL: Julie.Shumway@sgs.com								
INVOICE TO: SGS - Alaska		QUOTE #: _____								
		P.O. #: 1204107								
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/MATRIX CODE	#	MS	MSD	SGS lab #	Location ID	
1	T2-01A	08/11/2020	10:35:00	SO 1	1	X		1204107001		
2	T2-01B	08/11/2020	10:50:00	SO 1	1	X		1204107002		
3	T2-03A	08/11/2020	11:30:00	SO 1	1	X		1204107003		
4	T2-X	08/11/2020	10:40:00	SO 1	1	X		1204107004		
Relinquished By: (1)				Date	Time	Received By:	DOD Project?	YES	Data Deliverable Requirements:	
<i>J. Shumway</i>				8/12/20	0929	Fedex	Report to DL (J Flags)?	YES	QC2	
Relinquished By: (2)				Date	Time	Received By:	Cooler ID:	Requested Turnaround Time and-or Special Instructions:		
Fedex				8/13/20	945	<i>Wm. [Signature]</i>				
Relinquished By: (3)				Date	Time	Received By:	Temp Blank °C:	Chain of Custody Seal: (Circle)		
							3.0	INTACT <input type="checkbox"/> BROKEN <input type="checkbox"/> ABSENT <input type="checkbox"/>		
Relinquished By: (4)				Date	Time	Received For Laboratory By:	or Ambient [ ]			

INITIAL ASSESSMENT *EG*  
LABEL VERIFICATION *JK*

[ X 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301  
[ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

[http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)

F088\_COC\_REF\_LAB\_20190411

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## SGS Sample Receipt Summary

Job Number: FA77769

Client: SGS NORTH AMERICA, INC. - ALASKA DI

Project: 1204107

Date / Time Received: 8/13/2020 9:45:00 AM

Delivery Method: FEDEX

Airbill #'s: 148348008387

Therm ID: IR 1;

Therm CF: -0.2;

# of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.2);

Cooler Temps (Corrected) °C: Cooler 1: (3.0);

**Cooler Information**

	Y	or	N
1. Custody Seals Present	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Temp criteria achieved	<input checked="" type="checkbox"/>		<input type="checkbox"/>
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

**Sample Information**

	Y	or	N	N/A
1. Sample labels present on bottles	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Samples preserved properly	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
3. Sufficient volume/containers recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Condition of sample	Intact			
5. Sample recvd within HT	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
6. Dates/Times/IDs on COC match Sample Label	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
7. VOCs have headspace	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
9. Compositing instructions clear	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Voa Soil Kits/Jars received past 48hrs?	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. % Solids Jar received?	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Residual Chlorine Present?	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Trip Blank Information**

	Y	or	N	N/A
1. Trip Blank present / cooler	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
	W	or	S	N/A
3. Type Of TB Received	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Misc. Information**

Number of Encores: 25-Gram \_\_\_\_\_ 5-Gram \_\_\_\_\_ Number of 5035 Field Kits: \_\_\_\_\_ Number of Lab Filtered Metals: \_\_\_\_\_  
 Test Strip Lot #: pH 0-3 \_\_\_\_\_ 230315 \_\_\_\_\_ pH 10-12 \_\_\_\_\_ 219813A \_\_\_\_\_ Other: (Specify) \_\_\_\_\_  
 Residual Chlorine Test Strip Lot #: \_\_\_\_\_

Comments

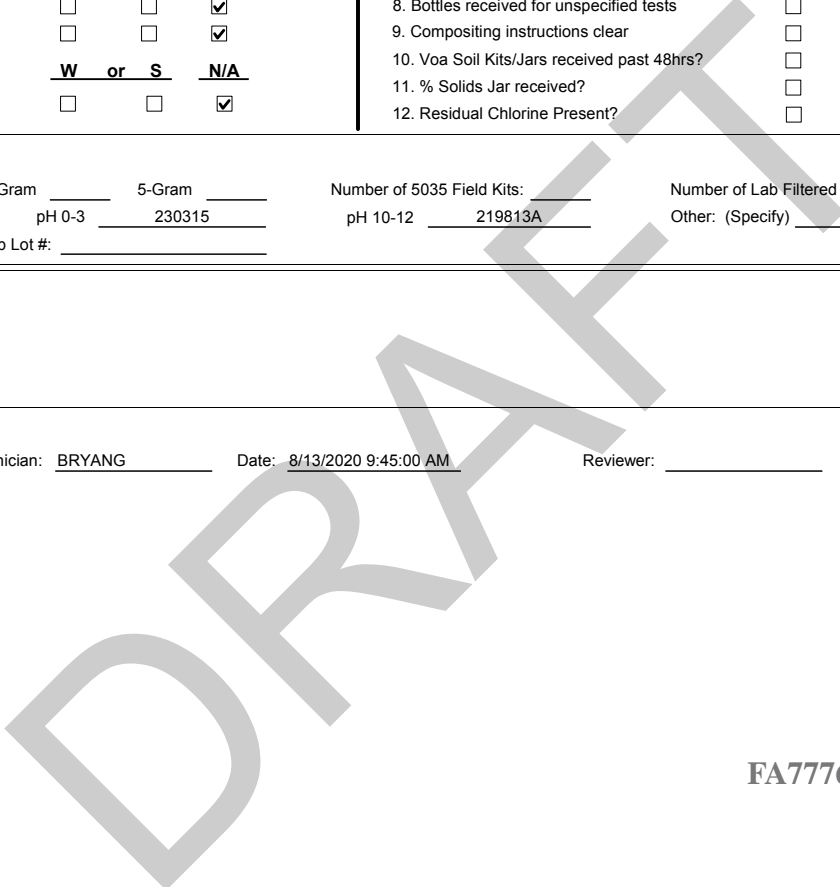
SM001  
Rev. Date 05/24/17

Technician: BRYANG

Date: 8/13/2020 9:45:00 AM

Reviewer: \_\_\_\_\_

Date: \_\_\_\_\_



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FA77769: Chain of Custody

Page 2 of 2

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77769  
**Account:** SGS North America, Inc  
**Project:** 1204107  
**Collected:** 08/11/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
--------------	------	---------	-------------	-------------	--------	-------	--------

OP81627 EPA 537M QSM5.3 B-15

OP81627-BS	375-22-4	Perfluorobutanoic acid	BSP	REC	93	%	71-135
OP81627-BS	2706-90-3	Perfluoropentanoic acid	BSP	REC	86	%	69-132
OP81627-BS	307-24-4	Perfluorohexanoic acid	BSP	REC	87	%	70-132
OP81627-BS	375-85-9	Perfluoroheptanoic acid	BSP	REC	89	%	71-131
OP81627-BS	335-67-1	Perfluorooctanoic acid	BSP	REC	93	%	69-133
OP81627-BS	375-95-1	Perfluorononanoic acid	BSP	REC	87	%	72-129
OP81627-BS	335-76-2	Perfluorodecanoic acid	BSP	REC	88	%	69-133
OP81627-BS	2058-94-8	Perfluoroundecanoic acid	BSP	REC	88	%	64-136
OP81627-BS	307-55-1	Perfluorododecanoic acid	BSP	REC	88	%	69-135
OP81627-BS	72629-94-8	Perfluorotridecanoic acid	BSP	REC	88	%	66-139
OP81627-BS	376-06-7	Perfluorotetradecanoic acid	BSP	REC	85	%	69-133
OP81627-BS	375-73-5	Perfluorobutanesulfonic acid	BSP	REC	91	%	72-128
OP81627-BS	2706-91-4	Perfluoropentanesulfonic acid	BSP	REC	81	%	73-123
OP81627-BS	355-46-4	Perfluorohexanesulfonic acid	BSP	REC	85	%	67-130
OP81627-BS	375-92-8	Perfluoroheptanesulfonic acid	BSP	REC	93	%	70-132
OP81627-BS	1763-23-1	Perfluorooctanesulfonic acid	BSP	REC	85	%	67-136
OP81627-BS	68259-12-1	Perfluorononanesulfonic acid	BSP	REC	87	%	69-125
OP81627-BS	335-77-3	Perfluorodecanesulfonic acid	BSP	REC	87	%	59-134
OP81627-BS	754-91-6	PFOSA	BSP	REC	86	%	67-137
OP81627-BS	2355-31-9	MeFOSAA	BSP	REC	94	%	63-144
OP81627-BS	2991-50-6	EtFOSAA	BSP	REC	86	%	61-139
OP81627-BS	757124-72-4	4:2 Fluorotelomer sulfonate	BSP	REC	95	%	62-145
OP81627-BS	27619-97-2	6:2 Fluorotelomer sulfonate	BSP	REC	96	%	64-140
OP81627-BS	39108-34-4	8:2 Fluorotelomer sulfonate	BSP	REC	97	%	65-137
OP81627-MS	375-22-4	Perfluorobutanoic acid	MS	REC	100	%	71-135
OP81627-MS	2706-90-3	Perfluoropentanoic acid	MS	REC	94	%	69-132
OP81627-MS	307-24-4	Perfluorohexanoic acid	MS	REC	92	%	70-132
OP81627-MS	375-85-9	Perfluoroheptanoic acid	MS	REC	98	%	71-131
OP81627-MS	335-67-1	Perfluorooctanoic acid	MS	REC	103	%	69-133
OP81627-MS	375-95-1	Perfluorononanoic acid	MS	REC	91	%	72-129
OP81627-MS	335-76-2	Perfluorodecanoic acid	MS	REC	91	%	69-133
OP81627-MS	2058-94-8	Perfluoroundecanoic acid	MS	REC	94	%	64-136
OP81627-MS	307-55-1	Perfluorododecanoic acid	MS	REC	96	%	69-135
OP81627-MS	72629-94-8	Perfluorotridecanoic acid	MS	REC	86	%	66-139
OP81627-MS	376-06-7	Perfluorotetradecanoic acid	MS	REC	92	%	69-133
OP81627-MS	375-73-5	Perfluorobutanesulfonic acid	MS	REC	100	%	72-128
OP81627-MS	2706-91-4	Perfluoropentanesulfonic acid	MS	REC	87	%	73-123
OP81627-MS	355-46-4	Perfluorohexanesulfonic acid	MS	REC	98	%	67-130
OP81627-MS	375-92-8	Perfluoroheptanesulfonic acid	MS	REC	107	%	70-132
OP81627-MS	1763-23-1	Perfluorooctanesulfonic acid	MS	REC	62 <sup>a</sup>	%	67-136
OP81627-MS	68259-12-1	Perfluorononanesulfonic acid	MS	REC	77	%	69-125
OP81627-MS	335-77-3	Perfluorodecanesulfonic acid	MS	REC	119	%	59-134

\* Sample used for QC is not from job FA77769

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77769  
**Account:** SGS North America, Inc  
**Project:** 1204107  
**Collected:** 08/11/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP81627-MS	754-91-6	PFOSA	MS	REC	96	%	67-137
OP81627-MS	2355-31-9	MeFOSAA	MS	REC	98	%	63-144
OP81627-MS	2991-50-6	EtFOSAA	MS	REC	97	%	61-139
OP81627-MS	757124-72-4	4:2 Fluorotelomer sulfonate	MS	REC	103	%	62-145
OP81627-MS	27619-97-2	6:2 Fluorotelomer sulfonate	MS	REC	105	%	64-140
OP81627-MS	39108-34-4	8:2 Fluorotelomer sulfonate	MS	REC	100	%	65-137
OP81627-MSD	375-22-4	Perfluorobutanoic acid	MSD	REC	99	%	71-135
OP81627-MSD	375-22-4	Perfluorobutanoic acid	MSD	RPD	5	%	30
OP81627-MSD	2706-90-3	Perfluoropentanoic acid	MSD	REC	93	%	69-132
OP81627-MSD	2706-90-3	Perfluoropentanoic acid	MSD	RPD	4	%	30
OP81627-MSD	307-24-4	Perfluorohexanoic acid	MSD	REC	91	%	70-132
OP81627-MSD	307-24-4	Perfluorohexanoic acid	MSD	RPD	4	%	30
OP81627-MSD	375-85-9	Perfluoroheptanoic acid	MSD	REC	96	%	71-131
OP81627-MSD	375-85-9	Perfluoroheptanoic acid	MSD	RPD	5	%	30
OP81627-MSD	335-67-1	Perfluorooctanoic acid	MSD	REC	103	%	69-133
OP81627-MSD	335-67-1	Perfluorooctanoic acid	MSD	RPD	3	%	30
OP81627-MSD	375-95-1	Perfluorononanoic acid	MSD	REC	91	%	72-129
OP81627-MSD	375-95-1	Perfluorononanoic acid	MSD	RPD	4	%	30
OP81627-MSD	335-76-2	Perfluorodecanoic acid	MSD	REC	88	%	69-133
OP81627-MSD	335-76-2	Perfluorodecanoic acid	MSD	RPD	8	%	30
OP81627-MSD	2058-94-8	Perfluoroundecanoic acid	MSD	REC	93	%	64-136
OP81627-MSD	2058-94-8	Perfluoroundecanoic acid	MSD	RPD	4	%	30
OP81627-MSD	307-55-1	Perfluorododecanoic acid	MSD	REC	95	%	69-135
OP81627-MSD	307-55-1	Perfluorododecanoic acid	MSD	RPD	4	%	30
OP81627-MSD	72629-94-8	Perfluorotridecanoic acid	MSD	REC	92	%	66-139
OP81627-MSD	72629-94-8	Perfluorotridecanoic acid	MSD	RPD	3	%	30
OP81627-MSD	376-06-7	Perfluorotetradecanoic acid	MSD	REC	92	%	69-133
OP81627-MSD	376-06-7	Perfluorotetradecanoic acid	MSD	RPD	3	%	30
OP81627-MSD	375-73-5	Perfluorobutanesulfonic acid	MSD	REC	100	%	72-128
OP81627-MSD	375-73-5	Perfluorobutanesulfonic acid	MSD	RPD	4	%	30
OP81627-MSD	2706-91-4	Perfluoropentanesulfonic acid	MSD	REC	86	%	73-123
OP81627-MSD	2706-91-4	Perfluoropentanesulfonic acid	MSD	RPD	5	%	30
OP81627-MSD	355-46-4	Perfluorohexanesulfonic acid	MSD	REC	103	%	67-130
OP81627-MSD	355-46-4	Perfluorohexanesulfonic acid	MSD	RPD	2	%	30
OP81627-MSD	375-92-8	Perfluoroheptanesulfonic acid	MSD	REC	107	%	70-132
OP81627-MSD	375-92-8	Perfluoroheptanesulfonic acid	MSD	RPD	3	%	30
OP81627-MSD	1763-23-1	Perfluorooctanesulfonic acid	MSD	REC	139 <sup>a</sup>	%	67-136
OP81627-MSD	1763-23-1	Perfluorooctanesulfonic acid	MSD	RPD	23	%	30
OP81627-MSD	68259-12-1	Perfluorononanesulfonic acid	MSD	REC	72	%	69-125
OP81627-MSD	68259-12-1	Perfluorononanesulfonic acid	MSD	RPD	9	%	30
OP81627-MSD	335-77-3	Perfluorodecanesulfonic acid	MSD	REC	120	%	59-134
OP81627-MSD	335-77-3	Perfluorodecanesulfonic acid	MSD	RPD	3	%	30
OP81627-MSD	754-91-6	PFOSA	MSD	REC	91	%	67-137
OP81627-MSD	754-91-6	PFOSA	MSD	RPD	9	%	30
OP81627-MSD	2355-31-9	MeFOSAA	MSD	REC	100	%	63-144

\* Sample used for QC is not from job FA77769

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# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FA77769  
**Account:** SGS North America, Inc  
**Project:** 1204107  
**Collected:** 08/11/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP81627-MSD	2355-31-9	MeFOSAA	MSD	RPD	1	%	30
OP81627-MSD	2991-50-6	EtFOSAA	MSD	REC	96	%	61-139
OP81627-MSD	2991-50-6	EtFOSAA	MSD	RPD	4	%	30
OP81627-MSD	757124-72-4	4:2 Fluorotelomer sulfonate	MSD	REC	102	%	62-145
OP81627-MSD	757124-72-4	4:2 Fluorotelomer sulfonate	MSD	RPD	4	%	30
OP81627-MSD	27619-97-2	6:2 Fluorotelomer sulfonate	MSD	REC	102	%	64-140
OP81627-MSD	27619-97-2	6:2 Fluorotelomer sulfonate	MSD	RPD	6	%	30
OP81627-MSD	39108-34-4	8:2 Fluorotelomer sulfonate	MSD	REC	101	%	65-137
OP81627-MSD	39108-34-4	8:2 Fluorotelomer sulfonate	MSD	RPD	3	%	30

(a) Outside control limits due to high level in sample relative to spike amount.

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\* Sample used for QC is not from job FA77769

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

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# Instrument Blank

**Job Number:** FA77769  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204107

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q70-IBLK	4Q5022.D	1	08/20/20	NAF	n/a	n/a	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77769-1, FA77769-2, FA77769-3, FA77769-4

CAS No.	Compound	Result	RL	MDL	Units	Q
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits	
	13C4-PFBA	104%	50-150%
	13C5-PFPeA	104%	50-150%
	13C5-PFHxA	105%	50-150%
	13C4-PFHpA	105%	50-150%
	13C8-PFOA	109%	50-150%
	13C9-PFNA	107%	50-150%
	13C6-PFDA	108%	50-150%
	13C7-PFUnDA	106%	50-150%
	13C2-PFDoDA	106%	50-150%
	13C2-PFTeDA	106%	50-150%
	13C3-PFBS	107%	50-150%
	13C3-PFHxS	103%	50-150%
	13C8-PFOS	103%	50-150%
	13C8-FOSA	113%	50-150%
	d3-MeFOSAA	105%	50-150%
	13C2-4:2FTS	94%	50-150%
	13C2-6:2FTS	98%	50-150%
	13C2-8:2FTS	95%	50-150%

# Instrument Blank

**Job Number:** FA77769  
**Account:** SGS/SGS North America, Inc  
**Project:** 1204107

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q71-IBLK	4Q5092.D	1	08/21/20	NG	n/a	n/a	S4Q71

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77769-1, FA77769-2, FA77769-3, FA77769-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.25	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 50-150%
	13C5-PFPeA	100% 50-150%
	13C5-PFHxA	102% 50-150%
	13C4-PFHpA	102% 50-150%
	13C8-PFOA	107% 50-150%
	13C9-PFNA	104% 50-150%
	13C6-PFDA	108% 50-150%
	13C7-PFUnDA	106% 50-150%
	13C2-PFDoDA	107% 50-150%
	13C2-PFTeDA	108% 50-150%
	13C3-PFBS	105% 50-150%
	13C3-PFHxS	103% 50-150%
	13C8-PFOS	103% 50-150%
	13C8-FOSA	107% 50-150%

# Instrument Blank

**Job Number:** FA77769  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204107

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q71-IBLK	4Q5092.D	1	08/21/20	NG	n/a	n/a	S4Q71

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77769-1, FA77769-2, FA77769-3, FA77769-4

CAS No.	ID Standard Recoveries	Limits
	d3-MeFOSAA	108% 50-150%
	13C2-4:2FTS	92% 50-150%
	13C2-6:2FTS	96% 50-150%
	13C2-8:2FTS	95% 50-150%

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# Method Blank Summary

**Job Number:** FA77769  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204107

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-MB	4Q5067.D	1	08/20/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77769-1, FA77769-2, FA77769-3, FA77769-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	0.38	1.0	0.25	ug/kg	J
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.20	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.20	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.25	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.25	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.25	ug/kg	
754-91-6	PFOSA	ND	1.0	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	2.5	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	2.5	0.50	ug/kg	
757124-72-44:2	Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	1.0	0.25	ug/kg	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	85% 50-150%
	13C5-PFPeA	90% 50-150%
	13C5-PFHxA	93% 50-150%
	13C4-PFHpA	93% 50-150%
	13C8-PFOA	100% 50-150%
	13C9-PFNA	96% 50-150%
	13C6-PFDA	97% 50-150%
	13C7-PFUnDA	93% 50-150%

# Method Blank Summary

**Job Number:** FA77769  
**Account:** SGS/SAKA SGS North America, Inc  
**Project:** 1204107

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-MB	4Q5067.D	1	08/20/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77769-1, FA77769-2, FA77769-3, FA77769-4

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	93% 50-150%
	13C2-PFTeDA	89% 50-150%
	13C3-PFBS	97% 50-150%
	13C3-PFHxS	97% 50-150%
	13C8-PFOS	94% 50-150%
	13C8-FOSA	93% 50-150%
	d3-MeFOSAA	98% 50-150%
	13C2-4:2FTS	86% 50-150%
	13C2-6:2FTS	91% 50-150%
	13C2-8:2FTS	87% 50-150%

DRINK

6.1.3  
6

# Blank Spike Summary

**Job Number:** FA77769  
**Account:** SGS/SAKA SGS North America, Inc  
**Project:** 1204107

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-BS	4Q5066.D	1	08/20/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77769-1, FA77769-2, FA77769-3, FA77769-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	9.3	93	71-135
2706-90-3	Perfluoropentanoic acid	10	8.6	86	69-132
307-24-4	Perfluorohexanoic acid	10	8.7	87	70-132
375-85-9	Perfluoroheptanoic acid	10	8.9	89	71-131
335-67-1	Perfluorooctanoic acid	10	9.3	93	69-133
375-95-1	Perfluorononanoic acid	10	8.7	87	72-129
335-76-2	Perfluorodecanoic acid	10	8.8	88	69-133
2058-94-8	Perfluoroundecanoic acid	10	8.8	88	64-136
307-55-1	Perfluorododecanoic acid	10	8.8	88	69-135
72629-94-8	Perfluorotridecanoic acid	10	8.8	88	66-139
376-06-7	Perfluorotetradecanoic acid	10	8.5	85	69-133
375-73-5	Perfluorobutanesulfonic acid	10	9.1	91	72-128
2706-91-4	Perfluoropentanesulfonic acid	10	8.1	81	73-123
355-46-4	Perfluorohexanesulfonic acid	10	8.5	85	67-130
375-92-8	Perfluoroheptanesulfonic acid	10	9.3	93	70-132
1763-23-1	Perfluorooctanesulfonic acid	10	8.5	85	67-136
68259-12-1	Perfluorononanesulfonic acid	10	8.7	87	69-125
335-77-3	Perfluorodecanesulfonic acid	10	8.7	87	59-134
754-91-6	PFOSA	10	8.6	86	67-137
2355-31-9	MeFOSAA	10	9.4	94	63-144
2991-50-6	EtFOSAA	10	8.6	86	61-139
757124-72-44:2	Fluorotelomer sulfonate	10	9.5	95	62-145
27619-97-2	6:2 Fluorotelomer sulfonate	10	9.6	96	64-140
39108-34-4	8:2 Fluorotelomer sulfonate	10	9.7	97	65-137

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	90%	50-150%
	13C5-PFPeA	95%	50-150%
	13C5-PFHxA	98%	50-150%
	13C4-PFHpA	97%	50-150%
	13C8-PFOA	103%	50-150%
	13C9-PFNA	99%	50-150%
	13C6-PFDA	101%	50-150%
	13C7-PFUnDA	97%	50-150%

\* = Outside of Control Limits.



# Blank Spike Summary

**Job Number:** FA77769  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204107

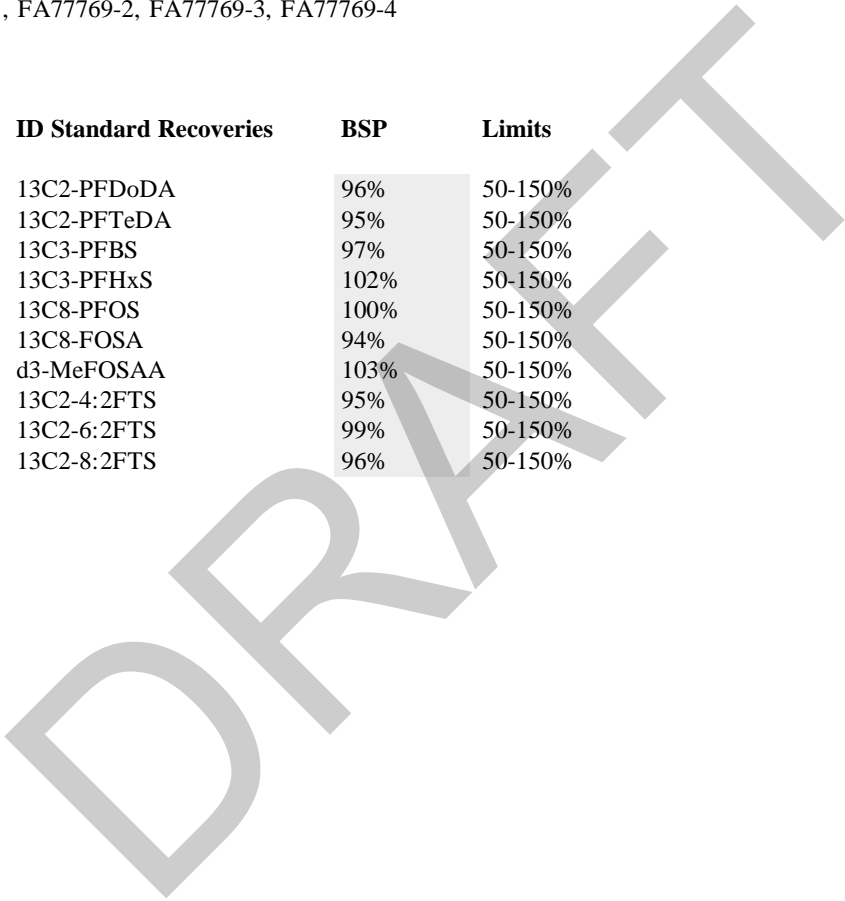
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-BS	4Q5066.D	1	08/20/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77769-1, FA77769-2, FA77769-3, FA77769-4

CAS No.	ID Standard Recoveries	BSP	Limits
	13C2-PFDoDA	96%	50-150%
	13C2-PFTeDA	95%	50-150%
	13C3-PFBS	97%	50-150%
	13C3-PFHxS	102%	50-150%
	13C8-PFOS	100%	50-150%
	13C8-FOSA	94%	50-150%
	d3-MeFOSAA	103%	50-150%
	13C2-4:2FTS	95%	50-150%
	13C2-6:2FTS	99%	50-150%
	13C2-8:2FTS	96%	50-150%



6.2.1  
6

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA77769  
**Account:** SGS/SAK/SGS North America, Inc  
**Project:** 1204107

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-MS	4Q5133.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
OP81627-MSD	4Q5134.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
FA77769-4	4Q5132.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
FA77769-4 <sup>a</sup>	4Q5083.D	10	08/21/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77769-1, FA77769-2, FA77769-3, FA77769-4

CAS No.	Compound	FA77769-4 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
375-22-4	Perfluorobutanoic acid	3.5 U		36.1	36.0	100	34.9	34.4	99	5	71-135/30
2706-90-3	Perfluoropentanoic acid	1.4	J	36.1	35.3	94	34.9	33.8	93	4	69-132/30
307-24-4	Perfluorohexanoic acid	2.2	J	36.1	35.5	92	34.9	34.0	91	4	70-132/30
375-85-9	Perfluoroheptanoic acid	1.5	J	36.1	36.7	98	34.9	34.8	96	5	71-131/30
335-67-1	Perfluorooctanoic acid	1.7	J	36.1	38.9	103	34.9	37.7	103	3	69-133/30
375-95-1	Perfluorononanoic acid	1.2	J	36.1	34.2	91	34.9	33.0	91	4	72-129/30
335-76-2	Perfluorodecanoic acid	35 U <sup>b</sup>		36.1	33.0	91	34.9	30.6	88	8	69-133/30
2058-94-8	Perfluoroundecanoic acid	35 U <sup>b</sup>		36.1	34.0	94	34.9	32.6	93	4	64-136/30
307-55-1	Perfluorododecanoic acid	35 U <sup>b</sup>		36.1	34.5	96	34.9	33.0	95	4	69-135/30
72629-94-8	Perfluorotridecanoic acid	35 U <sup>b</sup>		36.1	31.1	86	34.9	32.2	92	3	66-139/30
376-06-7	Perfluorotetradecanoic acid	35 U <sup>b</sup>		36.1	33.1	92	34.9	32.1	92	3	69-133/30
375-73-5	Perfluorobutanesulfonic acid	3.5 U		36.1	36.1	100	34.9	34.7	100	4	72-128/30
2706-91-4	Perfluoropentanesulfonic acid	3.5 U		36.1	31.3	87	34.9	29.9	86	5	73-123/30
355-46-4	Perfluorohexanesulfonic acid	6.9		36.1	42.2	98	34.9	42.9	103	2	67-130/30
375-92-8	Perfluoroheptanesulfonic acid	3.5 U		36.1	38.5	107	34.9	37.4	107	3	70-132/30
1763-23-1	Perfluorooctanesulfonic acid	77.7		36.1	100	62* <sup>c</sup>	34.9	126	139* <sup>c</sup>	23	67-136/30
68259-12-1	Perfluorononanesulfonic acid	3.5 U		36.1	27.7	77	34.9	25.2	72	9	69-125/30
335-77-3	Perfluorodecanesulfonic acid	3.5 U		36.1	43.1	119	34.9	41.7	120	3	59-134/30
754-91-6	PFOSA	35 U <sup>b</sup>		36.1	34.7	96	34.9	31.6	91	9	67-137/30
2355-31-9	MeFOSAA	87 U <sup>b</sup>		36.1	35.2	98	34.9	34.8	100	1	63-144/30
2991-50-6	EtFOSAA	87 U <sup>b</sup>		36.1	34.9	97	34.9	33.6	96	4	61-139/30
757124-72-44:2	Fluorotelomer sulfonate	3.5 U		36.1	37.1	103	34.9	35.5	102	4	62-145/30
27619-97-2	6:2 Fluorotelomer sulfonate	3.5 U		36.1	37.7	105	34.9	35.4	102	6	64-140/30
39108-34-4	8:2 Fluorotelomer sulfonate	35 U <sup>b</sup>		36.1	36.2	100	34.9	35.1	101	3	65-137/30

CAS No.	ID Standard Recoveries	MS	MSD	FA77769-4	FA77769-4	Limits
13C4-PFBA		65%	67%	61%	61%	50-150%
13C5-PFPeA		50%	52%	50%	59%	50-150%
13C5-PFHxA		51%	53%	51%	62%	50-150%
13C4-PFHpA		52%	53%	51%	62%	50-150%
13C8-PFOA		55%	56%	55%	65%	50-150%
13C9-PFNA		53%	53%	51%	62%	50-150%
13C6-PFDA		47% * <sup>d</sup>	45% * <sup>d</sup>	41% * <sup>d</sup>	62%	50-150%
13C7-PFUnDA		49% * <sup>d</sup>	46% * <sup>d</sup>	44% * <sup>d</sup>	55%	50-150%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

**Job Number:** FA77769  
**Account:** SGS/SAK North America, Inc  
**Project:** 1204107

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81627-MS	4Q5133.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
OP81627-MSD	4Q5134.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
FA77769-4	4Q5132.D	1	08/21/20	NG	08/19/20	OP81627	S4Q71
FA77769-4 <sup>a</sup>	4Q5083.D	10	08/21/20	NAF	08/19/20	OP81627	S4Q70

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA77769-1, FA77769-2, FA77769-3, FA77769-4

CAS No.	ID Standard Recoveries	MS	MSD	FA77769-4	FA77769-4	Limits
13C2-PFDoDA		44% * d	40% * d	34% * d	52%	50-150%
13C2-PFTeDA		40% * d	32% * d	25% * d	50%	50-150%
13C3-PFBS		56%	58%	56%	63%	50-150%
13C3-PFHxS		62%	62%	59%	67%	50-150%
13C8-PFOS		63%	65%	61%	61%	50-150%
13C8-FOSA		17% * d	19% * d	15% * d	44% * d	50-150%
d3-MeFOSAA		41% * d	41% * d	38% * d	53%	50-150%
13C2-4:2FTS		56%	58%	53%	59%	50-150%
13C2-6:2FTS		62%	63%	57%	62%	50-150%
13C2-8:2FTS		47% * d	45% * d	40% * d	58%	50-150%

- (a) Dilution required due to matrix interference (ID recovery standard failure).
- (b) Result is from Run #2.
- (c) Outside control limits due to high level in sample relative to spike amount.
- (d) Outside control limits due to matrix interference.

\* = Outside of Control Limits.

DRAFT

**Appendix F – ADEC Laboratory Data Review Checklists**

**Laboratory Data Review Checklist**

Completed By:

Lucus Gamble, QEP

Title:

Environmental Sciences Manager

Date:

September 15, 2020

Consultant Firm:

Restoration Science & Engineering, LLC

Laboratory Name:

SGS North America Inc.

Laboratory Report Number:

1204021

Laboratory Report Date:

September 9, 2020

CS Site Name:

TBD

ADEC File Number:

TBD

Hazard Identification Number:

TBD

1204021

Laboratory Report Date:

September 9, 2020

CS Site Name:

TBD

**Note: Any N/A or No box checked must have an explanation in the comments box.**

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes  No  N/A  Comments:

SGS North America Inc.

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes  No  N/A  Comments:

PFAS samples were transferred to SGS Orlando

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes  No  N/A  Comments:

A copy of the CoC is provided with the lab report

b. Correct analyses requested?

Yes  No  N/A  Comments:

PFAS by EPA 537M, GRO by AK 101, DRO by AK 102, RRO by AK 103, BTEX by EPA 8021B, TOC by EPA 9060A

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes  No  N/A  Comments:

Temperature Blank = 11.4° C, but submitted to directly to the lab after sampling on August 8, 2020

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes  No  N/A  Comments:

GRO/BTEX was preserved using methanol

1204021

Laboratory Report Date:

September 9, 2020

CS Site Name:

TBD

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes  No  N/A  Comments:

See page 50 of the lab report. Samples were in good condition

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes  No  N/A  Comments:

The cooler temperature was outside of the acceptable range – see note above

e. Data quality or usability affected?

Comments:

Data quality or usability not affected

#### 4. Case Narrative

a. Present and understandable?

Yes  No  N/A  Comments:

Case narratives are found on Page 2 and Pages 57-62 of the lab report

b. Discrepancies, errors, or QC failures identified by the lab?

Yes  No  N/A  Comments:

Some PFAS soils samples were subject to target and non-target analyte matrix interference and re-extraction and reanalysis was required

c. Were all corrective actions documented?

Yes  No  N/A  Comments:

Corrective actions are documented in the case narrative and following the effected samples

d. What is the effect on data quality/usability according to the case narrative?

Comments:

In many cases the Limit of Detection (LOD) is above the ADEC cleanup level

1204021

Laboratory Report Date:

September 9, 2020

CS Site Name:

TBD

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes  No  N/A  Comments:

Full list of PFAS compounds by EPA 537M, GRO by AK 101, DRO by AK 102, DRO by AK 103, BTEX by EPA 8021B and TOC by EPA 9060A

b. All applicable holding times met?

Yes  No  N/A  Comments:

All holding times were met

c. All soils reported on a dry weight basis?

Yes  No  N/A  Comments:

Soil samples are reported on a dry weight basis. The % solids are shown in the lab report

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes  No  N/A  Comments:

Often LOQs for PFOA and PFOS are above ADEC Method 2 MTG cleanup levels. However, in all instances the LOQs are below the ADEC Human Health cleanup levels. Samples with LODs (1/2 the LOQ) above ADEC cleanup levels are highlighted blue in the results tables. Further the LOQ for benzene and ethylbenzene is above ADEC Method 2 MTG cleanup levels

e. Data quality or usability affected?

Data quality or usability not affected as PFAS impacts are ubiquitous at the site and many of the "detectable" samples are above ADEC Method 2 MTG cleanup levels. However, benzene and ethylbenzene cannot be compared to ADEC Method 2 MTG cleanup levels

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

Method blank results are shown in the lab report



1204021

Laboratory Report Date:

September 9, 2020

CS Site Name:

TBD

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes  No  N/A  Comments:

The PFAS method blank had detectable concentrations of Perfluorobutanoic Acid

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

All samples analyzed for Perfluorobutanoic Acid samples in the lab report are affected. However, Perfluorobutanoic Acid is not a regulated PFAS compound

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

The affected samples are not flagged. However, affected samples are shown on the Method Blank summary page of the lab report

v. Data quality or usability affected?

Comments:

Data quality and usability not affected

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes  No  N/A  Comments:

Note. SGS Orlando refers to these samples as Instrument Blanks

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

No project soil metals or inorganics samples

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes  No  N/A  Comments:

All %R are within method and lab limits for this project

1204021

Laboratory Report Date:

September 9, 2020

CS Site Name:

TBD

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes  No  N/A  Comments:

The RPD for the LCS/LCSD samples are within method and lab limits

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No affected samples

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

No affected samples

- vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability not affected

- c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

**Note: Leave blank if not required for project**

- i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

Results are shown in the lab report

- ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

No project soil metals or organics samples

- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes  No  N/A  Comments:

%R is outside control limits for numerous PFAS compounds because of matrix interference

1204021

Laboratory Report Date:

September 9, 2020

CS Site Name:

TBD

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes  No  N/A  Comments:

All RPDs are within the method or lab limits despite poor %R

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

FA77715 (lab id) or T1-37B – affected project samples are shown on Pages 114-115 in the lab report

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

Yes. Data flags indicate the %R outside control limits and RPD impacted by matrix interference

- vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability not affected

- d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

- i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes  No  N/A  Comments:

No IDA

- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes  No  N/A  Comments:

No IDA

- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

No IDA

1204021

Laboratory Report Date:

September 9, 2020

CS Site Name:

TBD

iv. Data quality or usability affected?

Comments:

N/A as there was no IDA

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?  
(If not, enter explanation below.)

Yes  No  N/A  Comments:

Trip blank results are shown on Page 30 of the lab report

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?  
(If not, a comment explaining why must be entered below)

Yes  No  N/A  Comments:

The cooler ID is shown on the CoC

iii. All results less than LOQ and project specified objectives?

Yes  No  N/A  Comments:

All LOQs are less than the ADEC Method 2 MTG cleanup levels for GRO/BTEX

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No affected samples

v. Data quality or usability affected?

Comments:

Data quality or usability not affected

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes  No  N/A  Comments:

T1-X is a blind duplicate of T1-19A (for PFAS samples) and T1-Y is a blind duplicate of T1-19A (for GRO)

1204021

Laboratory Report Date:

September 9, 2020

CS Site Name:

TBD

ii. Submitted blind to lab?

Yes  No  N/A  Comments:

All field duplicates were submitted blind to the lab

iii. Precision – All relative percent differences (RPD) less than specified project objectives?  
(Recommended: 30% water, 50% soil)

$$RPD (\%) = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2) / 2)} \times 100$$

Where R<sub>1</sub> = Sample Concentration  
R<sub>2</sub> = Field Duplicate Concentration

Yes  No  N/A  Comments:

T1-X/T1-19A PFOA RPD = 77.42 and PFOS RPD = 97.79%; T1-Y/T1-19A DRO RPD = 1.17% and RRO RPD = 5.20%

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and usability not affected as RSE used the higher of the two results in the UCL calculator and other discussions

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes  No  N/A  Comments:

No decon or equipment blank samples for this project

i. All results less than LOQ and project specified objectives?

Yes  No  N/A  Comments:

No decon or equipment blank samples for this project

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No affected samples

iii. Data quality or usability affected?

Comments:

Data quality and usability not affected

1204021

Laboratory Report Date:

September 9, 2020

CS Site Name:

TBD

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes  No  N/A  Comments:

Data flags indicate the re-extraction, reanalysis and which run data was used in the lab report, as well as which samples are impacted by matrix interference

DRAFT

**Laboratory Data Review Checklist**

Completed By:

Lucus Gamble, QEP

Title:

Environmental Sciences Manager

Date:

September 15, 2020

Consultant Firm:

Restoration Science & Engineering, LLC

Laboratory Name:

SGS North America Inc.

Laboratory Report Number:

1204046

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

ADEC File Number:

TBD

Hazard Identification Number:

TBD

1204046

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

**Note: Any N/A or No box checked must have an explanation in the comments box.**

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes  No  N/A  Comments:

SGS North America Inc.

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes  No  N/A  Comments:

PFAS samples were transferred to SGS Orlando

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes  No  N/A  Comments:

A copy of the CoC is provided with the lab report

b. Correct analyses requested?

Yes  No  N/A  Comments:

PFAS by EPA 537M, GRO by AK 101, DRO by AK 102, RRO by AK 103, BTEX by EPA 8021B, TOC by EPA 9060A

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes  No  N/A  Comments:

Temperature Blank = 4.6° C

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes  No  N/A  Comments:

GRO/BTEX was preserved using methanol



1204046

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes  No  N/A  Comments:

See page 45 of the lab report. Samples were in good condition

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes  No  N/A  Comments:

There are no discrepancies noted

e. Data quality or usability affected?

Comments:

Data quality or usability not affected

#### 4. Case Narrative

a. Present and understandable?

Yes  No  N/A  Comments:

Case narratives are found on Page 2 and Pages 51-55 of the lab report

b. Discrepancies, errors, or QC failures identified by the lab?

Yes  No  N/A  Comments:

Some PFAS soils samples were subject to target and non-target analyte matrix interference and re-extraction and reanalysis was required

c. Were all corrective actions documented?

Yes  No  N/A  Comments:

Corrective actions are documented in the case narrative and following the effected samples

d. What is the effect on data quality/usability according to the case narrative?

Comments:

In many cases the Limit of Detection (LOD) is above the ADEC cleanup level

1204046

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes  No  N/A  Comments:

Full list of PFAS compounds by EPA 537M, GRO by AK 101, DRO by AK 102, DRO by AK 103, BTEX by EPA 8021B and TOC by EPA 9060A

b. All applicable holding times met?

Yes  No  N/A  Comments:

All holding times were met

c. All soils reported on a dry weight basis?

Yes  No  N/A  Comments:

Soil samples are reported on a dry weight basis. The % solids are shown in the lab report

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes  No  N/A  Comments:

Often LOQs for PFOA and PFOS are above ADEC Method 2 MTG cleanup levels. However, in all instances the LOQs are below the ADEC Human Health cleanup levels. Samples with LODs (1/2 the LOQ) above ADEC cleanup levels are highlighted blue in the results tables. Further the LOQs for benzene and ethylbenzene are above ADEC Method 2 MTG cleanup levels

e. Data quality or usability affected?

Data quality or usability not affected as PFAS impacts are ubiquitous at the site and many of the "detectable" samples are above ADEC Method 2 MTG cleanup levels. However, benzene and ethylbenzene cannot be compared to ADEC Method 2 MTG cleanup levels

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

Method blank results are shown in the lab report

1204046

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes  No  N/A  Comments:

All method blank results are less the LOQs

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

There are no affected samples

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

There are no affected samples

v. Data quality or usability affected?

Comments:

Data quality and usability not affected

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes  No  N/A  Comments:

Note. SGS Orlando refers to these samples as Instrument Blanks

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

No project soil metals or inorganics samples

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes  No  N/A  Comments:

All %R are within method and lab limits for this project

1204046

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes  No  N/A  Comments:

The RPD for the LCS/LCSD samples are within method and lab limits

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No affected samples

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

No affected samples

- vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability not affected

- c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

**Note: Leave blank if not required for project**

- i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

Results are shown in the lab report

- ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

No project soil metals or organics samples

- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes  No  N/A  Comments:

All %R are within method and lab limits for this project

1204046

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes  No  N/A  Comments:

The RPD for the MS/MSD samples are within method and lab limits

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No affected samples

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

No affected samples

- vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability not affected

- d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

- i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes  No  N/A  Comments:

No IDA

- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes  No  N/A  Comments:

No IDA

- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

No IDA

1204046

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

iv. Data quality or usability affected?

Comments:

N/A as there was no IDA

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?  
(If not, enter explanation below.)

Yes  No  N/A  Comments:

Trip blank results are shown on Page 30 of the lab report

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?  
(If not, a comment explaining why must be entered below)

Yes  No  N/A  Comments:

The cooler ID is shown on the CoC

iii. All results less than LOQ and project specified objectives?

Yes  No  N/A  Comments:

All LOQs are less than the ADEC Method 2 MTG cleanup levels for GRO/BTEX

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No affected samples

v. Data quality or usability affected?

Comments:

Data quality or usability not affected

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes  No  N/A  Comments:

T1-XX is a blind duplicate of T1-11A (for PFAS samples)

1204046

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

ii. Submitted blind to lab?

Yes  No  N/A  Comments:

All field duplicates were submitted blind to the lab

iii. Precision – All relative percent differences (RPD) less than specified project objectives?  
(Recommended: 30% water, 50% soil)

$$RPD (\%) = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2) / 2)} \times 100$$

Where R<sub>1</sub> = Sample Concentration  
R<sub>2</sub> = Field Duplicate Concentration

Yes  No  N/A  Comments:

T1-XX/T1-11A PFOS RPD = 64.92%

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and usability not affected as RSE used the higher of the two results in the UCL calculator and other discussions

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes  No  N/A  Comments:

No decon or equipment blank samples for this project

i. All results less than LOQ and project specified objectives?

Yes  No  N/A  Comments:

No decon or equipment blank samples for this project

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No affected samples

iii. Data quality or usability affected?

Comments:

Data quality and usability not affected

1204046

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes  No  N/A  Comments:

Data flags indicate the re-extraction, reanalysis and which run data was used in the lab report, as well as which samples are impacted by matrix interference

DRAFT



**Laboratory Data Review Checklist**

Completed By:

Lucus Gamble, QEP

Title:

Environmental Sciences Manager

Date:

September 15, 2020

Consultant Firm:

Restoration Science & Engineering, LLC

Laboratory Name:

SGS North America Inc.

Laboratory Report Number:

1204074

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

ADEC File Number:

TBD

Hazard Identification Number:

TBD

1204074

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

**Note: Any N/A or No box checked must have an explanation in the comments box.**

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes  No  N/A  Comments:

SGS North America Inc.

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes  No  N/A  Comments:

PFAS samples were transferred to SGS Orlando

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes  No  N/A  Comments:

A copy of the CoC is provided with the lab report

b. Correct analyses requested?

Yes  No  N/A  Comments:

PFAS by EPA 537M, GRO by AK 101, DRO by AK 102, RRO by AK 103, BTEX by EPA 8021B, TOC by EPA 9060A

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes  No  N/A  Comments:

Temperature Blank = 4.7° C

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes  No  N/A  Comments:

GRO/BTEX was preserved using methanol

1204074

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes  No  N/A  Comments:

See page 40 of the lab report. Samples were in good condition

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes  No  N/A  Comments:

There are no discrepancies noted

e. Data quality or usability affected?

Comments:

Data quality or usability not affected

#### 4. Case Narrative

a. Present and understandable?

Yes  No  N/A  Comments:

Case narratives are found on Page 2 and Pages 45-48 of the lab report

b. Discrepancies, errors, or QC failures identified by the lab?

Yes  No  N/A  Comments:

Some PFAS soils samples were subject to target and non-target analyte matrix interference and re-extraction and reanalysis was required

c. Were all corrective actions documented?

Yes  No  N/A  Comments:

Corrective actions are documented in the case narrative and following the effected samples

d. What is the effect on data quality/usability according to the case narrative?

Comments:

In many cases the Limit of Detection (LOD) is above the ADEC cleanup level

1204074

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes  No  N/A  Comments:

Full list of PFAS compounds by EPA 537M, GRO by AK 101, DRO by AK 102, DRO by AK 103, BTEX by EPA 8021B and TOC by EPA 9060A

b. All applicable holding times met?

Yes  No  N/A  Comments:

All holding times were met

c. All soils reported on a dry weight basis?

Yes  No  N/A  Comments:

Soil samples are reported on a dry weight basis. The % solids are shown in the lab report

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes  No  N/A  Comments:

Often LOQs for PFOA and PFOS are above ADEC Method 2 MTG cleanup levels. However, in all instances the LOQs are below the ADEC Human Health cleanup levels. Samples with LODs (1/2 the LOQ) above ADEC cleanup levels are highlighted blue in the results tables. The LOQs for benzene and ethylbenzene are above ADEC Method 2 MTG cleanup levels

e. Data quality or usability affected?

Data quality or usability not affected as PFAS impacts are ubiquitous at the site and many of the "detectable" samples are above ADEC Method 2 MTG cleanup levels. However, benzene and ethylbenzene cannot be compared to ADEC Method 2 MTG cleanup levels

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

Method blank results are shown in the lab report

1204074

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes  No  N/A  Comments:

The PFAS method blank had detectable concentrations of Perfluorobutanoic Acid

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

All samples analyzed for Perfluorobutanoic Acid samples in the lab report are affected. However, Perfluorobutanoic Acid is not a regulated PFAS compound

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

The affected samples are not flagged. However, affected samples are shown on the Method Blank summary page of the lab report

v. Data quality or usability affected?

Comments:

Data quality and usability not affected

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes  No  N/A  Comments:

Note. SGS Orlando refers to these samples as Instrument Blanks

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

No project soil metals or inorganics samples

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes  No  N/A  Comments:

All %R are within method and lab limits for this project

1204074

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes  No  N/A  Comments:

The RPD for the LCS/LCSD samples are within method and lab limits

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No affected samples

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

No affected samples

- vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability not affected

- c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

**Note: Leave blank if not required for project**

- i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

Results are shown in the lab report

- ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

No project soil metals or organics samples

- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes  No  N/A  Comments:

All %R for PFOS (sample FA77769-4) was outside control limits due to high concentrations in parent sample

1204074

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes  No  N/A  Comments:

All RPDs are less than the method or lab limits

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

FA77769-4 (lab id) – affected project samples are shown on Pages 89-90 in the lab report

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

Yes. Data flags indicate the %R outside control limits and RPD impacted by matrix interference

- vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability not affected

- d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

- i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes  No  N/A  Comments:

No IDA

- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes  No  N/A  Comments:

No IDA

- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

No IDA

1204074

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

iv. Data quality or usability affected?

Comments:

N/A as there was no IDA

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?  
(If not, enter explanation below.)

Yes  No  N/A  Comments:

Trip blank results are shown on Page 21 of the lab report

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?  
(If not, a comment explaining why must be entered below)

Yes  No  N/A  Comments:

The cooler ID is shown on the CoC

iii. All results less than LOQ and project specified objectives?

Yes  No  N/A  Comments:

All LOQs are less than the ADEC Method 2 MTG cleanup levels for GRO/BTEX

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No affected samples

v. Data quality or usability affected?

Comments:

Data quality or usability not affected

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes  No  N/A  Comments:

T1-XXX is a blind duplicate of T1-27A and T1-XXXX is a blind duplicate for T1-39A (for PFAS samples); T-YY is a blind duplicate for T1-39A (for hydrocarbons)



1204074

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

ii. Submitted blind to lab?

Yes  No  N/A  Comments:

All field duplicates were submitted blind to the lab

iii. Precision – All relative percent differences (RPD) less than specified project objectives?  
(Recommended: 30% water, 50% soil)

$$RPD (\%) = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2) / 2)} \times 100$$

Where R<sub>1</sub> = Sample Concentration  
R<sub>2</sub> = Field Duplicate Concentration

Yes  No  N/A  Comments:

T1-XXX/T1-27A PFOA RPD = 48.46% and 30.77 PFOS RPD = 64.92%; T1-XXXX/T1-39A PFOA RPD= 21.63% and PFOS RPD = 97.96%; T1-YY/T1-39A DRO RPD = 48.76% RRO RPD = 52.44% Toluene RPD = 38.23%

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and usability not affected as RSE used the higher of the two results in the UCL calculator and other discussions

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes  No  N/A  Comments:

No decon or equipment blank samples for this project

i. All results less than LOQ and project specified objectives?

Yes  No  N/A  Comments:

No decon or equipment blank samples for this project

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No affected samples

1204074

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

iii. Data quality or usability affected?

Comments:

Data quality and usability not affected

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes  No  N/A

Comments:

Data flags indicate the re-extraction, reanalysis and which run data was used in the lab report, as well as which samples are impacted by matrix interference

DRAFT

**Laboratory Data Review Checklist**

Completed By:

Lucus Gamble, QEP

Title:

Environmental Sciences Manager

Date:

September 15, 2020

Consultant Firm:

Restoration Science & Engineering, LLC

Laboratory Name:

SGS North America Inc.

Laboratory Report Number:

1204107

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

ADEC File Number:

TBD

Hazard Identification Number:

TBD

1204107

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

**Note: Any N/A or No box checked must have an explanation in the comments box.**

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes  No  N/A  Comments:

SGS North America Inc.

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes  No  N/A  Comments:

PFAS samples were transferred to SGS Orlando

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes  No  N/A  Comments:

A copy of the CoC is provided with the lab report

b. Correct analyses requested?

Yes  No  N/A  Comments:

PFAS by EPA 537M, GRO by AK 101, DRO by AK 102, RRO by AK 103, BTEX by EPA 8021B, TOC by EPA 9060A

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes  No  N/A  Comments:

Temperature Blank = 3.0° C

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes  No  N/A  Comments:

GRO/BTEX was preserved using methanol

1204107

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes  No  N/A  Comments:

See page 32 of the lab report. Samples were in good condition

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes  No  N/A  Comments:

There are no discrepancies noted

e. Data quality or usability affected?

Comments:

Data quality or usability not affected

4. Case Narrative

a. Present and understandable?

Yes  No  N/A  Comments:

Case narratives are found on Page 2 and Pages 37-38 of the lab report

b. Discrepancies, errors, or QC failures identified by the lab?

Yes  No  N/A  Comments:

Some PFAS soils samples were subject to target and non-target analyte matrix interference and re-extraction and reanalysis was required. In certain instance dilution was required.

c. Were all corrective actions documented?

Yes  No  N/A  Comments:

Corrective actions are documented in the case narrative and following the effected samples

d. What is the effect on data quality/usability according to the case narrative?

Comments:

In many cases the Limit of Detection (LOD) is above the ADEC cleanup level

1204107

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes  No  N/A  Comments:

Full list of PFAS compounds by EPA 537M, GRO by AK 101, DRO by AK 102, DRO by AK 103, BTEX by EPA 8021B and TOC by EPA 9060A

b. All applicable holding times met?

Yes  No  N/A  Comments:

All holding times were met

c. All soils reported on a dry weight basis?

Yes  No  N/A  Comments:

Soil samples are reported on a dry weight basis. The % solids are shown in the lab report

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes  No  N/A  Comments:

Often LOQs for PFOA and PFOS are above ADEC Method 2 MTG cleanup levels. However, in all instances the LOQs are below the ADEC Human Health cleanup levels. Samples with LODs (1/2 the LOQ) above ADEC cleanup levels are highlighted blue in the results tables. Benzene and ethylbenzene LOQs exceed ADEC Method 2 MTG cleanup levels

e. Data quality or usability affected?

Data quality or usability not affected as PFAS impacts are ubiquitous at the site and many of the "detectable" samples are above ADEC Method 2 MTG cleanup levels. However, benzene and ethylbenzene cannot be compared to ADEC Method 2 MTG cleanup levels

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

Method blank results are shown in the lab report

1204107

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes  No  N/A  Comments:

The PFAS method blank had detectable concentrations of Perfluorobutanoic Acid

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

All samples analyzed for Perfluorobutanoic Acid samples in the lab report are affected. However, Perfluorobutanoic Acid is not a regulated PFAS compound

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

The affected samples are not flagged. However, affected samples are shown on the Method Blank summary page of the lab report

v. Data quality or usability affected?

Comments:

Data quality and usability not affected

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes  No  N/A  Comments:

Note. SGS Orlando refers to these samples as Instrument Blanks

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

No project soil metals or inorganics samples

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes  No  N/A  Comments:

All %R are within method and lab limits for this project

1204107

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes  No  N/A  Comments:

The RPD for the LCS/LCSD samples are within method and lab limits

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No affected samples

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

No affected samples

- vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability not affected

- c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

**Note: Leave blank if not required for project**

- i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

Results are shown in the lab report

- ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes  No  N/A  Comments:

No project soil metals or organics samples

- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes  No  N/A  Comments:

All %R for PFOS (sample FA77769-4) was outside control limits due to high concentrations in parent sample



1204107

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes  No  N/A  Comments:

The RPD was outside of the lab limits due to matrix interference

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

FA77769-4 (lab id) – affected project samples are shown on Pages 63-64 in the lab report

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

Yes. Data flags indicate the %R outside control limits and RPD impacted by matrix interference

- vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality and usability not affected

- d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

- i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes  No  N/A  Comments:

No IDA

- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes  No  N/A  Comments:

No IDA

- iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes  No  N/A  Comments:

No IDA

1204107

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

iv. Data quality or usability affected?

Comments:

N/A as there was no IDA

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?  
(If not, enter explanation below.)

Yes  No  N/A  Comments:

Trip blank results are shown on Page 16 of the lab report

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?  
(If not, a comment explaining why must be entered below)

Yes  No  N/A  Comments:

The cooler ID is shown on the CoC

iii. All results less than LOQ and project specified objectives?

Yes  No  N/A  Comments:

All LOQs are less than the ADEC Method 2 MTG cleanup levels for GRO/BTEX

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No affected samples

v. Data quality or usability affected?

Comments:

Data quality or usability not affected

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes  No  N/A  Comments:

T2-X is a blind duplicate of T2-01A

1204107

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

ii. Submitted blind to lab?

Yes  No  N/A  Comments:

All field duplicates were submitted blind to the lab

iii. Precision – All relative percent differences (RPD) less than specified project objectives?  
(Recommended: 30% water, 50% soil)

$$RPD (\%) = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2) / 2)} \times 100$$

Where R<sub>1</sub> = Sample Concentration  
R<sub>2</sub> = Field Duplicate Concentration

Yes  No  N/A  Comments:

T2-X/T2-01A PFOA RPD = 0% and PFOS RPD = 4.47%

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and usability not affected

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes  No  N/A  Comments:

No decon or equipment blank samples for this project

i. All results less than LOQ and project specified objectives?

Yes  No  N/A  Comments:

No decon or equipment blank samples for this project

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No affected samples

1204107

Laboratory Report Date:

September 3, 2020

CS Site Name:

TBD

iii. Data quality or usability affected?

Comments:

Data quality and usability not affected

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes  No  N/A

Comments:

Data flags indicate the re-extraction, reanalysis and which run data was used in the lab report, as well as which samples are impacted by matrix interference

DRAFT

DRAFT

**Appendix G – Copies of RSE Field Notes**

8/6/20 K.W. L.K 20-2176

57°F  
OVERCAST

0841 - ON SITE, SAFETY TALK, WALKING SURFACE, HYDRATION, PINCH POINTS, PFAS GENERAL.

-BRYCE FROM GEOTECH HELPER

0852 - SET UP AT SB-33

0853 - CALIBRATE PSE PID WITH 100 PPM C<sub>4</sub>H<sub>8</sub>, GOOD CAL (100.0)  
CAL CHECK 98.0 PPM (GOOD)

0915 - USE HAND AUGER TO S.S' BGS  
MATERIAL IS DARK BROWN, DARK RED BROWN PEAT, ORGANICS. COLLECT [T1-33A] [0915] GRO, DRO, PFAS + H.S., [PID = 0.9 PPM]

0944 - DRILL IN 7' BGS, ENCOUNTER RESISTANCE, RECOVER 75% OF SLEEVE, DARK RED BROWN PEAT, GREY (MATERIAL SLT WITH SD AT 7', COLLECT [T1-33B] [0944] GRO, PFAS, 1/2 OF PRO, NEED MORE FOR OTHER XRD + H.S. USE TOOLING FROM S.S' TO 7'. AGAIN. RECOVER 1/2 SLEEVE. DARK RED BROWN PEAT, SLT AT THE BOTTOM (GREY) COLLECT 1/2 DRO + H.S. [PID = 0.9 PPM]

1007 - PACK UP TO MOVE TO SB-31

1023 - AT SB-31

1092 - HAND AUGER TO FROM 1.0' TO S.S'  
DARK RED BROWN PEAT, WET, COLLECT [T1-31A] [1023] GRO, DRO, PFAS, H.S. [PID = 0.9 PPM]

1032 - DRIVE TO 10' BGS, 75% RECOVERY, DARK RED BROWN PEAT, ORGANICS, NEED MORE MATERIAL MAKE 2ND DRIVE TO 10' BGS

1056 - DRIVE 10' BGS, 10% RECOVERY, COLLECT [T1-31B] [1000] GRO, DRO, PFAS, NEED MORE MATERIAL FOR 10' DRIVE AGAIN TO 10'.

1102 - 3<sup>rd</sup> DRIVE TO 10', 10% RECOVERY, HS. PID = 0.8 PPM

1112 - PACK UP, MOVE TO SB-35.

1133 - SB 35: HAND AUGER TO 5.5' MATERIAL IS DARK TO MEDIUM BROWN PLAT

1140 - collect TI-35A (NO) (GRO, PRO, PFAS, HS) PID = 1.1 PPM

1150 - DRIVE FROM 5.5' TO 10', 90% RECOVERY

DARK RD BROWN PLAT, collect TI-35B (1150)

GRO, PFAS, PRO, HS PID = 0.7 PPM

1205 - CLEAN UP, MOVE TO SB-21

1225 - AT SB 21

1234 - HAND AUGER TO 5.5' GOS, DARK BROWN PLAT, WET

1241 - DRIVE FROM 5.5' TO 10' 5% DANK RD BROWN PLAT

1235 - collect TI-36A (NO) (GRO, PRO, PFAS, HS) PID = 1.0 PPM

1245 - collect TI-36B (NO) (GRO, PRO, PFAS, HS) PID = 1.3 PPM

1309 - AT SB-37

1318 - HAND AUGER TO 5.5', DARK BROWN PLAT, DAMP LOWER

1320 - collect TI-37A, GRO, PRO, PFAS, HS PID = 2.0 PPM

1328 - DRIVE FROM 5.5' TO 10' GOS, 100% RECOVERY  
DARK RD BROWN PLAT

1335 - collect TI-37B, GRO, PRO, PFAS, HS PID = 1.9 PPM

8/6/20 16w. LK 20-2176

1347 - CLEAN UP AT SB-37,

1353 - AT SB-29

1358 - HAND AUGER FROM 1' TO S.S' DIL-MED BRN PEAT

1400 - COLLECT T129A, GRO, DRO, PFAS, H.S. PID = 1.8 PPM  
1400

1408 - DRIVE FROM S.S' TO 10', 0% RECOVERY,

1410 - DRIVE AGAIN, 20% RECOVERY, DR, RD BRN PEAT.

1415 - DRIVE AGAIN, ~5% RECOVERY,

1420 - COLLECT T129B, PFAS ONLY, LESS THAN 4oz RECOVERY TOTAL  
1420

1445 - AT SB-19,

1450 - HAND AUGER FROM 1' TO S.S' BGS  
DARK BRN PEAT

1455 - COLLECT T1-19A 1455 GRO, DRO + DOP T1-Y 1500

COLLECT T1-19A 1455 PFAS + DOP T1-X 1457  
+ H.S. PID = 0.3 PPM

1502 - DRIVE FROM S.S' TO 10" BGS, 10% RECOVERY

1505 - DRIVE AGAIN, < 5%

1510 - DRIVE AGAIN, 0% RECOVERY DIL BRN PEAT

1515 - COLLECT T1-19B, PFAS ONLY, ~1oz RECOVERED TOTAL  
1515 1/4 VOLUME OF JAR

1542 - RUN PICON WATER THROUGH GAC ONSITE

1604 - DEPART SITE



8/7/20 20-2176 K.W v/BRYCE

60°F  
SUN WITH  
CLOUDS

0922 - ON SITE

0932 - CALIBRATE PSC PID WITH 100 PPM C<sub>4</sub>H<sub>8</sub>, (Good)  
CAC (100.0 PPM) CAC CHECK 98.5 PPM (Good)

0940 - AT SB-17

0951 - HAND AUGER TO 5.5' BGS, DARK TO MEDIUM BROWN  
PEAT, MOIST,

0955 - COLLECT [TI-17A] [0955] (GRO, PRO, PEAS, H.S.) PID = 0.7 PPM

1002 - DRIVE TO 9.5', ENCOUNTER WOOD, 60% RECOVERY.  
DARK RED BROWN PEAT, FIBROUS,

1009 - L.K. ONSITE

1010 - REDRIVE TO 9.75', LOWER ~6" ARE SO/SO SD/SET GREY

1015 - COLLECT [TI-17B] [1015] (GRO, PRO, PEAS, H.S.) PID = 0.5 PPM

1035 - AT SB-15

1046 - HAND AUGER FROM 1' TO 1.5', DARK TO MEDIUM BROWN  
PEAT

1052 - AUGER TO 2', ENCOUNTER MEDIUM GREY, MEDIUM GRAIN SAND

1057 - AUGER TO 2.5', RECOVER GREY SAND, MINOR ORGANICS  
WET.  
MOVE OVER 10', DRIVE NEW HOLE TO 1'

1104 - DRIVE TO 4' BGS AT SB-15NW, RECOVER 100% (SO<sub>2</sub> PEAT.  
LOWER SO<sub>2</sub> GREY SAND) DISCARD BACK DOWN HOLE.

1110 - COLLECT [TI-15A] [1110] FROM SB-15 1' TO 2' PEAT, GRO, PRO, PEAS  
H.S. PID = 0.7 PPM



8/7/20 20-2176 K.W. L.K.

(2)

w/ BRUCE

1138 - AT SB-03

1155 - HAND AUGER FROM 1' TO 5.5' BGS

MEDIUM BROWN PEAT REDDISH HUE, SPONGE LIKE

1200 - COLLECT TI-03A 1200 GRO, DRO, PFAS, H.S. PID = 1.2 PPM

1207 - DRIVE TO 7' BGS, 50% RECOVERY, LOWER 6"

IS GREY WET SAND, PEAT TO 6.5' BGS,

PEAT IS DK BRN, < 2 oz, COLLECT TI-03B 1210

PFAS ONLY (1/2 JAR).

1216 - LUNCH

1256 - AT SB-13

1300 - GW 2" BGS, AUGER TO S.S. (TWICE)

DARK BROWN PEAT WET

1310 - COLLECT TI-13A 1305 GRO, DRO, PFAS, H.S. PID = 0.9 PPM

1315 - DRIVE FROM S.S. TO 10' BGS, 50% RECOVERY, LOWER 50% IS GREY SAND, WET, OTHER 50% (25% OF SLEEVE IS MED ORN PEAT, FIBEROUS)

1315 - COLLECT TI-13B 1315, PFAS ONLY, ~2 oz, 1/2 JAR.

1326 - AT SB-05

1328 - HAND AUGER FROM 1' TO 3.5'

1334 - AUGER TO 5.5' BGS DARK BROWN PEAT

1335 - COLLECT TI-05A 1335 GRO, DRO, PFAS, H.S. PID = 1.2 PPM

1344 - DRIVE TO 10' BGS, 60% RECOVERY, LOWER IS GREY SCT/SD S0/S0. DARK BRN PEAT REDDISH HUE.

1345 - COLLECT TI-05B 1345 GRO, PFAS (1/2 JAR), DRO (3/4 JAR), H.S. PID = 1.1 PPM

 K.W.

8/7/20 20-2176 K/W L.K  
w/ BRYCE

1403 - AT SB-11

1407 - AUGER TO 3.5' FROM 1', DARK BRN PEAT  
FIBEROUS,

1415 - AUGER TO 5.5' BGS. DARK BRN PEAT

1415 - COLLECT TI-11A 1415 GPO, DPO, PFAS HS PID=2.8  
+ COLLECT PFAS DUP TI-XX 1420 PPM

1424 - DRIVE FROM 5.5' TO 10' 365, 80°  
RECOVERY, LOWER 3" IS VERY DENSE GREY CLAY,  
3" OF GREY SD ABOVE CLAY, 6" OF NON  
PEAT TOTAL AT BOTTOM, REDRIVE FOR VOLUME.

1430 - REDRIVE TO 10' 80° RECOVERY, LOWER  
6" IS SD + CLAY, PEAT IS DARK TO MEDIUM  
BRN;

1435 - COLLECT TI-11B 1435 [GPO, DPO, PFAS, HS.  
PID=1.3 PPM

1505 - AT PARKING AREA, LEFT TOOLING SCED  
AT SB-27 FOR RESUME MONDAY.  
USE GAC TO DISPOSE OF DRAIN WATER  
ON SITE.

1515 - DEPART



K/W

8/10/20 KW. LIR 20-2176

60°F OVERCAST

0838 - ON SITE

0839 - CALIBRATE RSL PID WITH 100 PPM C4H8, GOOD, 100.0 PPM  
CAL CHECK, 98.7 PPM, GOOD.

0909 - AT SB-27

0912 - AUGER FROM 1' TO 4' DARK BRN PEAT, WET

0914 - AUGER TO S.S', DARK BRN PEAT, MOIST

0915 - COLLECT TI-27A 0915 GNO, DRO, PFAS, H.S. PID=0.9 PPM  
+ TI-XXX PFAS DUP.  
0920

0936 - DRIVE TO 10' BGS, 75% RECOVERY, LOWER  
6" IS GRV <sup>VERY</sup> DENSE CLAY, ~4 OZ DARK BRN  
PEAT RECOVERY, RE-DRIVE

0954 - RE-DRIVE TO 9.8', ~50% RECOVERY, LOWER 4" IS  
GRV DENSE CLAY, ~2 OZ OF DARK BRN PEAT  
RECOVERED.

1000 - TI-27B 1000 GNO, 3/4 DRO JAR, 1/2 PFAS JAR +  
H.S. PID=1.0 PPM

1025 - AT SB-23, HAND AUGER FROM 1' TO 3.5' BGS, 6W AT  
SURFACE.

1036 - HAND AUGER TO S.S' BGS, DARK BRN PEAT

1041 - COLLECT TI-23A 1040 GNO, DRO, PFAS, H.S. PID=0.8 PPM

1042 - DRIVE TO 7' BGS, ENCOUNTER RESISTANCE, 60%  
RECOVERY, LOWER 6" IS GREY SLT. TENDING TO CLAY  
WITH DEPTH, MED TO DARK BRN PEAT ~4 OZ RECOVERED.

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8/10/22 K.W. LK. 20-2176

(2)

1050 - RE DRIVE TO 7.5' BGS.

1056 - RECOVER ~90% DARK TO MEDIUM BRN PLAT  
TRACE SCLT/CLAY AT SHOE.

1103 - COLLECT T1-233 1106 GPO, DMO, PFAS, H/S. PID = 1.0 ppm

1123 - AT SB-Ø7.

1125 - AUGER FROM 1' TO 2' BGS, DK BRN PLAT

1136 - AUGER TO 3.5' THEN AGAIN TO 3.5' BGS  
DARK BRN PLAT MOIST → DAMP.

1141 - COLLECT T1-Ø7A 1135 GPO, PRO, PFAS, H/S. PID = 4.2 ppm

1152 - DRIVE TO 7' BGS, 90% RECOVERY, DENSE GREY CLAY + SCLT  
IN LOWER 6", MEDIUM REDDISH BRN PLAT ~60% RECOVERED

1156 - RE DRIVE TO 7' BGS

1159 - 60% RECOVERY, MED RED BRN PLAT, 2 1/4" SCLT/CLAY AT  
BOTTOM.

1200 - COLLECT T1-Ø7B 1200 GPO, PRO, PFAS, H/S. PID = 1.4 ppm

1220 - AT SB-Ø9, HAND AUGER TO 1' BGS, 0.5' → 1'  
IS LIGHT TAN, BUFF, DRY, SCLT. NO SAMPLE

1232 - AT SB-25. HAND AUGER TO 2' BGS, 1'-2'  
IS MED GREY BRN SCLT NO SAMPLE

LUNCH

1321 - AT SB-39

KW

8/10/20 KW. L.K. 20-2176 (3)

1327 - AUGER TO 2' BGS, MED BRN SCL

1334 - AUGER TO 5' THEN AGAIN TO 5.5'  
DARK RED BRN PEAT.

1343 - COLLECT [T1-39A] GPO, DIO, PFAS, HS [PID = 3.7  
PPM]

+ DOP [T1-YY] [1340] GPO, DIO + PFAS

DOP [T1-XXXX] [1345]

1346 - DRIVE TO 8' BGS, 90% RECOVERY, LOWER  
4" IS GREY PENSE CLAY.

1353 - COLLECT [T1-39B] [1350] (GPO, PRO, PFAS, HS) [PID = 2.7  
PPM]

1436 - AT POSTMARK DRIVE, GAC DECON LATER.

1512 - DEPART.

8/11/20 16W LK 20-2176

S80P  
OVERCAST  
RAIN.

0842-ONSITE

0850 - RECON AT SB-Ø7

0858 - AUGER TO > 1' BGS, MEDIUM BRN VERY FINE TO FINE SAND. NO PEAT (NO SAMPLE)

0913 - TRAVERSE AND LOCATE T2-Ø3 + T2-Ø1

0917 - AUGER AT T2-Ø3

0946 - DEVELOP PLAN TO ACCESS T2-Ø3 - T2-Ø1

0951 - CALIBRATE RSC PID WITH 100 PPM C4H8, GOOD CAL, CAL CHECK, 98.6 PPM (GOOD)

1020 - AT T2-Ø1

1035 - AUGER TO

S.S' BGS,

DK - MED BRN PEAT, RED HUE

1044 - COLLECT T2-Ø1A 1035 GNO, PRO, PFAS, HS. PID = 0.4 PPM  
+ DUP PFAS T2-X 1040

1045 - DRIVE TO 8' BGS, 75.8 RECOVERY, BOTTOM 3" IS BRN-GRY SAND + SILT TRENDS TO GREY SAND-SLT. PEAT IS MED-DK BRN, RED HUE, FIBEROUS

1054 - COLLECT T2-Ø1B 1050 GNO, PRO, PFAS PID = 0.5 PPM

1114 - AT T2-Ø3

1126 - AUGER TO 3' BGS ENCOUNTER GREY SAND, PEAT RECOVERED IS PINK BRN,

1133 - COLLECT T2-Ø3A 1130 GNO, PRO, PFAS PID = 0.4 PPM

1154 - GAC RECON WATER ONSITE

1208 - DEPART