



Final Report

Subsurface Soil PFAS Investigation Northlink Aviation Airpark, Ted Stevens International Airport, Anchorage, Alaska

May 2022

Prepared for:
MCG Explore Design



Submitted By:
ChemTrack Alaska, Inc.



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ACRONYMS AND ABBREVIATIONS

18 AAC 75 Title 18 Alaska Administrative Code Chapter 75

AAC Alaska Administrative Code

ADEC Alaska Department of Environmental Conservation

bgs below ground surface

°C degrees Celsius

COC chain-of-custody record

ChemTrack. ... ChemTrack Alaska, Inc.

CRW CRW Engineering

DL detection limit

FSG Field Sampling Guidance

GeoTek GeoTek Alaska Inc.

GPS Global Positioning System

LOD Limit of detection

LOQ Limit of quantification

mg/kg milligram per kilogram

MGW Migration to Groundwater

PFOA perfluorooctanoic acid

PFOS perfluoro octane sulfonate

PM Project Manager

PFOA Perfluorooctanoic acid

PFOS Perfluoro octane sulfonate

PFOSA Perfluoro octane sulfonamide acid

PPE Personal Protective Equipment

QC Quality Control

SGS SGS Environmental Services, Inc.

µg/kg microgram per kilogram

1. INTRODUCTION

This report summarizes the Perfluorooctanoic acid (PFOA) and perfluoro octane sulfonate (PFOS) subsurface soil investigation activities conducted by ChemTrack at the South Airpark, renamed the Northlink Aviation Airpark, property located at the Ted Stevens International Airport, Anchorage, Alaska. The investigative soil sampling activities were conducted in accordance with the 2021 PFAS Site Environmental Investigation Work Plan (MCG 2021a) and simultaneously with CRW Engineering (CRW) geotechnical evaluation drilling activities. This investigation is a follow-up to the 2021 surface soil PFAS analytical soil sample collection detailed the 2021 PFAS Site Environmental Investigation Report (MCG 2021b).

This document includes a description of the equipment and methods used to perform the subsurface soil sample collection, the laboratory analytical methods and data as well as a summary of the Data Quality Review. Supporting Attachments include figures, a photographic log, the project Sample Summary Table and field notes, the full laboratory analytical data packages and the Chemical Data Review and Alaska Department of Environmental Conservation (ADEC) checklists completed by the Project Chemist.

2. PROJECT LOCATION AND DESCRIPTION

The subject property, herein refer to as the Site, is located at Lot 15 Block 23 in Section 4 of Township 12 North, Range 4 West, Seward Meridian on the south-central edge of the Ted Stevens International Airport, Anchorage, AK 99502. The property consists primarily of undeveloped vegetated acreage with no structures between the airport property to the north and Raspberry Road to the south. The northeast corner has a cleared area adjacent to an existing taxiway with airplanes currently parked on it. Access to the property is restricted and only available from the airport side of the fence. No pits, ponds, or lagoons are present. Several small buildings of a radio facility are located near the southwest corner of the property. The airport fire training facility is located adjacent to the northwest corner of the property.

3. SCOPE OF WORK AND PROJECT OBJECTIVES

The scope of work included subsurface soil sample collection for PFOA/PFOS laboratory analysis and evaluation of the results against current ADEC cleanup criteria to mitigate the spread of PFAS contamination during proposed Site construction soil cut and fill civil operations.

In addition, two additional subsurface soil samples were collected to evaluate for the presence/absence of PFAS compounds at two locations adjacent to the airport fire training facility.

4. REGULATORY FRAMEWORK

The regulatory framework for this project was developed under consideration of the following ADEC regulations and guidance documents:

- ADEC, *Field Sampling Guidance* (FSG), (ADEC 2022)
- 18 Alaska Administrative Code (AAC) 75, ADEC Oil and Other Hazardous Substances Pollution Control, (ADEC 2021)
- ADEC, *Site Characterization Work Plan and Reporting Guidance* (ADEC 2017).

Sampling was conducted by an ADEC Qualified Environmental Professional, as defined in 18 AAC 75.333.

Analytical soil sample results were evaluated against the ADEC Method Two Migration to Groundwater (MGW) Soil Cleanup Levels for the Under 40 Inch Zone (18 AAC 75, 2021) for PFOA/PFOS compounds. The project screening level for the two ADEC regulated PFOA/PFOS is presented in Table 1 along with the project analytical laboratory limits.

Table 1

Analytical Group	Analyte	Method	Project Screening Level ¹ (mg/kg)	Project Limit of Quantitation Goal ² (mg/kg)	Achievable Laboratory Limits ³		
					DLs (mg/kg)	LODs (mg/kg)	LOQs (mg/kg)
PFOA/PFOSs	PFOA	EPA 573.1	0.0017	0.0005	0.000165	0.00033	0.0005
PFOA/PFOSs	PFOS	EPA 573.1	0.003	0.0005	0.000165	0.00033	0.0005

¹Criteria are those listed in ADEC 18 AAC 75.341, Tables B1 and B2, lowest of Under 40 Inch Zone, Migration to Groundwater or Human Health for the Under 40 Inch Zone (ADEC, 2021).

²Project LOQ Goals are either within the acceptable range or directly from the applicable validated method.

³Achievable DLs, LODs, and LOQs are SGS laboratory limits. All are within analytical method specifications.

5. SITE ACCESS, SAMPLE LOCATIONS AND DRILLING

Site access was coordinated through the MCG Project Manager and CRW. Daily access through airport security gates to access the Site was under escort provided by airport badged CRW personnel.

Thirty-one (31) geotechnical test hole drilling locations were selected by CRW and staked at the Site using GPS survey (Figure 1, Attachment 1). The civil cut and fill grade elevations for the 31 test holes provided by CRW was evaluated and eight test holes (highlighted in yellow on the figure) representing areas with the greatest elevation cuts during civil construction site leveling were selected for PFAS soil sample collection (Table 2, Attachment 3). Soil sample depths were selected to characterize the volume of soil to cut and the freshly exposed soils. In addition, soil samples were also collected from test hole location TH-05 and TH-08 due to their proximity to the airport fire training area.

GeoTek Alaska Inc. (GeoTek) provided geotechnical drilling services for the project. A GeoProbe 7340 drill rig equipped with an auger and split spoons was used for drilling and soil sample collection. A skidsteer was used to move snow and establish access routes to the 31 drilling locations as well as move project equipment and supplies. Deep snow, water ponding and freeze/thaw conditions required test locations to be adjusted slightly to accommodate drill rig access at several locations. The adjusted locations are still considered representative of conditions in the area. Access to the drilling locations by personnel was on foot.

6. SOIL SAMPLING ACTIVITIES

At test hole locations selected for PFAS soil sampling, the auger flights, split spoons and drill tips were decontaminated to mitigate any potential cross contamination between drilling locations prior to use. All items underwent dry decontamination with wire brushes prior to being sprayed and washed with an Alanox cleaning solution and rinsed with distilled or potable water. Soils and wash water were not collected and fell onto the ground surface adjacent to the test hole locations as no known contamination is present at the Site. After soil sample collection, decontamination practices were no longer followed by the drilling team.

Soil samples were collected from 10 test hole locations: TH-28, 25, 21, 19, 15, 13, 12, 09, 08, 05 (Figure 1, Attachment 1). After auguring to the desired depth, a volume of soil was then collected with a split spoon sampler. Once recovered by the drill crew, the split spoon was opened, and a soil sample collected using a new stainless-steel tablespoon was used to transfer soil into the laboratory provided container for PFAS analysis. A photographic log of sampling locations and activities is presented as Attachment 2. The project sample summary table with sample collection notes is presented as Table 3 in Attachment 3 along with a copy of the field logbook notes.

Additional precautions were taken to minimize the risk of potential sample contamination during sample collection and management. Care was taken to eliminate any sample contact with known PFOA/PFOS containing material such as markers, field notebooks, or Teflon and the field team did not wear rain gear or Gore-Tex clothing. The sample jars were bagged as soon as possible after collection and placed in an iced cooler. Two shipments of sample coolers were delivered to SGS North America, Inc, in Anchorage, an ADEC approved analytical laboratory. The coolers were then shipped by SGS to their out of state laboratory in Orlando Florida for analysis by EPA method 537.1M PFAS 24 Compounds.

7. INVESTIGATIVE DERIVED WASTE

The investigation-derived waste (IDW) generated during the soil removal effort consisted of disposable sampling materials including used nitrile gloves, sample spoons and decontamination paper towels. IDW was bagged and placed in a solid waste receptacle disposed of at the Anchorage municipal landfill.

8. INVESTIGATION RESULTS

The following sections present the results for the site investigation and analytical soil samples, as well as the Data Quality Assessment (DQA) and the ADEC Laboratory Checklist for the two SGS work orders 1221457 and 1221610.

8.1 SITE OBERVATIONS

Metal debris and a pile of several paint cans were noted in the woods on the knoll around TH-25 location. The metal debris included sections of Marston matting and grating (Photos 5 and 6 Attachment 2). The cans of paint were old and dried out and were accompanied by an empty metal gas container (Photo 7 Attachment 2). No other potential environmental concerns were noted.

8.2 ANALYTICAL RESULTS

A total of 10 primary and two duplicate soil samples were collected and analyzed by SGS for PFAS compounds. The full laboratory analytical reports for the two sample shipments are presented in Attachment 4. There were no detections for PFAS compounds for any of the samples and specifically, the regulated ADEC PFOA/PFOS compounds Perfluorononanoic acid and Perfluorooctanesulfonic acid.

8.3 DATA QUALITY REVIEW

Sustainable Earth Research LLC provided a DQA based on a Level 2 laboratory report and the ADEC Laboratory Checklist (ADEC 2020) for the two laboratory work orders. The DQA for the SGS work orders are presented in full in Attachment 5 and is summarized below.

There was no detection of PFAS analytes in any of the samples. QC failures listed in the case narrative for workorder 1221457 include low recovery of non-project specific MS with low recoveries due to high analyte concentration in parent sample and low recovery of surrogate 13C8-FOSA which affected PFOSA, qualifier QL results may be biased low was applied to PFOSA in affected samples 22-SAP-SO-TH28-05, 22-SAP-SO-TH25-10, 22-SAP-SO-TH09-10. QC failures are not affecting the regulated compounds PFOS and PFOA and are discussed for non-regulated compounds below. Workorder 1221610 had different sample IDs on the COC 22SAP-SO-TH12-05) and sample label (22SAP-SO-TH13-05) for one sample. The laboratory used the COC as guiding document as noted on receiving documents. Later the sample ID was changed to 22SAP-SO-TH13-05 in the laboratory reports since that was confirmed with sampler to be the correct one. No QC errors were documented in the case narrative and were found in this data quality review for work order 1221610. All data were accepted, the workorder is 100% complete.

9. CONCLUSIONS

Subsurface soil samples were collected from 10 selected geotechnical test hole locations at the site to determine the presence/absence of PFOA/PFOS compounds in areas that are to be cut in elevation during civil construction site activities. None of the samples had detections for the two ADEC regulated PFOA/PFOS compounds indicating civil grading during site construction will not spread contaminated soil.

Debris was noted in the woods around TH-25 location do not represent an environmental concern due to their composition and age however, caution should be exercised during civil grading as other items may be buried in the area.

10. RECOMMENDATIONS

No environmental concerns exist at the Site currently and no additional investigation is recommended for the site to characterize soil prior to civil construction activities.

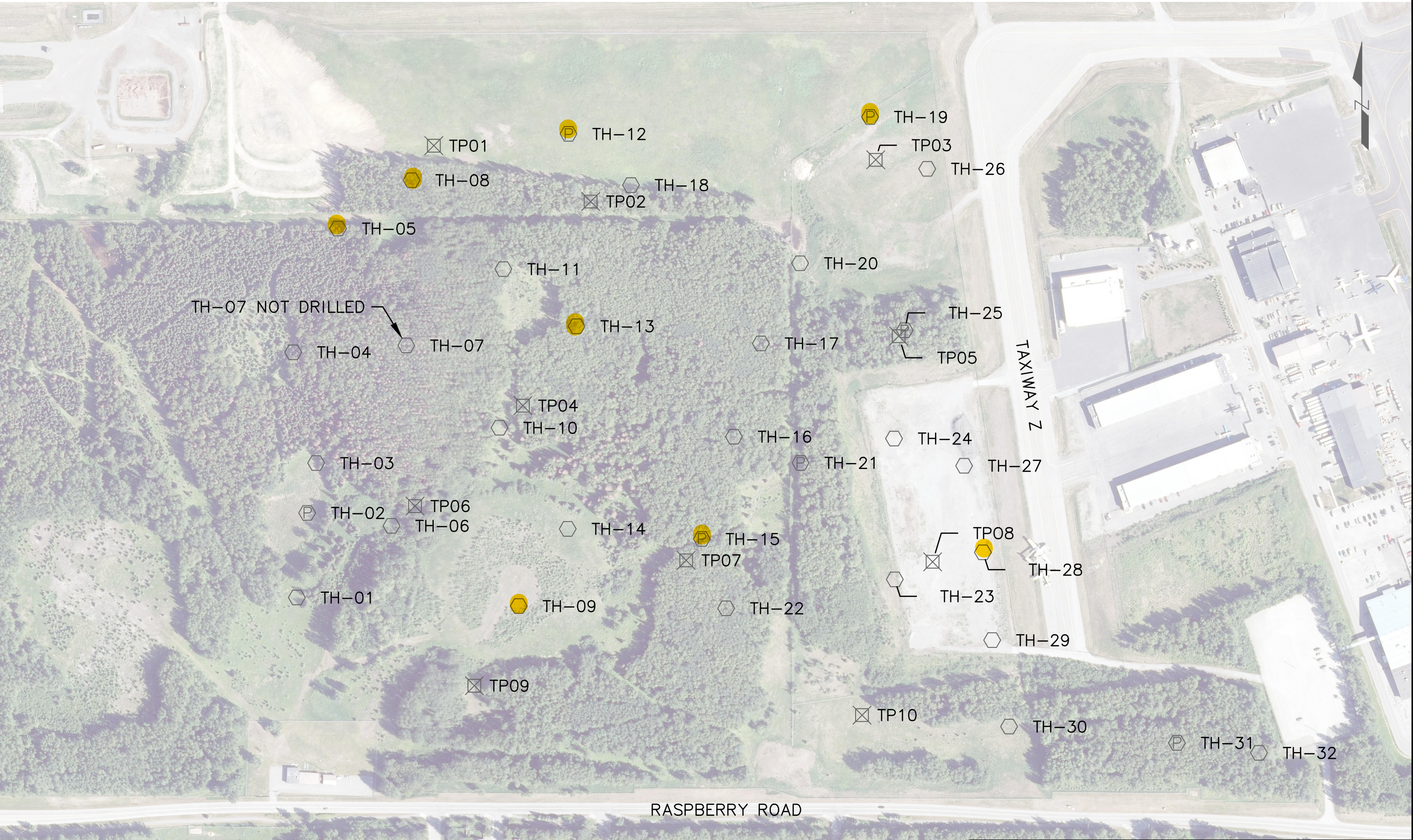
11. REFERENCES

- MCG Explore, (2021a). PFAS Site Environmental Investigation Work Plan, South Airpark, Anchorage, Alaska. September 2021.
- MCG Explore, (2021b). PFAS Site Environmental Investigation Report, South Airpark, Anchorage, Alaska. October 2021.
- ADEC, (2017). Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites. March 01, 2017.
- ADEC, (2019). Field Sampling Guidance For Contaminated Sites and Leaking Underground Storage Tank Sites. October 22, 2019.
- ADEC, (2021). 18 AAC 75 Oil and Other Hazardous Substances Pollution Control. June 24, 2021

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ATTACHMENT 1 – FIGURE

File: J:\JobsData\73130.00 ANC South AirPark Development\00 CADD 2019\01 Working Set\02 Figures\05 Geotech\73130.00 Testhole Report Figure.dwg



LEGEND

- APPROXIMATE TESTHOLE LOCATION, "P" DENOTES PIEZOMETER COMPLETION
- ⊠ APPROXIMATE TEST PIT LOCATION

PROJECT: 73130.00
STATUS: DRAFT



GEOTECHNICAL INVESTIGATION ANC SOUTH AIRPARK INVESTIGATION LOCATIONS	DATE APR 2022
	SCALE NTS
	FIGURE 1

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ATTACHMENT 2 – PHOTOGRAPHIC LOG

Attachment 2 - Photographic Log
South Airpark/Northlink Airpark Subsurface Soil PFAS Investigation



Photo 1: TH-28 location facing east



Photo 2: TH-28 subsurface sample soil

Attachment 2 - Photographic Log
South Airpark/Northlink Airpark Subsurface Soil PFAS Investigation



Photo 3: TH-25 location facing north



Photo 4: TH-25 subsurface sample soil

Attachment 2 - Photographic Log

South Airpark/Northlink Airpark Subsurface Soil PFAS Investigation



Photo 5: TH-25 area debris item 1 – metal marston matting



Photo 6: TH-25 area debris item 2 – metal grating with frame

Attachment 2 - Photographic Log
South Airpark/Northlink Airpark Subsurface Soil PFAS Investigation



Photo 7: TH-25 area debris item 3 – empty fuel and paint cans



Photo 8: TH-21 location facing southeast

Attachment 2 - Photographic Log
South Airpark/Northlink Airpark Subsurface Soil PFAS Investigation



Photo 9: TH-19 location facing northeast



Photo 10: TH-19 subsurface sample soil

Attachment 2 - Photographic Log
South Airpark/Northlink Airpark Subsurface Soil PFAS Investigation



Photo 11: TH-15 location facing west



Photo 12: TH-09 location facing northwest

Attachment 2 - Photographic Log
South Airpark/Northlink Airpark Subsurface Soil PFAS Investigation



Photo 13: TH-09 subsurface sample soil



Photo 14: TH-13 subsurface sample soil

Attachment 2 - Photographic Log
South Airpark/Northlink Airpark Subsurface Soil PFAS Investigation



Photo 15: TH-12 location facing west



Photo 16: TH-05 location facing west

Attachment 2 - Photographic Log
South Airpark/Northlink Airpark Subsurface Soil PFAS Investigation



Photo 17: TH-08 location facing west

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ATTACHMENT 3 – SAMPLE SUMMARY AND NOTES

Spring 2022 Anchorage South Airpark/Northlink Airpark Subsurface Soil PFAS Site Investigation

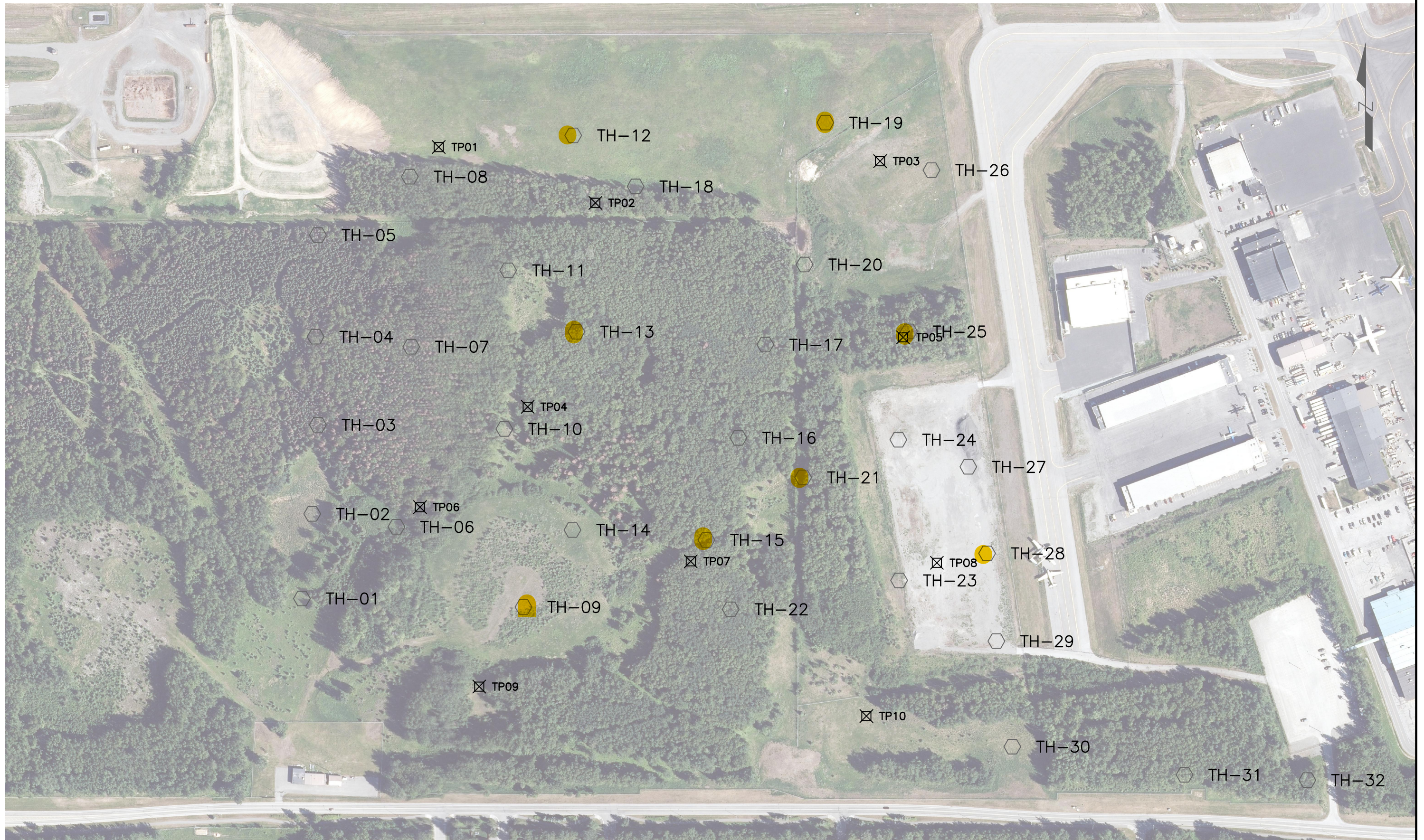
Test Hole Location ID*	Sample ID	Date	Time	Sample Depth (ft)	Laboratory Analysis	Notes
TH-28	22-SAP-SO-TH28-05	3/30/2022	910	5	PFAS/PFOA - EPA 537M	Brown silt
Th-25	22-SAP-SO-TH25-10	3/30/2022	1312	10	PFAS/PFOA - EPA 537M	Brown silt
TH-21	22-SAP-SO-TH21-7.5	4/3/2022	937	7.5	PFAS/PFOA - EPA 537M	Brown silt
TH-19	22-SAP-SO-TH19-10	4/5/2022	930	10	PFAS/PFOA - EPA 537M	Brown silt
TH-15	22-SAP-SO-TH15-05	4/5/2022	1429	5	PFAS/PFOA - EPA 537M	Brown silt
TH-09	22-SAP-SO-TH09-10	4/7/2022	1005	10	PFAS/PFOA - EPA 537M	Brown silt
TH-09	22-SAP-SO-TH09-00	4/7/2022	1010	10	PFAS/PFOA - EPA 537M	Duplicate sample
TH-13	22-SAP-SO-TH13-05	4/13/2022	1000	5	PFAS/PFOA - EPA 537M	Brown silt
TH-12	22-SAP-SO-TH12-10	4/13/2022	1303	10	PFAS/PFOA - EPA 537M	Brown silt
TH-08	22-SAP-SO-TH08-05	4/13/2022	1538	5	PFAS/PFOA - EPA 537M	Brown silt
TH-08	22-SAP-SO-TH08-00	4/13/2022	1540	5	PFAS/PFOA - EPA 537M	Duplicate sample
TH-05	22-SAP-SO-TH05-05	4/14/2022	1120	5	PFAS/PFOA - EPA 537M	Brown silt

* Based on CRW Engineering geotechnical boring locations

Northlink Aviation Airpark - Proposaewd Soil SampleLocation Sheet

Test Hole	Test Hole Depth	Existing Ground Elevation (feet)	Approximate Final Elevation (feet)	Fill (- Cut), feet	PFOA/PFAS Sample Depth(s) (ft)	Piezometer	Design Element
TH-01	50	83.912	108	24			Off Apron/Adjacent to Berm
TH-02	50	67.589	115	47		Yes	Hardstand
TH-03	50	72.188	115	43			Hardstand
TH-04	50	86.862	115	28			Hardstand
TH-05	50	82.034	115	33			Hardstand
TH-06	30	96.209	115	19			Apron/Taxiway
TH-07	30	101.794	115	13		Yes	Apron/Taxiway
TH-08	30	94.874	115	20			Apron/Taxiway
TH-09	50	134.975	115	-20	125		Edge of Apron
TH-10	30	107.848	115	7			Hardstand
TH-11	30	104.251	115	11			Hardstand
TH-12	35	125.177	115	-10	120	Yes	Edge of Apron
TH-13	35	125.719	115	-11	120		Apron/Taxiway
TH-14	45	133.749	115	-19			Apron/Taxiway
TH-15	40	131.131	115	-16	125	Yes	Apron/Taxiway
TH-16	35	122.881	115	-8			Hardstand
TH-17	30	112.958	115	2			Apron/Taxiway
TH-18	30	102.97	115	12			Apron/Taxiway
TH-19	45	132.016	115	-17	120	Yes	Edge of Apron
TH-20	30	99.623	115	15			Hardstand
TH-21	45	133.318	115	-18	125	Yes	Hardstand
TH-22	50	128.096	115	-13			Deicing Building
TH-23	50	119.189	113.9	-5			Building
TH-24	50	117.997	113.9	-4			Building
TH-25	35	124.239	115	-9	115	Yes	Apron/Taxiway
TH-26	30	108.759	115	6			Apron/Taxiway
TH-27	35	116.693	115	-2			Vehicle Parking
TH-28	35	119.681	115	-5	115		Vehicle Parking
TH-29	50	121.621	120	-2			Access Road/Adjacent to Berm
TH-30	35	115.472	120	5			Access Road
TH-31	35	150.678	120	-31		Yes	Access Road
TH-32	35	149.026	120	-29			Access Road
	1260	Total Footage					

File: J:\JobsData\73130.00 ANC South AirPark Development\00 CADD 2019\02 Figures\05 Geotech\73130.00 Geotech Testholes.dwg



LEGEND

-  PROPOSED TESTHOLE LOCATION
-  APPROXIMATE TEST PIT LOCATION

PROJECT: 73130.00
STATUS: DRAFT



MCG EXPLORE DESIGN
ANC SOUTH AIRPARK
TEST PIT LOCATIONS

DATE
FEB2022
SCALE
NTS
FIGURE
1

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ATTACHMENT 4 – ANALYTICAL DATA PACKAGES

Laboratory Report of Analysis

To: ChemTrack
11711 S Gambell St
Anchorage, AK 99515
(907)250-9337

Report Number: **1221457**

Client Project: **North Link Airport**

Dear Forrest Janukajtis,

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 Justin 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.

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Case Narrative

SGS Client: **ChemTrack**
SGS Project: **1221457**
Project Name/Site: **North Link Airport**
Project Contact: **Forrest Janukajtis**

Refer to sample receipt form for information on sample condition.

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

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

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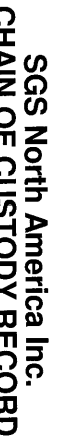
Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
22SAP-SO-TH09-00	1221457007	04/07/2022	04/07/2022	Soil/Solid (dry weight)
22SAP-SO-TH09-10	1221457006	04/07/2022	04/07/2022	Soil/Solid (dry weight)
22SAP-SO-TH15-05	1221457005	04/05/2022	04/07/2022	Soil/Solid (dry weight)
22SAP-SO-TH19-10	1221457004	04/05/2022	04/07/2022	Soil/Solid (dry weight)
22SAP-SO-TH21-7.5	1221457003	04/03/2022	04/07/2022	Soil/Solid (dry weight)
22SAP-SO-TH25-10	1221457002	03/30/2022	04/07/2022	Soil/Solid (dry weight)
22SAP-SO-TH28-05	1221457001	03/30/2022	04/07/2022	Soil/Solid (dry weight)

Method

Method Description

Print Date: 04/20/2022 2:45:50PM



CLIENT: ChemTrack										INSTRUCTIONS: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.										Page 1 of 1 4 of 41																																																											
CONTACT: Fornest Jankey's PHONE #: 907-350-9337										Section 3										Preservative																																																											
PROJECT NAME: Nashville Airport PROJECT/ PWSID/ PERMIT#: 										Section 4										Analysis*																																																											
REPORTS TO: Fornest Chemtrack, Inc. E-MAIL: 										Section 5										Temp Blank °C: 1.8 DOD Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Data Deliverable Requirements: Level 2																																																											
INVOICE TO: For e chemtrack, inc. QUOTE #: 373966671										Section 6										Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT																																																											
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3ASAP-SO-TH09-00										4/17/22										1010																				1										6										X																			
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Relinquished By: (3)										Date										Time										Received By:																																																	
Relinquished By: (4)										Date 4/12/22 12:20										Time										Received For Laboratory By: Denise R.																																																	

Review Criteria		Condition (Yes, No, N/A)		Exceptions Noted below	
Chain of Custody / Temperature Requirements				Yes 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			
<div style="border: 1px solid black; padding: 2px;">N/A</div> **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: SAP 02	@ 1.8 °C Therm. ID: D62
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.					
Holding Time / Documentation / Sample Condition Requirements		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)? <div style="border: 1px solid black; padding: 2px;">Yes</div>					
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		<div style="border: 1px solid black; padding: 2px;">N/A</div> ***Exemption permitted for metals (e.g. 200.8/6020B).	
Volatile / LL-Hg Requirements					
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?		N/A			
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?		N/A			
Were all soil VOAs field extracted with MeOH+BFB?		N/A			
Note to Client: 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>
1221457001-A	No Preservative Required	OK			
1221457002-A	No Preservative Required	OK			
1221457003-A	No Preservative Required	OK			
1221457004-A	No Preservative Required	OK			
1221457005-A	No Preservative Required	OK			
1221457006-A	No Preservative Required	OK			
1221457007-A	No Preservative Required	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

1221457

SGS Job Number: FA94723

Sampling Dates: 03/30/22 - 04/07/22

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: 35



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), NC(573), NJ(FL002), NY(12022), SC(96038001)
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),
AL, AK, AR, CT, IA, KY, MA, MI, MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV
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Test results relate only to samples analyzed.

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Sample Summary

SGS North America, Inc
1221457

Job No: FA94723

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FA94723-1	03/30/22	09:10	04/09/22	SO	Soil	22SAP-SO-TH28-05
FA94723-2	03/30/22	13:12	04/09/22	SO	Soil	22SAP-SO-TH25-10
FA94723-3	04/03/22	09:27	04/09/22	SO	Soil	22SAP-SO-TH21-7.5
FA94723-4	04/05/22	09:30	04/09/22	SO	Soil	22SAP-SO-TH19-10
FA94723-5	04/05/22	14:29	04/09/22	SO	Soil	22SAP-SO-TH15-05
FA94723-6	04/07/22	10:05	04/09/22	SO	Soil	22SAP-SO-TH09-10
FA94723-7	04/07/22	10:10	04/09/22	SO	Soil	22SAP-SO-TH09-00

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

SAMPLE DELIVERY GROUP CASE NARRATIVE

2

Client: SGS North America, Inc

Job No: FA94723

Site: 1221457

Report Date: 4/20/2022 4:27:33 PM

On 04/09/2022, 7 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 3.6 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FA94723 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 537M BY ID

Matrix: SO

Batch ID: OP90682

Sample(s) FA94722-1MS, FA94722-1MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for 4:2 Fluorotelomer sulfonate, EtFOSAA, MeFOSAA, Perfluorobutanoic acid, Perfluorodecanesulfonic acid, Perfluorodecanoic acid, Perfluorododecanoic acid, Perfluoroheptanesulfonic acid, Perfluorohexanesulfonic acid, Perfluorononanesulfonic acid, Perfluorononanoic acid, Perfluoropentanesulfonic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid, PFOSA, 6:2 Fluorotelomer sulfonate, 8:2 Fluorotelomer sulfonate, Perfluorohexanoic acid, Perfluorooctanoic acid, Perfluoropentanoic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount and/or possible matrix interference.

Matrix Spike Duplicate Recovery(s) for 4:2 Fluorotelomer sulfonate, 6:2 Fluorotelomer sulfonate, 8:2 Fluorotelomer sulfonate, EtFOSAA, MeFOSAA, Perfluorobutanesulfonic acid, Perfluorobutanoic acid, Perfluorodecanesulfonic acid, Perfluorodecanoic acid, Perfluorododecanoic acid, Perfluoroheptanesulfonic acid, Perfluoroheptanoic acid, Perfluorohexanesulfonic acid, Perfluorohexanoic acid, Perfluorononanesulfonic acid, Perfluorononanoic acid, Perfluorooctanesulfonic acid, Perfluorooctanoic acid, Perfluoropentanesulfonic acid, Perfluoropentanoic acid, Perfluorotetradecanoic acid, Perfluorotridecanoic acid, Perfluoroundecanoic acid, PFOSA are outside control limits. Outside control limits due to high level in sample relative to spike amount and/or possible matrix interference.

Sample(s) FA94723-1, FA94723-2, FA94723-6 have surrogates outside control limits.

FA94723-1 for 13C8-FOSA: Outside control limits.

FA94723-1 for PFOSA: Associated ID Standard outside control limits.

FA94723-1: Confirmation run.

FA94723-2 for 13C8-FOSA: Outside control limits.

FA94723-2 for PFOSA: Associated ID Standard outside control limits.

FA94723-2: Confirmation run.

FA94723-6 for 13C8-FOSA: Outside control limits.

FA94723-6 for PFOSA: Associated ID Standard outside control limits.

FA94723-6: Confirmation run.

General Chemistry By Method SM19 2540G

Matrix: SO

Batch ID: GN91110

Sample(s) FA94864-4DUP were used as the QC samples for Solids, Percent.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc. - Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

Kim Benham, Client Services (*Signature on File*)

Summary of Hits

Job Number: FA94723
Account: SGS North America, Inc
Project: 1221457
Collected: 03/30/22 thru 04/07/22



Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method
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FA94723-1 22SAP-SO-TH28-05

No hits reported in this sample.

FA94723-2 22SAP-SO-TH25-10

No hits reported in this sample.

FA94723-3 22SAP-SO-TH21-7.5

No hits reported in this sample.

FA94723-4 22SAP-SO-TH19-10

No hits reported in this sample.

FA94723-5 22SAP-SO-TH15-05

No hits reported in this sample.

FA94723-6 22SAP-SO-TH09-10

No hits reported in this sample.

FA94723-7 22SAP-SO-TH09-00

No hits reported in this sample.



Orlando, FL

Section 4

4

Sample Results

Report of Analysis



Report of Analysis

Page 1 of 2

Client Sample ID:	22SAP-SO-TH28-05		
Lab Sample ID:	FA94723-1	Date Sampled:	03/30/22
Matrix:	SO - Soil	Date Received:	04/09/22
Method:	EPA 537M BY ID IN HOUSE	Percent Solids:	85.2
Project:	1221457		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q89360.D	1	04/17/22 18:19	JB	04/11/22 06:30	OP90682	S2Q1254
Run #2 ^a	2Q89264.D	10	04/16/22 14:56	JB	04/11/22 06:30	OP90682	S2Q1252

	Initial Weight	Final Volume
Run #1	2.03 g	1.0 ml
Run #2	2.03 g	1.0 ml

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

375-22-4	Perfluorobutanoic acid	0.00058 U	0.0012	0.00058	0.00044	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
375-95-1	Perfluorononanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00058 U	0.0012	0.00058	0.00031	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00058 U	0.0012	0.00058	0.00023	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

PERFLUOROOCCTANESULFONAMIDES

754-91-6	PFOSA ^b	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
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PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.0012 U	0.0029	0.0012	0.00058	mg/kg	
2991-50-6	EtFOSAA	0.0012 U	0.0029	0.0012	0.00058	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00058 U	0.0012	0.00058	0.00029	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

Page 2 of 2

Client Sample ID: 22SAP-SO-TH28-05

Lab Sample ID: FA94723-1

Date Sampled: 03/30/22

Matrix: SO - Soil

Date Received: 04/09/22

Method: EPA 537M BY ID IN HOUSE

Percent Solids: 85.2

Project: 1221457

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	83%	80%	40-140%
	13C5-PFPeA	84%	81%	50-150%
	13C5-PFHxA	85%	81%	50-150%
	13C4-PFHpA	87%	82%	50-150%
	13C8-PFOA	87%	82%	50-150%
	13C9-PFNA	86%	82%	50-150%
	13C6-PFDA	86%	82%	50-150%
	13C7-PFUnDA	85%	82%	40-140%
	13C2-PFDoDA	84%	81%	40-140%
	13C2-PFTeDA	90%	86%	30-130%
	13C3-PFBS	83%	79%	50-150%
	13C3-PFHxS	79%	79%	50-150%
	13C8-PFOS	81%	77%	50-150%
	13C8-FOSA	29% ^c	29% ^c	30-130%
	d3-MeFOSAA	81%	75%	40-140%
	d5-EtFOSAA	87%	85%	40-140%
	13C2-4:2FTS	79%	79%	50-150%
	13C2-6:2FTS	79%	77%	50-150%
	13C2-8:2FTS	79%	75%	50-150%

(a) Confirmation run.

(b) Associated ID Standard outside control limits.

(c) Outside control limits.

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

Page 1 of 2

Client Sample ID:	22SAP-SO-TH25-10		
Lab Sample ID:	FA94723-2	Date Sampled:	03/30/22
Matrix:	SO - Soil	Date Received:	04/09/22
Method:	EPA 537M BY ID IN HOUSE	Percent Solids:	90.4
Project:	1221457		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q89361.D	1	04/17/22 18:36	JB	04/11/22 06:30	OP90682	S2Q1254
Run #2 ^a	2Q89265.D	10	04/16/22 15:13	JB	04/11/22 06:30	OP90682	S2Q1252

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	0.00055 U	0.0011	0.00055	0.00042	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
375-95-1	Perfluorononanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00055 U	0.0011	0.00055	0.00029	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00055 U	0.0011	0.00055	0.00022	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

PERFLUOROOCCTANESULFONAMIDES

754-91-6	PFOSA ^b	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
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PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.0011 U	0.0028	0.0011	0.00055	mg/kg	
2991-50-6	EtFOSAA	0.0011 U	0.0028	0.0011	0.00055	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00055 U	0.0011	0.00055	0.00028	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

Page 2 of 2

Client Sample ID:	22SAP-SO-TH25-10	Date Sampled:	03/30/22
Lab Sample ID:	FA94723-2	Date Received:	04/09/22
Matrix:	SO - Soil	Percent Solids:	90.4
Method:	EPA 537M BY ID IN HOUSE		
Project:	1221457		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	91%	95%	40-140%
	13C5-PFPeA	95%	98%	50-150%
	13C5-PFHxA	97%	101%	50-150%
	13C4-PFHpA	100%	104%	50-150%
	13C8-PFOA	103%	109%	50-150%
	13C9-PFNA	100%	106%	50-150%
	13C6-PFDA	101%	108%	50-150%
	13C7-PFUnDA	99%	104%	40-140%
	13C2-PFDoDA	99%	103%	40-140%
	13C2-PFTeDA	107%	109%	30-130%
	13C3-PFBS	96%	99%	50-150%
	13C3-PFHxS	94%	102%	50-150%
	13C8-PFOS	96%	99%	50-150%
	13C8-FOSA	28% ^c	30%	30-130%
	d3-MeFOSAA	92%	93%	40-140%
	d5-EtFOSAA	96%	109%	40-140%
	13C2-4:2FTS	91%	97%	50-150%
	13C2-6:2FTS	92%	96%	50-150%
	13C2-8:2FTS	91%	95%	50-150%

- (a) Confirmation run.
 (b) Associated ID Standard outside control limits.
 (c) Outside control limits.

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

Page 1 of 2

Client Sample ID:	22SAP-SO-TH21-7.5		
Lab Sample ID:	FA94723-3	Date Sampled:	04/03/22
Matrix:	SO - Soil	Date Received:	04/09/22
Method:	EPA 537M BY ID IN HOUSE	Percent Solids:	82.1
Project:	1221457		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q89362.D	1	04/17/22 18:53	JB	04/11/22 06:30	OP90682	S2Q1254
Run #2							

	Initial Weight	Final Volume
Run #1	2.12 g	1.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	0.00057 U	0.0011	0.00057	0.00044	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
375-95-1	Perfluorononanoic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00057 U	0.0011	0.00057	0.00030	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00057 U	0.0011	0.00057	0.00023	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00057 U	0.0011	0.00057	0.00029	mg/kg	

PERFLUOROOCTANESULFONAMIDES

754-91-6	PFOSA	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
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PERFLUOROOCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.0011 U	0.0029	0.0011	0.00057	mg/kg	
2991-50-6	EtFOSAA	0.0011 U	0.0029	0.0011	0.00057	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00057 U	0.0011	0.00057	0.00029	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00057 U	0.0011	0.00057	0.00029	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

Client Sample ID:	22SAP-SO-TH21-7.5			Date Sampled:	04/03/22
Lab Sample ID:	FA94723-3			Date Received:	04/09/22
Matrix:	SO - Soil			Percent Solids:	82.1
Method:	EPA 537M BY ID IN HOUSE				
Project:	1221457				

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00057 U	0.0011	0.00057	0.00029	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	93%		40-140%
	13C5-PFPeA	95%		50-150%
	13C5-PFHxA	96%		50-150%
	13C4-PFHpA	99%		50-150%
	13C8-PFOA	99%		50-150%
	13C9-PFNA	98%		50-150%
	13C6-PFDA	98%		50-150%
	13C7-PFUnDA	97%		40-140%
	13C2-PFDoDA	96%		40-140%
	13C2-PFTeDA	104%		30-130%
	13C3-PFBS	93%		50-150%
	13C3-PFHxS	90%		50-150%
	13C8-PFOS	92%		50-150%
	13C8-FOSA	46%		30-130%
	d3-MeFOSAA	94%		40-140%
	d5-EtFOSAA	99%		40-140%
	13C2-4:2FTS	89%		50-150%
	13C2-6:2FTS	90%		50-150%
	13C2-8:2FTS	90%		50-150%

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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Client Sample ID:	22SAP-SO-TH19-10		
Lab Sample ID:	FA94723-4	Date Sampled:	04/05/22
Matrix:	SO - Soil	Date Received:	04/09/22
Method:	EPA 537M BY ID IN HOUSE	Percent Solids:	87.8
Project:	1221457		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q89363.D	1	04/17/22 19:09	JB	04/11/22 06:30	OP90682	S2Q1254
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	0.00057 U	0.0011	0.00057	0.00043	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
375-95-1	Perfluorononanoic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00057 U	0.0011	0.00057	0.00030	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00057 U	0.0011	0.00057	0.00023	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00057 U	0.0011	0.00057	0.00028	mg/kg	

PERFLUOROOCCTANESULFONAMIDES

754-91-6	PFOSA	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
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PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.0011 U	0.0028	0.0011	0.00057	mg/kg	
2991-50-6	EtFOSAA	0.0011 U	0.0028	0.0011	0.00057	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00057 U	0.0011	0.00057	0.00028	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00057 U	0.0011	0.00057	0.00028	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

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Client Sample ID:	22SAP-SO-TH19-10	Date Sampled:	04/05/22
Lab Sample ID:	FA94723-4	Date Received:	04/09/22
Matrix:	SO - Soil	Percent Solids:	87.8
Method:	EPA 537M BY ID IN HOUSE		
Project:	1221457		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00057 U	0.0011	0.00057	0.00028	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	96%		40-140%
	13C5-PFPeA	98%		50-150%
	13C5-PFHxA	99%		50-150%
	13C4-PFHpA	101%		50-150%
	13C8-PFOA	102%		50-150%
	13C9-PFNA	102%		50-150%
	13C6-PFDA	101%		50-150%
	13C7-PFUnDA	101%		40-140%
	13C2-PFDoDA	99%		40-140%
	13C2-PFTeDA	107%		30-130%
	13C3-PFBS	94%		50-150%
	13C3-PFHxS	93%		50-150%
	13C8-PFOS	94%		50-150%
	13C8-FOSA	46%		30-130%
	d3-MeFOSAA	101%		40-140%
	d5-EtFOSAA	103%		40-140%
	13C2-4:2FTS	91%		50-150%
	13C2-6:2FTS	93%		50-150%
	13C2-8:2FTS	93%		50-150%

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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Client Sample ID:	22SAP-SO-TH15-05		
Lab Sample ID:	FA94723-5	Date Sampled:	04/05/22
Matrix:	SO - Soil	Date Received:	04/09/22
Method:	EPA 537M BY ID IN HOUSE	Percent Solids:	85.3
Project:	1221457		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q89364.D	1	04/17/22 19:26	JB	04/11/22 06:30	OP90682	S2Q1254
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	0.00059 U	0.0012	0.00059	0.00045	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
375-95-1	Perfluorononanoic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00059 U	0.0012	0.00059	0.00031	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00059 U	0.0012	0.00059	0.00023	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00059 U	0.0012	0.00059	0.00029	mg/kg	

PERFLUOROOCTANESULFONAMIDES

754-91-6	PFOSA	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
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PERFLUOROOCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.0012 U	0.0029	0.0012	0.00059	mg/kg	
2991-50-6	EtFOSAA	0.0012 U	0.0029	0.0012	0.00059	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00059 U	0.0012	0.00059	0.00029	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00059 U	0.0012	0.00059	0.00029	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

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Client Sample ID:	22SAP-SO-TH15-05	Date Sampled:	04/05/22
Lab Sample ID:	FA94723-5	Date Received:	04/09/22
Matrix:	SO - Soil	Percent Solids:	85.3
Method:	EPA 537M BY ID IN HOUSE		
Project:	1221457		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00059 U	0.0012	0.00059	0.00029	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	85%		40-140%
	13C5-PFPeA	86%		50-150%
	13C5-PFHxA	87%		50-150%
	13C4-PFHpA	90%		50-150%
	13C8-PFOA	91%		50-150%
	13C9-PFNA	89%		50-150%
	13C6-PFDA	89%		50-150%
	13C7-PFUnDA	89%		40-140%
	13C2-PFDoDA	87%		40-140%
	13C2-PFTeDA	94%		30-130%
	13C3-PFBS	84%		50-150%
	13C3-PFHxS	83%		50-150%
	13C8-PFOS	84%		50-150%
	13C8-FOSA	43%		30-130%
	d3-MeFOSAA	86%		40-140%
	d5-EtFOSAA	90%		40-140%
	13C2-4:2FTS	82%		50-150%
	13C2-6:2FTS	82%		50-150%
	13C2-8:2FTS	82%		50-150%

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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Client Sample ID:	22SAP-SO-TH09-10		
Lab Sample ID:	FA94723-6	Date Sampled:	04/07/22
Matrix:	SO - Soil	Date Received:	04/09/22
Method:	EPA 537M BY ID IN HOUSE	Percent Solids:	79.7
Project:	1221457		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q89365.D	1	04/17/22 19:43	JB	04/11/22 06:30	OP90682	S2Q1254
Run #2 ^a	2Q89271.D	10	04/16/22 16:53	JB	04/11/22 06:30	OP90682	S2Q1252

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	0.00062 U	0.0012	0.00062	0.00047	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
375-95-1	Perfluorononanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00062 U	0.0012	0.00062	0.00033	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	

PERFLUOROALKYL SULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00062 U	0.0012	0.00062	0.00025	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	

PERFLUOROOCTANESULFONAMIDES

754-91-6	PFOSA ^b	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
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PERFLUOROOCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.0012 U	0.0031	0.0012	0.00062	mg/kg	
2991-50-6	EtFOSAA	0.0012 U	0.0031	0.0012	0.00062	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00062 U	0.0012	0.00062	0.00031	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

Client Sample ID:	22SAP-SO-TH09-10		
Lab Sample ID:	FA94723-6	Date Sampled:	04/07/22
Matrix:	SO - Soil	Date Received:	04/09/22
Method:	EPA 537M BY ID IN HOUSE	Percent Solids:	79.7
Project:	1221457		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00062 U	0.0012	0.00062	0.00031	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	66%	64%	40-140%
	13C5-PFPeA	67%	65%	50-150%
	13C5-PFHxA	68%	65%	50-150%
	13C4-PFHpA	70%	67%	50-150%
	13C8-PFOA	71%	69%	50-150%
	13C9-PFNA	68%	68%	50-150%
	13C6-PFDA	69%	66%	50-150%
	13C7-PFUnDA	68%	65%	40-140%
	13C2-PFDoDA	67%	65%	40-140%
	13C2-PFTeDA	73%	70%	30-130%
	13C3-PFBS	66%	64%	50-150%
	13C3-PFHxS	65%	65%	50-150%
	13C8-PFOS	65%	66%	50-150%
	13C8-FOSA	27% ^c	24% ^c	30-130%
	d3-MeFOSAA	67%	67%	40-140%
	d5-EtFOSAA	70%	71%	40-140%
	13C2-4:2FTS	63%	60%	50-150%
	13C2-6:2FTS	64%	63%	50-150%
	13C2-8:2FTS	64%	64%	50-150%

- (a) Confirmation run.
- (b) Associated ID Standard outside control limits.
- (c) Outside control limits.

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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Client Sample ID:	22SAP-SO-TH09-00		
Lab Sample ID:	FA94723-7	Date Sampled:	04/07/22
Matrix:	SO - Soil	Date Received:	04/09/22
Method:	EPA 537M BY ID IN HOUSE	Percent Solids:	78.9
Project:	1221457		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q89366.D	1	04/17/22 20:00	JB	04/11/22 06:30	OP90682	S2Q1254
Run #2							

	Initial Weight	Final Volume
Run #1	2.03 g	1.0 ml
Run #2		

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

375-22-4	Perfluorobutanoic acid	0.00062 U	0.0012	0.00062	0.00047	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
375-95-1	Perfluorononanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00062 U	0.0012	0.00062	0.00033	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00062 U	0.0012	0.00062	0.00025	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00062 U	0.0012	0.00062	0.00031	mg/kg	

PERFLUOROOCCTANESULFONAMIDES

754-91-6	PFOSA	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
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PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.0012 U	0.0031	0.0012	0.00062	mg/kg	
2991-50-6	EtFOSAA	0.0012 U	0.0031	0.0012	0.00062	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00062 U	0.0012	0.00062	0.00031	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00062 U	0.0012	0.00062	0.00031	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

Page 2 of 2

Client Sample ID:	22SAP-SO-TH09-00	Date Sampled:	04/07/22
Lab Sample ID:	FA94723-7	Date Received:	04/09/22
Matrix:	SO - Soil	Percent Solids:	78.9
Method:	EPA 537M BY ID IN HOUSE		
Project:	1221457		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00062 U	0.0012	0.00062	0.00031	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	84%		40-140%
	13C5-PFPeA	85%		50-150%
	13C5-PFHxA	86%		50-150%
	13C4-PFHpA	89%		50-150%
	13C8-PFOA	89%		50-150%
	13C9-PFNA	86%		50-150%
	13C6-PFDA	88%		50-150%
	13C7-PFUnDA	87%		40-140%
	13C2-PFDoDA	86%		40-140%
	13C2-PFTeDA	92%		30-130%
	13C3-PFBS	82%		50-150%
	13C3-PFHxS	82%		50-150%
	13C8-PFOS	82%		50-150%
	13C8-FOSA	44%		30-130%
	d3-MeFOSAA	89%		40-140%
	d5-EtFOSAA	91%		40-140%
	13C2-4:2FTS	81%		50-150%
	13C2-6:2FTS	81%		50-150%
	13C2-8:2FTS	80%		50-150%

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

5

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody

Parameter Certification Exceptions

Page 1 of 1

Job Number: FA94723

Account: SGS/KA SGS North America, Inc

Project: 1221457

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
4:2 Fluorotelomer sulfonate	757124-72-4	EPA 537M BY ID	SO	Certified by SOP MS014
6:2 Fluorotelomer sulfonate	27619-97-2	EPA 537M BY ID	SO	Certified by SOP MS014
8:2 Fluorotelomer sulfonate	39108-34-4	EPA 537M BY ID	SO	Certified by SOP MS014
EtFOSAA	2991-50-6	EPA 537M BY ID	SO	Certified by SOP MS014
MeFOSAA	2355-31-9	EPA 537M BY ID	SO	Certified by SOP MS014
PFOSA	754-91-6	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorobutanesulfonic acid	375-73-5	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorobutanoic acid	375-22-4	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorodecanesulfonic acid	335-77-3	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorodecanoic acid	335-76-2	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorododecanoic acid	307-55-1	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoroheptanesulfonic acid	375-92-8	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoroheptanoic acid	375-85-9	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorohexanesulfonic acid	355-46-4	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorohexanoic acid	307-24-4	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorononanesulfonic acid	68259-12-1	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorononanoic acid	375-95-1	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorooctanesulfonic acid	1763-23-1	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorooctanoic acid	335-67-1	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoropentanesulfonic acid	2706-91-4	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoropentanoic acid	2706-90-3	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorotetradecanoic acid	376-06-7	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluorotridecanoic acid	72629-94-8	EPA 537M BY ID	SO	Certified by SOP MS014
Perfluoroundecanoic acid	2058-94-8	EPA 537M BY ID	SO	Certified by SOP MS014

SGS North America Inc.
CHAIN OF CUSTODY RECORD



Locations Nationwide
Alaska Florida
New Jersey Colorado
Texas North Carolina
Virginia Louisiana
www.us.sgs.com

FA94723

CLIENT: SGS North America Inc. - Alaska Division				SGS Reference: SGS, Orlando, FL				Page 1 of 1							
CONTACT: Julie Shumway PHONE NO: (907) 562-2343				Additional Comments: All soils report out in dry weight unless											
PROJECT NAME: 1221457				PWSID#: NPDL#:				<div style="display: flex; justify-content: space-between;"> <div> # C O N T A I N E R S </div> <div> Preservative Used: NONE TYPE C = COMP G = GRAB MI = Multi Incremental Soils EPA 537 PFAS-CONFIRM LIST </div> </div>							
REPORTS TO: Julie Shumway				E-MAIL: Julie.Shumway@sgs.com Env.Alaska.ReflabTeam@sgs.com											
INVOICE TO: SGS - Alaska env.alaska.accounting@sgs.com				QUOTE #: 1221457 P.O. #:											
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/ MATRIX CODE							MS	MSD	SGS lab #	Location ID	
1	22SAP-SO-TH28-05	03/30/2022	09:10:00	SO	1		X						1221457001		
2	22SAP-SO-TH25-10	03/30/2022	13:12	SO	1		X						1221457002		
3	22SAP-SO-TH21-7.5	04/03/2022	09:37:00	SO	1		X						1221457003		
4	22SAP-SO-TH19-10	04/05/2022	09:30:00	SO	1		X						1221457004	INITIAL ASSESSMENT	
5	22SAP-SO-TH15-05	04/05/2022	14:29:00	SO	1		X						1221457005		
6	22SAP-SO-TH09-10	04/07/2022	10:05:00	SO	1		X						1221457006		
7	22SAP-SO-TH09-00	04/07/2022	10:10:00	SO	1		X						1221457007	LABEL VERIFICATION	
Relinquished By: (1)				Date	Time	Received By: 4/9/22				DOD Project? YES NO				Data Deliverable Requirements:	
Relinquished By: (2)				Date	Time	Received By:				Report to DL (J Flags)? YES				Level 2 + SGS EDD	
Relinquished By: (3)				Date	Time	Received By:				Cooler ID:					
Relinquished By: (4)				Date	Time	Received For Laboratory By:				Requested Turnaround Time and-or Special Instructions:					
								AIRPORT SAMPLES - May be HOT							
								Temp Blank °C:				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
[5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

<http://www.sgs.com/terms and conditions.htm>

F088_COC_REF_LAB_20190411

FA94723: Chain of Custody

Page 1 of 2

SGS Sample Receipt Summary

Job Number: FA94723

Client: SGS ALASKA

Project: 1221457

Date / Time Received: 4/9/2022 9:30:00 AM

Delivery Method: FEDEX

Airbill #s: 1483 4802 1741

Therm ID: IR 1;

Therm CF: 0.4;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.2);

Cooler Temps (Corrected) °C: Cooler 1: (3.6);

Cooler Information

Y or N

1. Custody Seals Present ☒ ☐
2. Custody Seals Intact ☒ ☐
3. Temp criteria achieved ☒ ☐
4. Cooler temp verification IR Gun
5. Cooler media Ice (Bag)

Trip Blank Information

Y or N N/A

1. Trip Blank present / cooler ☐ ☐ ☒
 2. Trip Blank listed on COC ☐ ☐ ☒
- W or S N/A
3. Type Of TB Received ☐ ☐ ☒

Sample Information

Y or N N/A

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

Misc. Information

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 _____

Other: (Specify) _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: SAMUELM

Date: 4/9/2022 9:30:00 AM

Reviewer: _____

Date: _____

FA94723: Chain of Custody

Page 2 of 2

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Method Blank Summary

Page 1 of 2

Job Number: FA94723
Account: SGS/KA SGS North America, Inc
Project: 1221457

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90682-MB	2Q89260.D	1	04/16/22	JB	04/11/22	OP90682	S2Q1252

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA94723-1, FA94723-2, FA94723-3, FA94723-4, FA94723-5, FA94723-6, FA94723-7

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.38	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.50	0.25	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.50	0.25	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.50	0.25	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.50	0.25	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.50	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.50	0.25	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.50	0.25	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.50	0.25	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.50	0.27	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.50	0.25	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	0.50	0.25	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.50	0.25	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.50	0.25	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.50	0.25	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.50	0.20	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.50	0.25	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.50	0.25	ug/kg	
754-91-6	PFOSA	ND	0.50	0.25	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.50	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	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	102% 40-140%
	13C5-PFPeA	103% 50-150%
	13C5-PFHxA	104% 50-150%
	13C4-PFHpA	107% 50-150%
	13C8-PFOA	108% 50-150%
	13C9-PFNA	105% 50-150%
	13C6-PFDA	107% 50-150%
	13C7-PFUnDA	106% 40-140%

Method Blank Summary

Job Number: FA94723
Account: SGS/SAK North America, Inc
Project: 1221457

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90682-MB	2Q89260.D	1	04/16/22	JB	04/11/22	OP90682	S2Q1252

The QC reported here applies to the following samples: Method: EPA 537M BY ID

FA94723-1, FA94723-2, FA94723-3, FA94723-4, FA94723-5, FA94723-6, FA94723-7

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	104% 40-140%
	13C2-PFTeDA	114% 30-130%
	13C3-PFBS	101% 50-150%
	13C3-PFHxS	99% 50-150%
	13C8-PFOS	101% 50-150%
	13C8-FOSA	42% 30-130%
	d3-MeFOSAA	107% 40-140%
	d5-EtFOSAA	113% 40-140%
	13C2-4:2FTS	98% 50-150%
	13C2-6:2FTS	99% 50-150%
	13C2-8:2FTS	99% 50-150%

Instrument Blank

Page 1 of 2

Job Number: FA94723

Account: SGS/KA SGS North America, Inc

Project: 1221457

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q1254-IBLK	2Q89354.D	1	04/17/22	JB	n/a	n/a	S2Q1254

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA94723-1, FA94723-2, FA94723-3, FA94723-4, FA94723-5, FA94723-6, FA94723-7

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.38	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.25	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.25	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	0.27	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	1.0	0.25	ug/kg	
2991-50-6	EtFOSAA	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	114% 50-150%
	13C5-PFPeA	117% 50-150%
	13C5-PFHxA	117% 50-150%
	13C4-PFHpA	118% 50-150%
	13C8-PFOA	120% 50-150%
	13C9-PFNA	116% 50-150%
	13C6-PFDA	113% 50-150%
	13C7-PFUnDA	113% 50-150%

Instrument Blank

Job Number: FA94723
Account: SGS/SAK North America, Inc
Project: 1221457

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q1254-IBLK	2Q89354.D	1	04/17/22	JB	n/a	n/a	S2Q1254

The QC reported here applies to the following samples: Method: EPA 537M QSM5.3 B-15

FA94723-1, FA94723-2, FA94723-3, FA94723-4, FA94723-5, FA94723-6, FA94723-7

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	111% 50-150%
	13C2-PFTeDA	110% 50-150%
	13C3-PFBS	113% 50-150%
	13C3-PFHxS	109% 50-150%
	13C8-PFOS	111% 50-150%
	13C8-FOSA	119% 50-150%
	d3-MeFOSA	107% 50-150%
	d3-MeFOSAA	111% 50-150%
	d5-EtFOSAA	117% 50-150%
	13C2-4:2FTS	110% 50-150%
	13C2-6:2FTS	108% 50-150%
	13C2-8:2FTS	108% 50-150%
	13C3-HFPO-DA	100% 50-150%

Instrument Blank

Page 1 of 2

Job Number: FA94723

Account: SGS/KA SGS North America, Inc

Project: 1221457

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q1252-IBLK	2Q89188.D	1	04/15/22	JB	n/a	n/a	S2Q1252

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

OP90682-BS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.38	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.25	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.25	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	0.27	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	1.0	0.25	ug/kg	
2991-50-6	EtFOSAA	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	115% 50-150%
	13C5-PFPeA	117% 50-150%
	13C5-PFHxA	119% 50-150%
	13C4-PFHpA	119% 50-150%
	13C8-PFOA	122% 50-150%
	13C9-PFNA	118% 50-150%
	13C6-PFDA	115% 50-150%
	13C7-PFUnDA	114% 50-150%

Instrument Blank

Job Number: FA94723
Account: SGS/KA SGS North America, Inc
Project: 1221457

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q1252-IBLK	2Q89188.D	1	04/15/22	JB	n/a	n/a	S2Q1252

The QC reported here applies to the following samples: Method: EPA 537M QSM5.3 B-15
OP90682-BS

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	114% 50-150%
	13C2-PFTeDA	116% 50-150%
	13C3-PFBS	114% 50-150%
	13C3-PFHxS	112% 50-150%
	13C8-PFOS	114% 50-150%
	13C8-FOSA	120% 50-150%
	d3-MeFOSA	112% 50-150%
	d3-MeFOSAA	117% 50-150%
	d5-EtFOSAA	123% 50-150%
	13C2-4:2FTS	110% 50-150%
	13C2-6:2FTS	111% 50-150%
	13C2-8:2FTS	111% 50-150%
	13C3-HFPO-DA	106% 50-150%

Blank Spike Summary

Page 1 of 2

Job Number: FA94723
Account: SGS/SAK North America, Inc
Project: 1221457

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90682-BS	2Q89259.D	1	04/16/22	JB	04/11/22	OP90682	S2Q1252

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA94723-1, FA94723-2, FA94723-3, FA94723-4, FA94723-5, FA94723-6, FA94723-7

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	10.1	101	70-130
2706-90-3	Perfluoropentanoic acid	10	9.7	97	70-130
307-24-4	Perfluorohexanoic acid	10	10.1	101	70-130
375-85-9	Perfluoroheptanoic acid	10	9.6	96	70-130
335-67-1	Perfluorooctanoic acid	10	9.9	99	70-130
375-95-1	Perfluorononanoic acid	10	9.4	94	70-130
335-76-2	Perfluorodecanoic acid	10	9.8	98	70-130
2058-94-8	Perfluoroundecanoic acid	10	9.8	98	70-130
307-55-1	Perfluorododecanoic acid	10	9.8	98	70-130
72629-94-8	Perfluorotridecanoic acid	10	10.1	101	70-130
376-06-7	Perfluorotetradecanoic acid	10	9.5	95	70-130
375-73-5	Perfluorobutanesulfonic acid	10	9.9	99	70-130
2706-91-4	Perfluoropentanesulfonic acid	10	10	100	70-130
355-46-4	Perfluorohexanesulfonic acid	10	10.1	101	70-130
375-92-8	Perfluoroheptanesulfonic acid	10	10.6	106	70-130
1763-23-1	Perfluorooctanesulfonic acid	10	9.4	94	70-130
68259-12-1	Perfluorononanesulfonic acid	10	9.9	99	70-130
335-77-3	Perfluorodecanesulfonic acid	10	9.6	96	65-135
754-91-6	PFOSA	10	9.6	96	70-130
2355-31-9	MeFOSAA	10	10.0	100	70-130
2991-50-6	EtFOSAA	10	9.7	97	70-130
757124-72-44:2	Fluorotelomer sulfonate	10	11.9	119	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	10	11.7	117	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	10	11.5	115	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	96%	40-140%
	13C5-PFPeA	97%	50-150%
	13C5-PFHxA	99%	50-150%
	13C4-PFHpA	100%	50-150%
	13C8-PFOA	101%	50-150%
	13C9-PFNA	102%	50-150%
	13C6-PFDA	102%	50-150%
	13C7-PFUnDA	100%	40-140%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA94723
Account: SGSAKA SGS North America, Inc
Project: 1221457

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90682-BS	2Q89259.D	1	04/16/22	JB	04/11/22	OP90682	S2Q1252

The QC reported here applies to the following samples: Method: EPA 537M BY ID

FA94723-1, FA94723-2, FA94723-3, FA94723-4, FA94723-5, FA94723-6, FA94723-7

CAS No.	ID Standard Recoveries	BSP	Limits
	13C2-PFDoDA	99%	40-140%
	13C2-PFTeDA	109%	30-130%
	13C3-PFBS	96%	50-150%
	13C3-PFHxS	93%	50-150%
	13C8-PFOS	98%	50-150%
	13C8-FOSA	32%	30-130%
	d3-MeFOSAA	104%	40-140%
	d5-EtFOSAA	102%	40-140%
	13C2-4:2FTS	99%	50-150%
	13C2-6:2FTS	98%	50-150%
	13C2-8:2FTS	100%	50-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 2

Job Number: FA94723
Account: SGS/SAK A SGS North America, Inc
Project: 1221457

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90682-MS	2Q89358.D	50	04/17/22	JB	04/11/22	OP90682	S2Q1254
OP90682-MSD	2Q89359.D	50	04/17/22	JB	04/11/22	OP90682	S2Q1254
FA94722-1	2Q89261.D	10	04/16/22	JB	04/11/22	OP90682	S2Q1252
FA94722-1	2Q89357.D	50	04/17/22	JB	04/11/22	OP90682	S2Q1254

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA94723-1, FA94723-2, FA94723-3, FA94723-4, FA94723-5, FA94723-6, FA94723-7

CAS No.	Compound	FA94722-1 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	9.5	13.1	ND	-73*	12.9	ND	-73*	nc	70-130/30
2706-90-3	Perfluoropentanoic acid	323	13.1	296	-207* a	12.9	275	-371* a	7	70-130/30
307-24-4	Perfluorohexanoic acid	102	13.1	101	-8* a	12.9	95.9	-47* a	5	70-130/30
375-85-9	Perfluoroheptanoic acid	14.2	13.1	23.6	72	12.9	21.6	57*	9	70-130/30
335-67-1	Perfluorooctanoic acid	56.6	13.1	59.1	19* a	12.9	54.0	-20* a	9	70-130/30
375-95-1	Perfluorononanoic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
335-76-2	Perfluorodecanoic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
2058-94-8	Perfluoroundecanoic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
307-55-1	Perfluorododecanoic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
72629-94-8	Perfluorotridecanoic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
376-06-7	Perfluorotetradecanoic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
375-73-5	Perfluorobutanesulfonic acid	18.9	13.1	28.1	70	12.9	25.3	50*	10	70-130/30
2706-91-4	Perfluoropentanesulfonic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
355-46-4	Perfluorohexanesulfonic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
375-92-8	Perfluoroheptanesulfonic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
1763-23-1	Perfluorooctanesulfonic acid	8.4	13.1	21.7	102	12.9	16.9	66*	25	70-130/30
68259-12-1	Perfluorononanesulfonic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
335-77-3	Perfluorodecanesulfonic acid	ND	13.1	ND	0*	12.9	ND	0*	nc	65-135/30
754-91-6	PFOSA	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
2355-31-9	MeFOSAA	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
2991-50-6	EtFOSAA	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
757124-72-44:2	Fluorotelomer sulfonate	ND	13.1	ND	0*	12.9	ND	0*	nc	70-130/30
27619-97-2	6:2 Fluorotelomer sulfonate	659 b	13.1	648	-84* a	12.9	593	-511* a	9	70-130/30
39108-34-4	8:2 Fluorotelomer sulfonate	75.7	13.1	105	224* a	12.9	93.7	139* a	11	70-130/30

CAS No.	ID Standard Recoveries	MS	MSD	FA94722-1	FA94722-1	Limits
	13C4-PFBA	111%	113%	99%	108%	40-140%
	13C5-PFPeA	114%	116%	100%	111%	50-150%
	13C5-PFHxA	114%	116%	99%	110%	50-150%
	13C4-PFHpA	116%	116%	102%	112%	50-150%
	13C8-PFOA	117%	119%	100%	113%	50-150%
	13C9-PFNA	116%	115%	104%	111%	50-150%
	13C6-PFDA	111%	111%	91%	107%	50-150%
	13C7-PFUnDA	115%	115%	96%	111%	40-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 2 of 2

Job Number: FA94723
Account: SGS/SAK North America, Inc
Project: 1221457

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90682-MS	2Q89358.D	50	04/17/22	JB	04/11/22	OP90682	S2Q1254
OP90682-MSD	2Q89359.D	50	04/17/22	JB	04/11/22	OP90682	S2Q1254
FA94722-1	2Q89261.D	10	04/16/22	JB	04/11/22	OP90682	S2Q1252
FA94722-1	2Q89357.D	50	04/17/22	JB	04/11/22	OP90682	S2Q1254

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA94723-1, FA94723-2, FA94723-3, FA94723-4, FA94723-5, FA94723-6, FA94723-7

CAS No.	ID Standard Recoveries	MS	MSD	FA94722-1	FA94722-1	Limits
13C2-PFDoDA		116%	116%	92%	111%	40-140%
13C2-PFTeDA		121%	121%	101%	116%	30-130%
13C3-PFBS		111%	112%	99%	107%	50-150%
13C3-PFHxS		107%	108%	94%	102%	50-150%
13C8-PFOS		108%	111%	99%	106%	50-150%
13C8-FOSA		116%	119%	101%	113%	30-130%
d3-MeFOSAA		113%	115%	107%	113%	40-140%
d5-EtFOSAA		122%	123%	101%	118%	40-140%
13C2-4:2FTS		107%	107%	93%	103%	50-150%
13C2-6:2FTS		111%	111%	353% * c	108%	50-150%
13C2-8:2FTS		100%	100%	112%	96%	50-150%

(a) Outside control limits due to high level in sample relative to spike amount.

(b) Result is from Run #2.

(c) Outside control limits.

* = Outside of Control Limits.

Laboratory Report of Analysis

To: ChemTrack
11711 S Gambell St
Anchorage, AK 99515
(907)250-9337

Report Number: **1221610**

Client Project: **South Air Park**

Dear Forrest Janukajtis,

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 Justin 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.

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Case Narrative

SGS Client: **ChemTrack**
 SGS Project: **1221610**
 Project Name/Site: **South Air Park**
 Project Contact: **Forrest Janukajtis**

Refer to sample receipt form for information on sample condition.

EPA 537M- PFAS Full List were analyzed by SGS of Orlando, FL.

*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: 05/13/2022 9:41:17AM

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
22SAP-SO-TH13-05	1221610001	04/13/2022	04/14/2022	Solid/Soil (Wet Weight)
22SAP-SO-TH12-10	1221610002	04/13/2022	04/14/2022	Solid/Soil (Wet Weight)
22SAP-SO-TH08-05	1221610003	04/13/2022	04/14/2022	Solid/Soil (Wet Weight)
22SAP-SO-TH08-00	1221610004	04/13/2022	04/14/2022	Solid/Soil (Wet Weight)
22SAP-SO-TH05-05	1221610005	04/14/2022	04/14/2022	Solid/Soil (Wet Weight)

Method

Method Description

Print Date: 05/13/2022 9:41:20AM



SGS North America Inc.
CHAIN OF CUSTODY RECORD

Corrected Report - Revision 1

Profile # 373966 gm

www.us.sgs.com

Section 1		CLIENT:		CONTACT:		PHONE #:		PROJECT NAME:		PROJECT/ PWSID/ PERMIT#:		REPORTS TO:		E-MAIL:		INVOICE TO:		QUOTE #:		P.O. #:		Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.		Page 1 of 1	
Section 2		RESERVED for lab use		SAMPLE IDENTIFICATION		DATE mm/dd/yy		TIME HH:MM		MATRIX/ MATRIX CODE		# CONTAINERS		Comp Grab MI (Multi-incremental)		Analysis*		NOTE:		REMARKS/LOC ID					
		①A		22SAP-SO-TH12-05		4/13/22		1000		SO		1		6		X		1221610							
		②A		22SAP-SO-TH12-10		↓		1303		↓		↓		↓		X									
		③A		22SAP-SO-TH08-05				1538								X									
		④A		22SAP-SO-TH08-00				1540								X									
Section 5		Relinquished By: (1)		Date		Time		Received By:		Section 4		DOD Project? Yes (No)		Data Deliverable Requirements:											
		Relinquished By: (2)		Date		Time		Received By:		Cooler ID: SAP03		Level 2													
		Relinquished By: (3)		Date		Time		Received By:		Requested Turnaround Time and/or Special Instructions:															
		Relinquished By: (4)		Date		Time		Received For Laboratory By:		Temp Blank °C: 0.6 062		Chain of Custody Seal: (Circle)													
										or Ambient []		INTACT BROKEN <u>ABSENT</u>													
										Delivery Method: Hand Delivery <u>X</u> Commerical Delivery []															

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

SGS Workorder #:

1221610

1221610

Review Criteria		Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		<i>Note: Temperature and COC seal information is found on the chain of custody form</i>	
DOD only: Did all sample coolers have a corresponding COC?	N/A		
If <0°C, were sample containers ice free?	N/A		
Note containers received with ice:			
Identify any containers received at non-compliant temperature: (Use form FS-0029 if more space is needed)			
Holding Time / Documentation / Sample Condition Requirements <i>Note: Refer to form F-083 "Sample Guide" for specific holding times and sample containers.</i>			
Were samples received within analytical holding time?	Yes		
Do sample labels match COC? Record discrepancies.	No	COC states 22SAP-SO-TH12-05 for container 1A, container states 22SAP-SO-TH13-05. Identification was input per COC.	
Note: If information on containers differs from COC, default to COC information for login. If times differ <1hr, record details & login per COC.			
Were analytical requests clear? (i.e. method is specified for analyses with multiple option for method (Eg, BTEX 8021 vs 8260, Metals 6020 vs 200.8)	Yes		
Were proper containers (type/mass/volume/preservative) used? Note: Exemption for metals analysis by 200.8/6020 in water.	Yes		
Volatile Analysis Requirements (VOC, GRO, LL-Hg, etc.)			
Were all soil VOAs received with a corresponding % solids container?	N/A		
Were Trip Blanks (e.g., VOAs, LL-Hg) in cooler with samples?	N/A		
Were all water VOA vials free of headspace (e.g., bubbles ≤ 6mm)?	N/A		
Were all soil VOAs field extracted with Methanol+BFB?	N/A		
Note to Client: 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>
1221610001-A	No Preservative Required	OK			
1221610002-A	No Preservative Required	OK			
1221610003-A	No Preservative Required	OK			
1221610004-A	No Preservative Required	OK			
1221610005-A	No Preservative Required	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.



Orlando, FL

Reissue #1
05/13/22

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

1221610

SGS Job Number: FA94976

Sampling Dates: 04/13/22 - 04/14/22

Report to:

andrea.colby@sgs.com

Total number of pages in report: 34



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), NC(573), NJ(FL002), NY(12022), SC(96038001)
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),
AL, AK, AR, CT, IA, KY, MA, MI, MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

This report shall not be reproduced, except in its entirety, without the written approval of SGS.

Test results relate only to samples analyzed.



May 13, 2022

Mr. Justin Nelson
SGS
200 West Potter Drive
Anchorage, AK 99518

RE: SGS North America Inc. - Orlando job FA94976 Reissue

Dear Mr. Nelson,

The final report for job number FA94976 has been edited to reflect requested corrections. These edits have been incorporated into the revised report.

The sample ID on -1 has been changed per your request.

Please feel free to contact us if we can be of further assistance.

Sincerely,

SGS North America, Inc. - Orlando

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SGS North America Inc.

Sample Summary

SGS North America, Inc
1221610

Job No: FA94976

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA94976-1	04/13/22	10:00	04/19/22	SO	Soil	22SAP-SO-TH13-05
FA94976-2	04/13/22	13:03	04/19/22	SO	Soil	22SAP-SO-TH12-10
FA94976-3	04/13/22	15:38	04/19/22	SO	Soil	22SAP-SO-TH08-05
FA94976-4	04/13/22	15:40	04/19/22	SO	Soil	22SAP-SO-TH08-00
FA94976-5	04/14/22	11:20	04/19/22	SO	Soil	22SAP-SO-TH05-05

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: FA94976

Site: 1221610

Report Date 5/5/2022 5:26:43 PM

On 04/19/2022, 5 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando, at a maximum corrected temperature of 3.4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FA94976 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

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

Matrix: SO

Batch ID: OP90927

Sample(s) FA94976-1MS, FA94976-1MSD were used as the QC samples indicated.

General Chemistry By Method SM19 2540G

Matrix: SO

Batch ID: GN91125

Sample(s) FA94867-6RDUP were used as the QC samples for Solids, Percent.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

Ariel Hartney, Client Services (Signature on File)

Summary of Hits

Page 1 of 1

Job Number: FA94976
Account: SGS North America, Inc
Project: 1221610
Collected: 04/13/22 thru 04/14/22

Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method
---------------	------------------	--------------------	-----	-----	-------	--------

FA94976-1 **22SAP-SO-TH13-05**

No hits reported in this sample.

FA94976-2 **22SAP-SO-TH12-10**

No hits reported in this sample.

FA94976-3 **22SAP-SO-TH08-05**

No hits reported in this sample.

FA94976-4 **22SAP-SO-TH08-00**

No hits reported in this sample.

FA94976-5 **22SAP-SO-TH05-05**

No hits reported in this sample.



Orlando, FL

Section 4

4

Sample Results

Report of Analysis



SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	22SAP-SO-TH13-05		
Lab Sample ID:	FA94976-1	Date Sampled:	04/13/22
Matrix:	SO - Soil	Date Received:	04/19/22
Method:	EPA 537M QSM5.3 B-15 IN HOUSE	Percent Solids:	89.8
Project:	1221610		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q28303.D	1	05/03/22 14:47	MV	04/26/22 06:30	OP90927	S4Q402
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
---------	----------	--------	-----	-----	----	-------	---

PERFLUOROALKYLCARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	0.00055 U	0.0011	0.00055	0.00042	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
375-95-1	Perfluorononanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00055 U	0.0011	0.00055	0.00029	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

PERFLUOROOCCTANESULFONAMIDES

754-91-6	PFOSA	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
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PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
2991-50-6	EtFOSAA	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00055 U	0.0011	0.00055	0.00028	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

SGS North America Inc.

Report of Analysis

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Client Sample ID: 22SAP-SO-TH13-05

Lab Sample ID: FA94976-1

Date Sampled: 04/13/22

Matrix: SO - Soil

Date Received: 04/19/22

Method: EPA 537M QSM5.3 B-15 IN HOUSE

Percent Solids: 89.8

Project: 1221610

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	87%		50-150%
	13C5-PFPeA	86%		50-150%
	13C5-PFHxA	87%		50-150%
	13C4-PFHpA	88%		50-150%
	13C8-PFOA	96%		50-150%
	13C9-PFNA	93%		50-150%
	13C6-PFDA	97%		50-150%
	13C7-PFUnDA	90%		50-150%
	13C2-PFDoDA	90%		50-150%
	13C2-PFTeDA	96%		50-150%
	13C3-PFBS	93%		50-150%
	13C3-PFHxS	95%		50-150%
	13C8-PFOS	94%		50-150%
	13C8-FOSA	81%		50-150%
	d3-MeFOSAA	105%		50-150%
	d5-EtFOSAA	109%		50-150%
	13C2-4:2FTS	89%		50-150%
	13C2-6:2FTS	98%		50-150%
	13C2-8:2FTS	95%		50-150%

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	22SAP-SO-TH12-10				
Lab Sample ID:	FA94976-2			Date Sampled:	04/13/22
Matrix:	SO - Soil			Date Received:	04/19/22
Method:	EPA 537M QSM5.3 B-15 IN HOUSE			Percent Solids:	80.7
Project:	1221610				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q28308.D	1	05/03/22 16:07	MV	04/26/22 06:30	OP90927	S4Q402
Run #2							

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

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

375-22-4	Perfluorobutanoic acid	0.00058 U	0.0012	0.00058	0.00044	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
375-95-1	Perfluorononanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00058 U	0.0012	0.00058	0.00031	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

PERFLUOROOCCTANESULFONAMIDES

754-91-6	PFOSA	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
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PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
2991-50-6	EtFOSAA	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00058 U	0.0012	0.00058	0.00029	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

SGS North America Inc.

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Client Sample ID: 22SAP-SO-TH12-10

Lab Sample ID: FA94976-2

Date Sampled: 04/13/22

Matrix: SO - Soil

Date Received: 04/19/22

Method: EPA 537M QSM5.3 B-15 IN HOUSE

Percent Solids: 80.7

Project: 1221610

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	97%		50-150%
	13C5-PFPeA	95%		50-150%
	13C5-PFHxA	94%		50-150%
	13C4-PFHpA	96%		50-150%
	13C8-PFOA	103%		50-150%
	13C9-PFNA	100%		50-150%
	13C6-PFDA	103%		50-150%
	13C7-PFUnDA	96%		50-150%
	13C2-PFDoDA	95%		50-150%
	13C2-PFTeDA	102%		50-150%
	13C3-PFBS	98%		50-150%
	13C3-PFHxS	100%		50-150%
	13C8-PFOS	99%		50-150%
	13C8-FOSA	107%		50-150%
	d3-MeFOSAA	114%		50-150%
	d5-EtFOSAA	116%		50-150%
	13C2-4:2FTS	93%		50-150%
	13C2-6:2FTS	104%		50-150%
	13C2-8:2FTS	100%		50-150%

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	22SAP-SO-TH08-05		
Lab Sample ID:	FA94976-3	Date Sampled:	04/13/22
Matrix:	SO - Soil	Date Received:	04/19/22
Method:	EPA 537M QSM5.3 B-15 IN HOUSE	Percent Solids:	85.0
Project:	1221610		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q28309.D	1	05/03/22 16:23	MV	04/26/22 06:30	OP90927	S4Q402
Run #2							

	Initial Weight	Final Volume
Run #1	2.02 g	1.0 ml
Run #2		

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

375-22-4	Perfluorobutanoic acid	0.00058 U	0.0012	0.00058	0.00044	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
375-95-1	Perfluorononanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00058 U	0.0012	0.00058	0.00031	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

PERFLUOROOCCTANESULFONAMIDES

754-91-6	PFOSA	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
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PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
2991-50-6	EtFOSAA	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00058 U	0.0012	0.00058	0.00029	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00058 U	0.0012	0.00058	0.00029	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

SGS North America Inc.

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Client Sample ID: 22SAP-SO-TH08-05

Lab Sample ID: FA94976-3

Date Sampled: 04/13/22

Matrix: SO - Soil

Date Received: 04/19/22

Method: EPA 537M QSM5.3 B-15 IN HOUSE

Percent Solids: 85.0

Project: 1221610

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00058 U	0.0012	0.00058	0.00029	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	88%		50-150%
	13C5-PFPeA	87%		50-150%
	13C5-PFHxA	87%		50-150%
	13C4-PFHpA	88%		50-150%
	13C8-PFOA	96%		50-150%
	13C9-PFNA	93%		50-150%
	13C6-PFDA	96%		50-150%
	13C7-PFUnDA	89%		50-150%
	13C2-PFDoDA	89%		50-150%
	13C2-PFTeDA	95%		50-150%
	13C3-PFBS	90%		50-150%
	13C3-PFHxS	95%		50-150%
	13C8-PFOS	93%		50-150%
	13C8-FOSA	76%		50-150%
	d3-MeFOSAA	105%		50-150%
	d5-EtFOSAA	108%		50-150%
	13C2-4:2FTS	87%		50-150%
	13C2-6:2FTS	97%		50-150%
	13C2-8:2FTS	93%		50-150%

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	22SAP-SO-TH08-00	Date Sampled:	04/13/22
Lab Sample ID:	FA94976-4	Date Received:	04/19/22
Matrix:	SO - Soil	Percent Solids:	85.6
Method:	EPA 537M QSM5.3 B-15 IN HOUSE		
Project:	1221610		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q28310.D	1	05/03/22 16:39	MV	04/26/22 06:30	OP90927	S4Q402
Run #2							

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

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

375-22-4	Perfluorobutanoic acid	0.00055 U	0.0011	0.00055	0.00042	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
375-95-1	Perfluorononanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00055 U	0.0011	0.00055	0.00029	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

PERFLUOROOCTANESULFONAMIDES

754-91-6	PFOSA	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
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PERFLUOROOCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
2991-50-6	EtFOSAA	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00055 U	0.0011	0.00055	0.00028	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00055 U	0.0011	0.00055	0.00028	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

SGS North America Inc.

Report of Analysis

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Client Sample ID: 22SAP-SO-TH08-00

Lab Sample ID: FA94976-4

Date Sampled: 04/13/22

Matrix: SO - Soil

Date Received: 04/19/22

Method: EPA 537M QSM5.3 B-15 IN HOUSE

Percent Solids: 85.6

Project: 1221610

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00055 U	0.0011	0.00055	0.00028	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	94%		50-150%
	13C5-PFPeA	92%		50-150%
	13C5-PFHxA	92%		50-150%
	13C4-PFHpA	93%		50-150%
	13C8-PFOA	102%		50-150%
	13C9-PFNA	101%		50-150%
	13C6-PFDA	102%		50-150%
	13C7-PFUnDA	95%		50-150%
	13C2-PFDoDA	94%		50-150%
	13C2-PFTeDA	101%		50-150%
	13C3-PFBS	97%		50-150%
	13C3-PFHxS	100%		50-150%
	13C8-PFOS	97%		50-150%
	13C8-FOSA	67%		50-150%
	d3-MeFOSAA	108%		50-150%
	d5-EtFOSAA	114%		50-150%
	13C2-4:2FTS	93%		50-150%
	13C2-6:2FTS	102%		50-150%
	13C2-8:2FTS	101%		50-150%

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

SGS North America Inc.

Report of Analysis

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Client Sample ID:	22SAP-SO-TH05-05		
Lab Sample ID:	FA94976-5	Date Sampled:	04/14/22
Matrix:	SO - Soil	Date Received:	04/19/22
Method:	EPA 537M QSM5.3 B-15 IN HOUSE	Percent Solids:	94.1
Project:	1221610		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q28311.D	1	05/03/22 16:55	MV	04/26/22 06:30	OP90927	S4Q402
Run #2							

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

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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PERFLUOROALKYL CARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	0.00053 U	0.0011	0.00053	0.00040	mg/kg	
2706-90-3	Perfluoropentanoic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
307-24-4	Perfluorohexanoic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
375-85-9	Perfluoroheptanoic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
335-67-1	Perfluorooctanoic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
375-95-1	Perfluorononanoic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
335-76-2	Perfluorodecanoic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
2058-94-8	Perfluoroundecanoic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
307-55-1	Perfluorododecanoic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
72629-94-8	Perfluorotridecanoic acid	0.00053 U	0.0011	0.00053	0.00028	mg/kg	
376-06-7	Perfluorotetradecanoic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	

PERFLUOROALKYLSULFONIC ACIDS

375-73-5	Perfluorobutanesulfonic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
355-46-4	Perfluorohexanesulfonic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
68259-12-1	Perfluorononanesulfonic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
335-77-3	Perfluorodecanesulfonic acid	0.00053 U	0.0011	0.00053	0.00027	mg/kg	

PERFLUOROOCCTANESULFONAMIDES

754-91-6	PFOSA	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
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PERFLUOROOCCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
2991-50-6	EtFOSAA	0.00053 U	0.0011	0.00053	0.00027	mg/kg	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	0.00053 U	0.0011	0.00053	0.00027	mg/kg	
27619-97-2	6:2 Fluorotelomer sulfonate	0.00053 U	0.0011	0.00053	0.00027	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

SGS North America Inc.

Report of Analysis

Page 2 of 2

Client Sample ID:	22SAP-SO-TH05-05		
Lab Sample ID:	FA94976-5	Date Sampled:	04/14/22
Matrix:	SO - Soil	Date Received:	04/19/22
Method:	EPA 537M QSM5.3 B-15 IN HOUSE	Percent Solids:	94.1
Project:	1221610		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.00053 U	0.0011	0.00053	0.00027	mg/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	60%		50-150%
	13C5-PFPeA	63%		50-150%
	13C5-PFHxA	66%		50-150%
	13C4-PFHpA	71%		50-150%
	13C8-PFOA	84%		50-150%
	13C9-PFNA	82%		50-150%
	13C6-PFDA	87%		50-150%
	13C7-PFUnDA	80%		50-150%
	13C2-PFDoDA	81%		50-150%
	13C2-PFTeDA	88%		50-150%
	13C3-PFBS	84%		50-150%
	13C3-PFHxS	84%		50-150%
	13C8-PFOS	88%		50-150%
	13C8-FOSA	67%		50-150%
	d3-MeFOSAA	79%		50-150%
	d5-EtFOSAA	83%		50-150%
	13C2-4:2FTS	78%		50-150%
	13C2-6:2FTS	89%		50-150%
	13C2-8:2FTS	87%		50-150%

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



Orlando, FL

Section 5

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

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

SGS North America Inc.
CHAIN OF CUSTODY RECORD

FA94976



Locations Nationwide
Alaska Florida
New Jersey Colorado
Texas North Carolina
Virginia Louisiana
www.us.sgs.com

CLIENT: SGS North America Inc. - Alaska Division				SGS Reference: SGS Orlando, FL				Page 1 of 1																																																																											
CONTACT: Julie Shumway		PHONE NO: (907) 562-2343		Additional Comments: All soils report out in dry weight unless																																																																															
PROJECT NAME: 1221610		PWSID#: NPDL#:		<table border="1"> <tr> <th>#</th> <th>Preservative Used:</th> <th>TYPE</th> <th>C = COMP</th> <th>G = GRAB</th> <th>MI = Multi Incremental</th> <th>Soils</th> <th>EPA 337M - PFAS Full List</th> <th>MS</th> <th>MSD</th> <th>SGS lab #</th> <th>Location ID</th> </tr> <tr> <td>1</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td>1221610001</td> <td></td> </tr> <tr> <td>2</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td>1221610002</td> <td></td> </tr> <tr> <td>3</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td>1221610003</td> <td></td> </tr> <tr> <td>4</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td>1221610004</td> <td></td> </tr> <tr> <td>5</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td>1221610005</td> <td></td> </tr> </table>								#	Preservative Used:	TYPE	C = COMP	G = GRAB	MI = Multi Incremental	Soils	EPA 337M - PFAS Full List	MS	MSD	SGS lab #	Location ID	1	X						X			1221610001		2	X						X			1221610002		3	X						X			1221610003		4	X						X			1221610004		5	X						X			1221610005	
#	Preservative Used:	TYPE	C = COMP									G = GRAB	MI = Multi Incremental	Soils	EPA 337M - PFAS Full List	MS	MSD	SGS lab #	Location ID																																																																
1	X														X			1221610001																																																																	
2	X														X			1221610002																																																																	
3	X						X			1221610003																																																																									
4	X						X			1221610004																																																																									
5	X						X			1221610005																																																																									
REPORTS TO: Julie Shumway		E-MAIL: Julie.Shumway@sgs.com																																																																																	
		Env.Alaska.RefLabTeam@sgs.com																																																																																	
INVOICE TO: SGS - Alaska		QUOTE #:																																																																																	
env.alaska.accounting@sgs.com		P.O. #: 1221610																																																																																	
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/MATRIX CODE																																																																															
1	22SAP-SO-TH12-05	04/13/2022	10:00:00	Solid																																																																															
2	22SAP-SO-TH12-10	04/13/2022	13:03:00	Solid																																																																															
3	22SAP-SO-TH08-05	04/13/2022	15:38:00	Solid																																																																															
4	22SAP-SO-TH08-00	04/13/2022	15:40:00	Solid																																																																															
5	22SAP-SO-TH05-05	04/14/2022	11:20:00	Solid																																																																															
Relinquished By: (1)		Date	Time	Received By:	DOD Project?		YES		Data Deliverable Requirements:																																																																										
		4/13/2022	09:04	Kul Min	Report to DL (J Flags)?		YES		Level 2 + SGS EDD																																																																										
Relinquished By: (2)		Date	Time	Received By:	Cooler ID:		Requested Turnaround Time and-or Special Instructions:																																																																												
							FDLOW COC / NOT ME Airport Samples - May have high concentrations.																																																																												
Relinquished By: (3)		Date	Time	Received By:	Temp Blank °C:		30		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

INITIAL ASSESSMENT

LABEL VERIFICATION

F088_COC_REF_LAB_20190411

FA94976: Chain of Custody

Page 1 of 4

SGS Sample Receipt Summary

Corrected Report - Revision 1

Job Number: FA94976

Client: SGS ALASKA

Project: 1221610

Date / Time Received: 4/19/2022 3:30:00 PM

Delivery Method: FEDEX

Airbill #s: 1483 4802 2049

Therm ID: IR 1;

Therm CF: 0.4;

of Coolers: 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.0);

Cooler Temps (Corrected) °C: Cooler 1: (3.4);

Cooler Information

Y or N

1. Custody Seals Present ☒ ☐
2. Custody Seals Intact ☒ ☐
3. Temp criteria achieved ☒ ☐
4. Cooler temp verification IR Gun
5. Cooler media Ice (Bag)

Trip Blank Information

Y or N N/A

1. Trip Blank present / cooler ☐ ☐ ☒
 2. Trip Blank listed on COC ☐ ☐ ☒
- W or S N/A
3. Type Of TB Received ☐ ☐ ☒

Sample Information

Y or N N/A

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

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____
 Test Strip Lot #s: pH 0-3 230315
 Residual Chlorine Test Strip Lot #: _____

Number of 5035 Field Kits: _____
 pH 10-12 219813A

Number of Lab Filtered Metals: _____
 Other: (Specify) _____

Comments

SM001
Rev. Date 05/24/17

Technician: SAMUELM

Date: 4/19/2022 3:30:00 PM

Reviewer: _____

Date: _____

FA94976: Chain of Custody

Page 2 of 4

Job Change Order: FA94976

Requested Date:	5/13/2022	Received Date:	4/19/2022
Account Name:	SGS North America, Inc	Due Date:	5/3/2022
Project Description:	1221610	Deliverable:	COMMBN
CSR:	AC	TAT (Days):	1

=====

Sample #:	FA94976-1	Change:	
Dept:			Please change the sample ID to 22SAP-SO-TH13-05
TAT:	1		

22SAP-SO-TH13-05

=====

FA94976: Chain of Custody**Page 3 of 4****Above Changes Per:** Justin Nelson**Date/Time:** 5/13/2022 8:57:26 AM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

1221610

Corrected Report - Nationwide Revision 1

Alaska Florida
New Jersey Colorado
Texas North Carolina
Virginia Louisiana
www.us.sgs.com

CLIENT: SGS North America Inc. - Alaska Division				SGS Reference: SGS Orlando, FL										www.sgs.com													
CONTACT: Julie Shumway PHONE NO: (907) 562-2343				Additional Comments: All soils report out in dry weight unless												Page 1 of 1											
PROJECT NAME: 1221610		PWSID#: NPDL#:		#	Preservative Used:	CROR																					
REPORTS TO: Julie Shumway		E-MAIL: Julie.Shumway@sgs.com Env Alaska RefLabTeam@sgs.com																									
INVOICE TO: SGS - Alaska env.alaska.accounting@sgs.com		QUOTE #: 1221610 P.O. #:																									
RESERVED for lab use		SAMPLE IDENTIFICATION																									
		DATE mm/dd/yy		TIME HHMM		MATRIX/ MATRIX CODE		1		X						MS		MSD		SGS lab #		Orfdwlrq#LG					
		22SAP-SO-TH13-05		04/13/2022		10:00:00		Solid		1		X										1221610001					
		22SAP-SO-TH12-10		04/13/2022		13:03:00		Solid		1		X												1221610002			
		22SAP-SO-TH08-05		04/13/2022		15:38:00		Solid		1		X												1221610003			
		22SAP-SO-TH08-00		04/13/2022		15:40:00		Solid		1		X												1221610004			
		22SAP-SO-TH05-05		04/14/2022		11:20:00		Solid		1		X												1221610005			
Relinquished By: (1)		Date	Time	Received By:								DOD Project?				YES		Data Deliverable Requirements:									
												Report to DL (J Flags)?				YES		Level 2 + SGS EDD									
												If J-Report as DL/LOD/LOQ.															
Relinquished By: (2)		Date	Time	Received By:								Cooler ID:				Requested Turnaround Time and-or Special Instructions:											
																Airport Samples - May have high concentrations.											
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

F088 COC REF LAB 20190411

FA94976: Chain of Custody

Page 4 of 4

QC Evaluation: DOD QSM5.x Limits

Page 1 of 3

Job Number: FA94976
Account: SGS North America, Inc
Project: 1221610
Collected: 04/13/22 thru 04/14/22

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP90927	EPA 537M QSM5.3 B-15						
OP90927-BS	375-22-4	Perfluorobutanoic acid	BSP	REC	100	%	71-135
OP90927-BS	2706-90-3	Perfluoropentanoic acid	BSP	REC	97	%	69-132
OP90927-BS	307-24-4	Perfluorohexanoic acid	BSP	REC	97	%	70-132
OP90927-BS	375-85-9	Perfluoroheptanoic acid	BSP	REC	100	%	71-131
OP90927-BS	335-67-1	Perfluorooctanoic acid	BSP	REC	94	%	69-133
OP90927-BS	375-95-1	Perfluorononanoic acid	BSP	REC	92	%	72-129
OP90927-BS	335-76-2	Perfluorodecanoic acid	BSP	REC	98	%	69-133
OP90927-BS	2058-94-8	Perfluoroundecanoic acid	BSP	REC	98	%	64-136
OP90927-BS	307-55-1	Perfluorododecanoic acid	BSP	REC	94	%	69-135
OP90927-BS	72629-94-8	Perfluorotridecanoic acid	BSP	REC	102	%	66-139
OP90927-BS	376-06-7	Perfluorotetradecanoic acid	BSP	REC	95	%	69-133
OP90927-BS	375-73-5	Perfluorobutanesulfonic acid	BSP	REC	99	%	72-128
OP90927-BS	2706-91-4	Perfluoropentanesulfonic acid	BSP	REC	98	%	73-123
OP90927-BS	355-46-4	Perfluorohexanesulfonic acid	BSP	REC	93	%	67-130
OP90927-BS	375-92-8	Perfluoroheptanesulfonic acid	BSP	REC	97	%	70-132
OP90927-BS	1763-23-1	Perfluorooctanesulfonic acid	BSP	REC	97	%	68-136
OP90927-BS	68259-12-1	Perfluorononanesulfonic acid	BSP	REC	93	%	69-125
OP90927-BS	335-77-3	Perfluorodecanesulfonic acid	BSP	REC	98	%	59-134
OP90927-BS	754-91-6	PFOSA	BSP	REC	101	%	67-137
OP90927-BS	2355-31-9	MeFOSAA	BSP	REC	98	%	63-144
OP90927-BS	2991-50-6	EtFOSAA	BSP	REC	98	%	61-139
OP90927-BS	757124-72-4	4:2 Fluorotelomer sulfonate	BSP	REC	101	%	62-145
OP90927-BS	27619-97-2	6:2 Fluorotelomer sulfonate	BSP	REC	100	%	64-140
OP90927-BS	39108-34-4	8:2 Fluorotelomer sulfonate	BSP	REC	103	%	65-137
OP90927-MS	375-22-4	Perfluorobutanoic acid	MS	REC	97	%	71-135
OP90927-MS	2706-90-3	Perfluoropentanoic acid	MS	REC	96	%	69-132
OP90927-MS	307-24-4	Perfluorohexanoic acid	MS	REC	95	%	70-132
OP90927-MS	375-85-9	Perfluoroheptanoic acid	MS	REC	98	%	71-131
OP90927-MS	335-67-1	Perfluorooctanoic acid	MS	REC	92	%	69-133
OP90927-MS	375-95-1	Perfluorononanoic acid	MS	REC	91	%	72-129
OP90927-MS	335-76-2	Perfluorodecanoic acid	MS	REC	95	%	69-133
OP90927-MS	2058-94-8	Perfluoroundecanoic acid	MS	REC	96	%	64-136
OP90927-MS	307-55-1	Perfluorododecanoic acid	MS	REC	92	%	69-135
OP90927-MS	72629-94-8	Perfluorotridecanoic acid	MS	REC	101	%	66-139
OP90927-MS	376-06-7	Perfluorotetradecanoic acid	MS	REC	93	%	69-133
OP90927-MS	375-73-5	Perfluorobutanesulfonic acid	MS	REC	97	%	72-128
OP90927-MS	2706-91-4	Perfluoropentanesulfonic acid	MS	REC	100	%	73-123
OP90927-MS	355-46-4	Perfluorohexanesulfonic acid	MS	REC	96	%	67-130
OP90927-MS	375-92-8	Perfluoroheptanesulfonic acid	MS	REC	99	%	70-132
OP90927-MS	1763-23-1	Perfluorooctanesulfonic acid	MS	REC	94	%	68-136
OP90927-MS	68259-12-1	Perfluorononanesulfonic acid	MS	REC	96	%	69-125
OP90927-MS	335-77-3	Perfluorodecanesulfonic acid	MS	REC	99	%	59-134

* Sample used for QC is not from job FA94976

QC Evaluation: DOD QSM5.x Limits

Page 2 of 3

Job Number: FA94976
Account: SGS North America, Inc
Project: 1221610
Collected: 04/13/22 thru 04/14/22

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP90927-MS	754-91-6	PFOSA	MS	REC	100	%	67-137
OP90927-MS	2355-31-9	MeFOSAA	MS	REC	97	%	63-144
OP90927-MS	2991-50-6	EtFOSAA	MS	REC	92	%	61-139
OP90927-MS	757124-72-4	4:2 Fluorotelomer sulfonate	MS	REC	101	%	62-145
OP90927-MS	27619-97-2	6:2 Fluorotelomer sulfonate	MS	REC	99	%	64-140
OP90927-MS	39108-34-4	8:2 Fluorotelomer sulfonate	MS	REC	101	%	65-137
OP90927-MSD	375-22-4	Perfluorobutanoic acid	MSD	REC	97	%	71-135
OP90927-MSD	375-22-4	Perfluorobutanoic acid	MSD	RPD	2	%	30
OP90927-MSD	2706-90-3	Perfluoropentanoic acid	MSD	REC	95	%	69-132
OP90927-MSD	2706-90-3	Perfluoropentanoic acid	MSD	RPD	1	%	30
OP90927-MSD	307-24-4	Perfluorohexanoic acid	MSD	REC	95	%	70-132
OP90927-MSD	307-24-4	Perfluorohexanoic acid	MSD	RPD	2	%	30
OP90927-MSD	375-85-9	Perfluoroheptanoic acid	MSD	REC	97	%	71-131
OP90927-MSD	375-85-9	Perfluoroheptanoic acid	MSD	RPD	1	%	30
OP90927-MSD	335-67-1	Perfluorooctanoic acid	MSD	REC	92	%	69-133
OP90927-MSD	335-67-1	Perfluorooctanoic acid	MSD	RPD	2	%	30
OP90927-MSD	375-95-1	Perfluorononanoic acid	MSD	REC	89	%	72-129
OP90927-MSD	375-95-1	Perfluorononanoic acid	MSD	RPD	1	%	30
OP90927-MSD	335-76-2	Perfluorodecanoic acid	MSD	REC	93	%	69-133
OP90927-MSD	335-76-2	Perfluorodecanoic acid	MSD	RPD	0	%	30
OP90927-MSD	2058-94-8	Perfluoroundecanoic acid	MSD	REC	96	%	64-136
OP90927-MSD	2058-94-8	Perfluoroundecanoic acid	MSD	RPD	2	%	30
OP90927-MSD	307-55-1	Perfluorododecanoic acid	MSD	REC	92	%	69-135
OP90927-MSD	307-55-1	Perfluorododecanoic acid	MSD	RPD	2	%	30
OP90927-MSD	72629-94-8	Perfluorotridecanoic acid	MSD	REC	100	%	66-139
OP90927-MSD	72629-94-8	Perfluorotridecanoic acid	MSD	RPD	2	%	30
OP90927-MSD	376-06-7	Perfluorotetradecanoic acid	MSD	REC	93	%	69-133
OP90927-MSD	376-06-7	Perfluorotetradecanoic acid	MSD	RPD	2	%	30
OP90927-MSD	375-73-5	Perfluorobutanesulfonic acid	MSD	REC	96	%	72-128
OP90927-MSD	375-73-5	Perfluorobutanesulfonic acid	MSD	RPD	1	%	30
OP90927-MSD	2706-91-4	Perfluoropentanesulfonic acid	MSD	REC	97	%	73-123
OP90927-MSD	2706-91-4	Perfluoropentanesulfonic acid	MSD	RPD	1	%	30
OP90927-MSD	355-46-4	Perfluorohexanesulfonic acid	MSD	REC	94	%	67-130
OP90927-MSD	355-46-4	Perfluorohexanesulfonic acid	MSD	RPD	0	%	30
OP90927-MSD	375-92-8	Perfluoroheptanesulfonic acid	MSD	REC	100	%	70-132
OP90927-MSD	375-92-8	Perfluoroheptanesulfonic acid	MSD	RPD	4	%	30
OP90927-MSD	1763-23-1	Perfluorooctanesulfonic acid	MSD	REC	96	%	68-136
OP90927-MSD	1763-23-1	Perfluorooctanesulfonic acid	MSD	RPD	4	%	30
OP90927-MSD	68259-12-1	Perfluorononanesulfonic acid	MSD	REC	97	%	69-125
OP90927-MSD	68259-12-1	Perfluorononanesulfonic acid	MSD	RPD	4	%	30
OP90927-MSD	335-77-3	Perfluorodecanesulfonic acid	MSD	REC	97	%	59-134
OP90927-MSD	335-77-3	Perfluorodecanesulfonic acid	MSD	RPD	0	%	30
OP90927-MSD	754-91-6	PFOSA	MSD	REC	99	%	67-137
OP90927-MSD	754-91-6	PFOSA	MSD	RPD	2	%	30
OP90927-MSD	2355-31-9	MeFOSAA	MSD	REC	95	%	63-144

* Sample used for QC is not from job FA94976

QC Evaluation: DOD QSM5.x Limits

Page 3 of 3

Job Number: FA94976
Account: SGS North America, Inc
Project: 1221610
Collected: 04/13/22 thru 04/14/22

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP90927-MSD	2355-31-9	MeFOSAA	MSD	RPD	0	%	30
OP90927-MSD	2991-50-6	EtFOSAA	MSD	REC	93	%	61-139
OP90927-MSD	2991-50-6	EtFOSAA	MSD	RPD	3	%	30
OP90927-MSD	757124-72-4	4:2 Fluorotelomer sulfonate	MSD	REC	98	%	62-145
OP90927-MSD	757124-72-4	4:2 Fluorotelomer sulfonate	MSD	RPD	0	%	30
OP90927-MSD	27619-97-2	6:2 Fluorotelomer sulfonate	MSD	REC	98	%	64-140
OP90927-MSD	27619-97-2	6:2 Fluorotelomer sulfonate	MSD	RPD	2	%	30
OP90927-MSD	39108-34-4	8:2 Fluorotelomer sulfonate	MSD	REC	100	%	65-137
OP90927-MSD	39108-34-4	8:2 Fluorotelomer sulfonate	MSD	RPD	2	%	30

* Sample used for QC is not from job FA94976



Orlando, FL

Section 6

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

Instrument Blank

Page 1 of 2

Job Number: FA94976
Account: SGS/KA SGS North America, Inc
Project: 1221610

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q402-IBLK	4Q28268.D	1	05/03/22	MV	n/a	n/a	S4Q402

The QC reported here applies to the following samples:**Method:** EPA 537M QSM5.3 B-15

FA94976-1, FA94976-2, FA94976-3, FA94976-4, FA94976-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.38	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.25	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.25	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	0.27	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	1.0	0.25	ug/kg	
2991-50-6	EtFOSAA	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	94%	50-150%
13C5-PFPeA	94%	50-150%
13C5-PFHxA	93%	50-150%
13C4-PFHpA	94%	50-150%
13C8-PFOA	102%	50-150%
13C9-PFNA	98%	50-150%
13C6-PFDA	102%	50-150%
13C7-PFUnDA	95%	50-150%

Instrument Blank

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Job Number: FA94976
Account: SGS/SAK North America, Inc
Project: 1221610

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q402-IBLK	4Q28268.D	1	05/03/22	MV	n/a	n/a	S4Q402

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA94976-1, FA94976-2, FA94976-3, FA94976-4, FA94976-5

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	93% 50-150%
	13C2-PFTeDA	99% 50-150%
	13C3-PFBS	95% 50-150%
	13C3-PFHxS	98% 50-150%
	13C8-PFOS	94% 50-150%
	13C8-FOSA	109% 50-150%
	d3-MeFOSA	116% 50-150%
	d3-MeFOSAA	102% 50-150%
	d5-EtFOSAA	110% 50-150%
	13C2-4:2FTS	93% 50-150%
	13C2-6:2FTS	101% 50-150%
	13C2-8:2FTS	101% 50-150%
	13C3-HFPO-DA	84% 50-150%

Method Blank Summary

Page 1 of 2

Job Number: FA94976
Account: SGS/KA SGS North America, Inc
Project: 1221610

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90927-MB	4Q28302.D	1	05/03/22	MV	04/26/22	OP90927	S4Q402

The QC reported here applies to the following samples:**Method:** EPA 537M QSM5.3 B-15

FA94976-1, FA94976-2, FA94976-3, FA94976-4, FA94976-5

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	1.0	0.38	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.25	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.25	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	0.27	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	1.0	0.25	ug/kg	
2991-50-6	EtFOSAA	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	91% 50-150%
	13C5-PFPeA	91% 50-150%
	13C5-PFHxA	91% 50-150%
	13C4-PFHpA	90% 50-150%
	13C8-PFOA	100% 50-150%
	13C9-PFNA	96% 50-150%
	13C6-PFDA	99% 50-150%
	13C7-PFUnDA	93% 50-150%

Method Blank Summary

Page 2 of 2

Job Number: FA94976
Account: SGS/KA SGS North America, Inc
Project: 1221610

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90927-MB	4Q28302.D	1	05/03/22	MV	04/26/22	OP90927	S4Q402

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA94976-1, FA94976-2, FA94976-3, FA94976-4, FA94976-5

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	93% 50-150%
	13C2-PFTeDA	99% 50-150%
	13C3-PFBS	94% 50-150%
	13C3-PFHxS	95% 50-150%
	13C8-PFOS	97% 50-150%
	13C8-FOSA	63% 50-150%
	d3-MeFOSA	54% 50-150%
	d3-MeFOSAA	110% 50-150%
	d5-EtFOSAA	116% 50-150%
	13C2-4:2FTS	91% 50-150%
	13C2-6:2FTS	101% 50-150%
	13C2-8:2FTS	98% 50-150%
	13C3-HFPO-DA	85% 50-150%

Blank Spike Summary

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Job Number: FA94976
Account: SGS/KA SGS North America, Inc
Project: 1221610

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90927-BS	4Q28301.D	1	05/03/22	MV	04/26/22	OP90927	S4Q402

The QC reported here applies to the following samples:**Method:** EPA 537M QSM5.3 B-15

FA94976-1, FA94976-2, FA94976-3, FA94976-4, FA94976-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	10.0	100	71-135
2706-90-3	Perfluoropentanoic acid	10	9.7	97	69-132
307-24-4	Perfluorohexanoic acid	10	9.7	97	70-132
375-85-9	Perfluoroheptanoic acid	10	10	100	71-131
335-67-1	Perfluorooctanoic acid	10	9.4	94	69-133
375-95-1	Perfluorononanoic acid	10	9.2	92	72-129
335-76-2	Perfluorodecanoic acid	10	9.8	98	69-133
2058-94-8	Perfluoroundecanoic acid	10	9.8	98	64-136
307-55-1	Perfluorododecanoic acid	10	9.4	94	69-135
72629-94-8	Perfluorotridecanoic acid	10	10.2	102	66-139
376-06-7	Perfluorotetradecanoic acid	10	9.5	95	69-133
375-73-5	Perfluorobutanesulfonic acid	10	9.9	99	72-128
2706-91-4	Perfluoropentanesulfonic acid	10	9.8	98	73-123
355-46-4	Perfluorohexanesulfonic acid	10	9.3	93	67-130
375-92-8	Perfluoroheptanesulfonic acid	10	9.7	97	70-132
1763-23-1	Perfluorooctanesulfonic acid	10	9.7	97	68-136
68259-12-1	Perfluorononanesulfonic acid	10	9.3	93	69-125
335-77-3	Perfluorodecanesulfonic acid	10	9.8	98	59-134
754-91-6	PFOSA	10	10.1	101	67-137
2355-31-9	MeFOSAA	10	9.8	98	63-144
2991-50-6	EtFOSAA	10	9.8	98	61-139
757124-72-44:2	Fluorotelomer sulfonate	10	10.1	101	62-145
27619-97-2	6:2 Fluorotelomer sulfonate	10	10.0	100	64-140
39108-34-4	8:2 Fluorotelomer sulfonate	10	10.3	103	65-137

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	91%	50-150%
	13C5-PFPeA	91%	50-150%
	13C5-PFHxA	90%	50-150%
	13C4-PFHpA	91%	50-150%
	13C8-PFOA	97%	50-150%
	13C9-PFNA	94%	50-150%
	13C6-PFDA	97%	50-150%
	13C7-PFUnDA	91%	50-150%

* = Outside of Control Limits.

Blank Spike Summary

Page 2 of 2

Job Number: FA94976
Account: SGS/SAK North America, Inc
Project: 1221610

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90927-BS	4Q28301.D	1	05/03/22	MV	04/26/22	OP90927	S4Q402

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.3 B-15

FA94976-1, FA94976-2, FA94976-3, FA94976-4, FA94976-5

CAS No.	ID Standard Recoveries	BSP	Limits
	13C2-PFDoDA	92%	50-150%
	13C2-PFTeDA	98%	50-150%
	13C3-PFBS	93%	50-150%
	13C3-PFHxS	97%	50-150%
	13C8-PFOS	97%	50-150%
	13C8-FOSA	68%	50-150%
	d3-MeFOSA	58%	50-150%
	d3-MeFOSAA	111%	50-150%
	d5-EtFOSAA	114%	50-150%
	13C2-4:2FTS	96%	50-150%
	13C2-6:2FTS	102%	50-150%
	13C2-8:2FTS	102%	50-150%
	13C3-HFPO-DA	86%	50-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 2

Job Number: FA94976**Account:** SGS/SAK A SGS North America, Inc**Project:** 1221610

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90927-MS	4Q28304.D	1	05/03/22	MV	04/26/22	OP90927	S4Q402
OP90927-MSD	4Q28305.D	1	05/03/22	MV	04/26/22	OP90927	S4Q402
FA94976-1	4Q28303.D	1	05/03/22	MV	04/26/22	OP90927	S4Q402

The QC reported here applies to the following samples:**Method:** EPA 537M QSM5.3 B-15

FA94976-1, FA94976-2, FA94976-3, FA94976-4, FA94976-5

CAS No.	Compound	FA94976-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	1.1 U		10.8	10.5	97	11.1	10.7	97	2	71-135/30
2706-90-3	Perfluoropentanoic acid	1.1 U		10.8	10.4	96	11.1	10.5	95	1	69-132/30
307-24-4	Perfluorohexanoic acid	1.1 U		10.8	10.3	95	11.1	10.5	95	2	70-132/30
375-85-9	Perfluoroheptanoic acid	1.1 U		10.8	10.6	98	11.1	10.7	97	1	71-131/30
335-67-1	Perfluorooctanoic acid	1.1 U		10.8	10.0	92	11.1	10.2	92	2	69-133/30
375-95-1	Perfluorononanoic acid	1.1 U		10.8	9.8	91	11.1	9.9	89	1	72-129/30
335-76-2	Perfluorodecanoic acid	1.1 U		10.8	10.3	95	11.1	10.3	93	0	69-133/30
2058-94-8	Perfluoroundecanoic acid	1.1 U		10.8	10.4	96	11.1	10.6	96	2	64-136/30
307-55-1	Perfluorododecanoic acid	1.1 U		10.8	10.0	92	11.1	10.2	92	2	69-135/30
72629-94-8	Perfluorotridecanoic acid	1.1 U		10.8	10.9	101	11.1	11.1	100	2	66-139/30
376-06-7	Perfluorotetradecanoic acid	1.1 U		10.8	10.1	93	11.1	10.3	93	2	69-133/30
375-73-5	Perfluorobutanesulfonic acid	1.1 U		10.8	10.5	97	11.1	10.6	96	1	72-128/30
2706-91-4	Perfluoropentanesulfonic acid	1.1 U		10.8	10.8	100	11.1	10.7	97	1	73-123/30
355-46-4	Perfluorohexanesulfonic acid	1.1 U		10.8	10.4	96	11.1	10.4	94	0	67-130/30
375-92-8	Perfluoroheptanesulfonic acid	1.1 U		10.8	10.7	99	11.1	11.1	100	4	70-132/30
1763-23-1	Perfluorooctanesulfonic acid	1.1 U		10.8	10.2	94	11.1	10.6	96	4	68-136/30
68259-12-1	Perfluorononanesulfonic acid	1.1 U		10.8	10.4	96	11.1	10.8	97	4	69-125/30
335-77-3	Perfluorodecanesulfonic acid	1.1 U		10.8	10.7	99	11.1	10.7	97	0	59-134/30
754-91-6	PFOSA	1.1 U		10.8	10.8	100	11.1	11.0	99	2	67-137/30
2355-31-9	MeFOSAA	1.1 U		10.8	10.5	97	11.1	10.5	95	0	63-144/30
2991-50-6	EtFOSAA	1.1 U		10.8	10	92	11.1	10.3	93	3	61-139/30
757124-72-44:2	Fluorotelomer sulfonate	1.1 U		10.8	10.9	101	11.1	10.9	98	0	62-145/30
27619-97-2	6:2 Fluorotelomer sulfonate	1.1 U		10.8	10.7	99	11.1	10.9	98	2	64-140/30
39108-34-4	8:2 Fluorotelomer sulfonate	1.1 U		10.8	10.9	101	11.1	11.1	100	2	65-137/30

CAS No.	ID Standard Recoveries	MS	MSD	FA94976-1	Limits
	13C4-PFBA	95%	97%	87%	50-150%
	13C5-PFPeA	93%	96%	86%	50-150%
	13C5-PFHxA	92%	94%	87%	50-150%
	13C4-PFHpA	93%	96%	88%	50-150%
	13C8-PFOA	99%	100%	96%	50-150%
	13C9-PFNA	97%	99%	93%	50-150%
	13C6-PFDA	99%	103%	97%	50-150%
	13C7-PFUnDA	92%	95%	90%	50-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 2 of 2

Job Number: FA94976**Account:** SGS/SAK North America, Inc**Project:** 1221610

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90927-MS	4Q28304.D	1	05/03/22	MV	04/26/22	OP90927	S4Q402
OP90927-MSD	4Q28305.D	1	05/03/22	MV	04/26/22	OP90927	S4Q402
FA94976-1	4Q28303.D	1	05/03/22	MV	04/26/22	OP90927	S4Q402

The QC reported here applies to the following samples:**Method:** EPA 537M QSM5.3 B-15

FA94976-1, FA94976-2, FA94976-3, FA94976-4, FA94976-5

CAS No.	ID Standard Recoveries	MS	MSD	FA94976-1	Limits
13C2-PFDoDA		94%	96%	90%	50-150%
13C2-PFTeDA		99%	102%	96%	50-150%
13C3-PFBS		96%	98%	93%	50-150%
13C3-PFHxS		96%	100%	95%	50-150%
13C8-PFOS		98%	97%	94%	50-150%
13C8-FOSA		104%	108%	81%	50-150%
d3-MeFOSA		105%	106%		50-150%
d3-MeFOSAA		108%	113%	105%	50-150%
d5-EtFOSAA		114%	116%	109%	50-150%
13C2-4:2FTS		98%	101%	89%	50-150%
13C2-6:2FTS		104%	107%	98%	50-150%
13C2-8:2FTS		104%	105%	95%	50-150%
13C3-HFPO-DA		87%	90%		50-150%

* = Outside of Control Limits.

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ATTACHMENT 5 – CHEMICAL DATA REVIEW AND ADEC CHECKLISTS

Site

SDG 1221457 and 1221610

Reviewer: Birgit Hagedorn, PhD

Title: CEO

Company Sustainable Earth Research LLC

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Anchorage, AK 99508

Phone: 907.351.5362

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Workorder: 1221457 and 1221610

Date: 5/16/2022

Project Title: North Link Airport (1221457) and South Air Park (1221610)

Client: Chem Track
11711 S Gambell St
Anchorage, AK 99515
(907)250-9337

The level 2 chemical review provided with this document consists of a review narrative, summary tables of methods, result tables with qualifier, and the ADEC Data Review Checklist.



5/16/2022

Birgit Hagedorn

Date

DATA QUALITY REVIEW

INTRODUCTION

The samples were analyzed by SGS North America Inc. Samples were submitted to SGS Orlando FL for analyses. Both laboratories are ADEC accepted laboratories. Sample analysis was performed for PFAS by EPA 537 and percent solids by SM19 2540G. All soil data were reported on a dry basis.

The data were reviewed based on a level 2 laboratory report provided by the laboratory and follows the requirements of ADEC Laboratory Checklist (ADEC 2020). A completed checklist of the data can be found in the appendix of the laboratory report. Cleanup levels refer to 18 AAC 75 Oil and Other Hazardous Substances Pollution Control, dated October 2021, Table B1, Method TWO migration to groundwater (MGW).

SUMMARY

The analytical report was delivered under work order 1221457 Client Project *North Link Airport* and work order 1221610 Client Project *South Air Park*. A total of 12 soil samples were listed on the workorders including one field duplicate per workorder. Detection limits (DL), and Limit of Quantitation (LOQs), recoveries and relative percent deviations (RPD) are listed for all analytes as required. Laboratory specific qualifiers were added by the laboratory: "J" (result is an estimate) was applied when positive results were above DL but below LOQ, and "U" (analyte is non-detect) was applied when results were below DL. Quality control (QC) samples such as Laboratory Control Sample (LCS), and Method Blank (MB) were analyzed at the required frequency to evaluate analytical integrity. One non-project specific Matrix Spike (MS) and Matrix Spike Duplicate (MSD) sample was analyzed by the laboratory to document analytical precision. A case narrative was submitted together with laboratory results.

There was no detection of PFAS analytes in any of the samples. QC failures listed in the case narrative for workorder 1221457 include low recovery of non-project specific MS with low recoveries due to high analyte concentration in parent sample and low recovery of surrogate 13C8-FOSA which affected PFOSA, qualifier QL results may be biased low was applied to PFOSA in affected samples 22-SAP-SO-TH28-05, 22-SAP-SO-TH25-10, 22-SAP-SO-TH09-10. QC failures are not affecting the regulated compounds PFOS and PFOA and are discussed for non-regulated compounds below. Workorder 1221610 had different sample IDs on the COC (22SAP-SO-TH12-05) and sample label (22SAP-SO-TH13-05) for one sample. The laboratory used the COC as guiding document as noted on receiving documents. Later the sample ID was changed to 22SAP-SO-TH13-05 in the laboratory reports since that was confirmed with sampler to be the correct one. No QC errors were documented in the case narrative and were found in this data quality review for work order 1221610. All data were accepted, the workorder is 100% complete.

Table 1. Sample Overview

Client Sample Id:	Lab Sample Id:		Matrix wet/dry	Method	
Method	SGS ANC	SGS ORL	Soil	Percent Solids SM19 2540G	PFAS EPA537.1
22SAP-SO-TH09-00	1221457007	FA94723-7	dry weight	X	X
22SAP-SO-TH09-10	1221457006	FA94723-6	dry weight	X	X
22SAP-SO-TH15-05	1221457005	FA94723-5	dry weight	X	X
22SAP-SO-TH19-10	1221457004	FA94723-4	dry weight	X	X
22SAP-SO-TH21-7.5	1221457003	FA94723-3	dry weight	X	X
22SAP-SO-TH25-10	1221457002	FA94723-2	dry weight	X	X
22SAP-SO-TH28-05	1221457001	FA94723-1	dry weight	X	X
22SAP-SO-TH13-05	1221610001	FA94976-1	dry weight	X	X
22SAP-SO-TH12-10	1221610002	FA94976-2	dry weight	X	X
22SAP-SO-TH08-05	1221610003	FA94976-3	dry weight	X	X

Client Sample Id:	Lab Sample Id:		Matrix wet/dry	Method	
Method	SGS ANC	SGS ORL	Soil	Percent Solids SM19 2540G	PFAS EPA537.1
22SAP-SO-TH08-00	1221610004	FA94976-4	dry weight	X	X
22SAP-SO-TH05-05	1221610005	FA94976-5	dry weight	X	X

DATA QUALIFIER

The following qualifier have been assigned to samples in addition to the laboratory qualifiers:

E	The analyte is non-detect and ½ LOQ is above cleanup level for migration to groundwater, therefore the presence of this analyte above cleanup level cannot be verified.
B	The analyte was detected in the Method Blank or Trip Blank.
R	Result is rejected.
QH	The analyte has a positive result and is biased high.
QL	The analyte has a non-detect or positive result and is biased low.
QN	The analyte had RPD outside the QC limits.

FIELD SAMPLE REVIEW

Sample handling, shipping, and receiving:

SDG 1221457: All samples were listed on the COC and delivered with temperatures below 6 °C.

SDG 1221610: Sample 22SAP-SO-TH13-05 was listed as 22SAP-SO-TH12-05 and 22SAP-SO-TH13-05 on the jar. The laboratory used the sample name on the COC which was later changed to the correct sample ID 22SAP-SO-TH13-05. Data usability is not affected.

Holding times: All holding times were met for initial extractions and analysis.

Sample reporting: All soils were reported on a dry weight basis.

Cleanup level: cleanup levels following 18AAC 75, October 2021 Table B1. Method Two, Migration to Groundwater were used for evaluation.

Surrogates:

SDG 1221457: Surrogate 13C8-FOSA was below QC limits in samples 22-SAP-SO-TH28-05, 22-SAP-SO-TH25-10, 22-SAP-SO-TH09-10 indicating that associated analyte Perfluorooctanesulfonamide (PFOSA) maybe biased low, qualifier QL was applied to affected samples. This compound is not regulated in Alaska and data quality is not affected.

QC SAMPLE REVIEW

Method blanks:

Trip Blank:

Trip blank is not required for these analyses.

Equipment blank:

Equipment blank was not submitted to the laboratory.

LCS/LCSD recoveries and RPD:

LCS analyses were within QC limits. LCSD was not analyzed for both workorders, refer to MSD analyses for precision.

MS/MSD recoveries and RPD:

Site SDG 1221457 and 1221610
SDG 1221457: Laboratory run non-project specific MS/MSD analyses to determine precision. Recovery for MS was outside QC limits for all analytes except for Perfluoroheptanoic acid, Perfluorobutanesulfonic acid, and PFOS, accuracy for these compounds can be determined from LCS analyses.
RPD for MSD analyses was within QC limits for all analytes.
SDG 1221610: Project specific MS/MSD was analyzed, and analyses were within QC limits for accuracy and precision.

Field Duplicates:

SDG 1221457: Sample 22-SAP-SO-TH-00 and 22-SAP-SO-TH-10 were duplicates and all analytes were non detected both samples.
SDG 1221610: Samples 22-SAP-SO-TH08-05 and 22-SAP-SO-TH08-00 were duplicates and all analytes were non detected both samples.

CONCLUSION

All data are within analytical QC limits, workorder is 100% complete.

ABBREVIATIONS

ADEC	Alaska Department of environmental conservations
COC	Chain of Custody
DRO	Diesel range organics
DL	Detection limit
GRO	Gasoline range organics
LCS/LCSD	Laboratory control sample
LCSD	Laboratory control sample duplicate
LOD	Limit of detection (1/2 LOQ)
LOQ	Limit of Quantitation
MS/MSD	Matrix spike/Matrix spike duplicate
MGW	Migration to Groundwater
QC	Quality control
PAH	Polynuclear aromatic hydrocarbon
RPD	Relative Percent Deviation
SIM	Single ion monitoring
VOC	Volatile organic compounds

APPENDIX

Table A1 Results of PFAS analysis in soil samples of SDG 1221457, cleanup levels refer to 18 AAC 75 Oil and Other Hazardous Substances Pollution Control, dated October 2018, Table B1, Method TWO migration to groundwater (MTGW). Numbers in bold are above cleanup level

SDG 1221457	Sample ID			22SAP-SO-THND9-00			22SAP-SO-THND9-10			22SAP-SO-TH15-05			22SAP-SO-TH19-10		
	Lab ID (SGS Anchorage)			1221457007			1221457006			1221457005			1221457004		
	Lab ID (SGS Orlando)			FA94723-7			FA94723-6			FA94723-5			FA94723-4		
Analyte	Method	Units	PAL	Level	1/2 LOQ	Flag	Level	1/2 LOQ	Flag	Level	1/2 LOQ	Flag	Level	1/2 LOQ	Flag
4:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
6:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
8:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
EtFOSAA	EPA 537M	mg/Kg (dry)		ND	0.0012		ND	0.0012		ND	0.0012		ND	0.0011	
MeFOSAA	EPA 537M	mg/Kg (dry)		ND	0.0012		ND	0.0012		ND	0.0012		ND	0.0011	
Perfluorobutanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorobutanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorodecanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorodecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorododecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluoroheptanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluoroheptanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorohexanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorohexanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorononanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorononanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorooctanesulfonic acid	EPA 537M	mg/Kg (dry)	0.0030	ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorooctanoic acid	EPA 537M	mg/Kg (dry)	0.0017	ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluoropentanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluoropentanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorotetradecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluorotridecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
Perfluoroundecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062		ND	0.00059		ND	0.00057	
PFOSA	EPA 537M	mg/Kg (dry)		ND	0.00062		ND	0.00062	QL	ND	0.00059		ND	0.00057	

Table A1 continue

SDG 1221457	Sample ID			22SAP-SO-TH21-7.5			22SAP-SO-TH25-10			22SAP-SO-TH28-05		
	Lab ID (SGS Anchorage)			1221457003			1221457002			1221457001		
	Lab ID (SGS Orlando)			FA94723-3			FA94723-2			FA94723-1		
Analyte	Method	Units	PAL	Level	1/2 LOQ	Flag	Level	1/2 LOQ	Flag	Level	1/2 LOQ	Flag
4:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
6:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
8:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
EtFOSAA	EPA 537M	mg/Kg (dry)		ND	0.0011		ND	0.0011		ND	0.0012	
MeFOSAA	EPA 537M	mg/Kg (dry)		ND	0.0011		ND	0.0011		ND	0.0012	
Perfluorobutanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorobutanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorodecanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorodecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorododecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluoroheptanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluoroheptanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorohexanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorohexanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorononanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorononanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorooctanesulfonic acid	EPA 537M	mg/Kg (dry)	0.0030	ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorooctanoic acid	EPA 537M	mg/Kg (dry)	0.0017	ND	0.00057		ND	0.00055		ND	0.00058	
Perfluoropentanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluoropentanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorotetradecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluorotridecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
Perfluoroundecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055		ND	0.00058	
PFOSA	EPA 537M	mg/Kg (dry)		ND	0.00057		ND	0.00055	QL	ND	0.00058	QL

Table A2 **Table A1** Results of PFAS analysis in soil samples of SDG 1221610, cleanup levels refer to 18 AAC 75 Oil and Other Hazardous Substances Pollution Control, dated October 2018, Table B1, Method TWO migration to groundwater (MTGW). Numbers in bold are above cleanup level

SDG 1221610	Sample ID			22SAP-SO-TH05-05			22SAP-SO-TH08-00			22SAP-SO-TH08-05			22SAP-SO-TH13-05			22SAP-SO-TH12-10		
	Lab ID (SGS Orlando)			122161001			122161002			122161003			122161004			122161005		
	Lab ID (SGS Anchorage)			FA94976-5			FA94976-4			FA94976-3			FA94976-1			FA94976-2		
Analyte	Method	Units	PAL	Level	1/2LOQ	Flag	Level	1/2LOQ	Flag	Level	1/2LOQ	Flag	Level	1/2LOQ	Flag	Level	1/2LOQ	Flag
4:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
6:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
8:2 Fluorotelomer sulfonate	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
EtFOSAA	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
MeFOSAA	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorobutanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorobutanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorodecanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorodecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorododecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluoroheptanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluoroheptanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorohexanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorohexanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorononanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorononanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorooctanesulfonic acid	EPA 537M	mg/Kg (dry)	0.0030	ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorooctanoic acid	EPA 537M	mg/Kg (dry)	0.0017	ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluoropentanesulfonic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluoropentanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorotetradecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluorotridecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
Perfluoroundecanoic acid	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	
PFOSA	EPA 537M	mg/Kg (dry)		ND	0.00053		ND	0.00055		ND	0.00058		ND	0.00055		ND	0.00058	

Laboratory Data Review Checklist

Completed By:

Birgit Hagedorn

Title:

CEO

Date:

04/25/2022

Consultant Firm:

Sustainable Earth Research LLC

Laboratory Name:

SGS North America Inc, Anchorage/Orlando FL

Laboratory Report Number:

1221457

Laboratory Report Date:

04/20/2022

CS Site Name:

North link Airport

ADEC File Number:

Hazard Identification Number:

1221457

Laboratory Report Date:

04/20/2022

CS Site Name:

North link Airport

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:

- 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:

Samples were transferred to SGS North America Inc in Orlando, FL

2. Chain of Custody (CoC)

- a. CoC information completed, signed, and dated (including released/received by)?

Yes ☒ No ☐ N/A ☐ Comments:

- b. Correct analyses requested?

Yes ☒ No ☐ N/A ☐ Comments:

3. Laboratory Sample Receipt Documentation

- a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes ☒ No ☐ N/A ☐ Comments:

- b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes ☒ No ☐ N/A ☐ Comments:

1221457

Laboratory Report Date:

04/20/2022

CS Site Name:

North link Airport

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes ☒ No ☐ N/A ☐ Comments:

Nothing to report

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:

No discrepancies were found

e. Data quality or usability affected?

Comments:

Data quality is not affected

4. Case Narrative

a. Present and understandable?

Yes ☒ No ☐ N/A ☐ Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes ☒ No ☐ N/A ☐ Comments:

The case narrative lists low recoveries for surrogate 13C8-FOSA which affected samples 22-SAP-SO-TH28-05, 22-SAP-SO-TH25-10, 22-SAP-SO-TH09-10. MS/MSD recoveries were outside QC limits for 21 of the 24 analytes due to elevated analyte concentration in the sample.

c. Were all corrective actions documented?

Yes ☐ No ☐ N/A ☐ Comments:

No corrective actions were reported.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

Effect on data usability is not reported in case narrative.

1221457

Laboratory Report Date:

04/20/2022

CS Site Name:

North link Airport

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes ☒ No ☐ N/A ☐ Comments:

b. All applicable holding times met?

Yes ☒ No ☐ N/A ☐ Comments:

c. All soils reported on a dry weight basis?

Yes ☒ No ☐ N/A ☐ Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes ☐ No ☒ N/A ☐ Comments:

e. Data quality or usability affected?

It can not be evaluated if these analytes occur above cleanup level in the samples.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes ☒ No ☐ N/A ☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes ☒ No ☐ N/A ☐ Comments:

1221457

Laboratory Report Date:

04/20/2022

CS Site Name:

North link Airport

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

See above

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☒ N/A ☐ Comments:

v. Data quality or usability affected?

Comments:

All samples within QC limits

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:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes ☐ No ☐ N/A ☒ Comments:

No metals/inorganic analyses were performed.

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:

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:

LCSD analyses was not performed, see MS/MSD

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒ Comments:

No sample affected.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data usability is 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:

MS/MSD analyses were not requested for this project. The laboratory run non-project specific MS/MSD analyses.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☐ N/A ☒ Comments:

No metals / inorganic analysis was performed.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes ☐ No ☒ N/A ☐ Comments:

Accuracy was outside QC limits for all analytes except Perfluoroheptanoic acid and Perfluorooctanesulfonic acid.

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:

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☒ N/A ☐ Comments:

None of these analytes was detected in the samples, no qualifier was applied, and data usability is not affected.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Accuracy for these analytes can be derived from LCS results, data usability is 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:

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:

Surrogate 13C8-FOSA was below QC limits for samples 22-SAP-SO-TH28-05, 22-SAP-SO-TH25-10, 22-SAP-SO-TH09-10.

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:

Qualifier QL was applied indicating that result may be biased low.

iv. Data quality or usability affected?

Comments:

This analyte is not regulated in Alaska, data usability is not affected.

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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 blanks are not required for these analyses.

- 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:

See above

- iii. All results less than LOQ and project specified objectives?

Yes ☐ No ☐ N/A ☒ Comments:

See above

- iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

- v. Data quality or usability affected?

Comments:

f. Field Duplicate

- i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes ☒ No ☐ N/A ☐ Comments:

Sample 22-SAP-SO-TH-00 and 22-SAP-SO-TH-10 are field duplicates.

- ii. Submitted blind to lab?

Yes ☒ No ☐ N/A ☐ Comments:

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- iii. Precision – All relative percent differences (RPD) less than specified project objectives?
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes ☐ No ☐ N/A ☒ Comments:

Both samples had no detected analytes.

- iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

No

- g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes ☐ No ☐ N/A ☒ Comments:

Decontamination was not required in this project.

- i. All results less than LOQ and project specified objectives?

Yes ☐ No ☐ N/A ☒ Comments:

See above

- ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

- iii. Data quality or usability affected?

Comments:

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7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes ☐ No ☐ N/A ☒ Comments:

No additional qualifier were applied

Laboratory Data Review Checklist

Completed By:

Birgit Hagedorn

Title:

CEO

Date:

05/16/2022

Consultant Firm:

Sustainable Earth Research LLC

Laboratory Name:

SGS North America Inc, Anchorage and Orlando

Laboratory Report Number:

1221610

Laboratory Report Date:

05/13/2022

CS Site Name:

South Air Park

ADEC File Number:

Hazard Identification Number:

1221610

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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:

- 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:

Samples were transferred to SGS in Orlando Florida.

2. Chain of Custody (CoC)

- a. CoC information completed, signed, and dated (including released/received by)?

Yes ☒ No ☐ N/A ☐ Comments:

- b. Correct analyses requested?

Yes ☒ No ☐ N/A ☐ Comments:

3. Laboratory Sample Receipt Documentation

- a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes ☒ No ☐ N/A ☐ Comments:

- b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes ☒ No ☐ N/A ☐ Comments:

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes ☒ No ☐ N/A ☐ Comments:

Nothing to report

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:

A discrepancy between sample ID on jar (22SAP-SO-TH13-05) and on COC (22SAP-SO-TH12-05) was noted. The laboratory used the sample ID from the COC and changed it to the correct one 22SAP-SO-TH13-05 after communicating with the project manager.

e. Data quality or usability affected?

Comments:

Data usability is not affected.

4. Case Narrative

a. Present and understandable?

Yes ☒ No ☐ N/A ☐ Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes ☐ No ☒ N/A ☐ Comments:

No discrepancies occurred.

c. Were all corrective actions documented?

Yes ☐ No ☐ N/A ☒ Comments:

No corrective actions were necessary.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

No effect on data usability.

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5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes ☒ No ☐ N/A ☐ Comments:

b. All applicable holding times met?

Yes ☒ No ☐ N/A ☐ Comments:

c. All soils reported on a dry weight basis?

Yes ☒ No ☐ N/A ☐ Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes ☒ No ☐ N/A ☐ Comments:

e. Data quality or usability affected?

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes ☒ No ☐ N/A ☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes ☒ No ☐ N/A ☐ Comments:

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iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒ Comments:

No flags were necessary.

v. Data quality or usability affected?

Comments:

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:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes ☐ No ☐ N/A ☒ Comments:

No metal analyses were performed.

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:

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:

See MS/MSD for precision.

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒ Comments:

All samples in acceptable QC limits.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

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:

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☐ N/A ☒ Comments:

No metal analyses were performed.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes ☒ No ☐ N/A ☐ Comments:

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:

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒ Comments:

No flags were applied.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

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:

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:

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:

All results within QC limits.

iv. Data quality or usability affected?

Comments:

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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:

No trip blanks were required for this analyses

- 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:

See above

- iii. All results less than LOQ and project specified objectives?

Yes ☐ No ☐ N/A ☒ Comments:

See above.

- iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

- v. Data quality or usability affected?

Comments:

f. Field Duplicate

- i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes ☒ No ☐ N/A ☐ Comments:

Field Duplicates:

22SAP-SO-TH08-00/ 22SAP-SO-TH08-05

- ii. Submitted blind to lab?

Yes ☒ No ☐ N/A ☐ Comments:

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- iii. Precision – All relative percent differences (RPD) less than specified project objectives?
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes ☒ No ☐ N/A ☐ Comments:

Both samples had no detected analytes.

- iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

- g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes ☐ No ☐ N/A ☒ Comments:

Decontamination was not required in this project.

- i. All results less than LOQ and project specified objectives?

Yes ☐ No ☐ N/A ☒ Comments:

See above.

- ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

- iii. Data quality or usability affected?

Comments:

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7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes ☐ No ☐ N/A ☒

Comments:

No qualifier were applied.