



**SUSTAINABLE ENVIRONMENT, ENERGY,
HEALTH & SAFETY PROFESSIONAL SERVICES**

April 25, 2019

NORTECH, Inc.



Accounting Office:
2400 College Rd
Fairbanks, AK 99709
907.452.5688
907.452.5694 Fax

[Redacted]

[Redacted]



3105 Lakeshore Drive
Suite A106
Anchorage, AK 99517
907.222.2445
907.222.0915 Fax

RE: Spring 2019 - PFAS Groundwater Results

[Redacted]



5438 Shaune Drive
Suite B
Juneau, AK 99801
907.586.6813
907.586.6819 Fax

Thank you very much for participating in **NORTECH's** well search and initial groundwater assessment. The laboratory results of your groundwater sample detected two regulated per- and poly-fluoroalkyl substances (PFAS) below the current lifetime health advisory (LHA) level for these compounds. There is no action you need to take at this time.

Enclosed is the laboratory report for your well. Please reference Section 4 - "Report of Analysis" found on Page 13 of this report for the results of your groundwater analysis. The sum concentration of regulated PFAS compounds Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic Acid (PFOA) was 0.00916 micrograms per liter (µg/L). This combined result is below the current LHA.

www.nortechengr.com

The Environmental Protection Agency (EPA) and Alaska Department of Environmental Conservation (ADEC) have set an updated LHA level of 0.070 µg/L. The LHA of 0.070 µg/L is for the sum of PFAS compounds PFOS and PFOA in drinking water.

As required by ADEC, we will be notifying ADEC of your laboratory test results. If you have any additional questions regarding the results of this report, please feel free to contact me or Julie Keener, at the **NORTECH** office, 907-452-5688, Monday through Friday, 8 am to 5 pm.

Again, thank you for participating in this groundwater assessment and we hope that you have a good summer.

Sincerely,
NORTECH

Scott Hummel
Chemist

Attached: SGS Work Order Laboratory Report: 1199073

Laboratory Report of Analysis

To: Nortech
2450 College Road
Fairbanks, AK 99709
(907)452-5688

Report Number: **1199073**

Client Project: **PFC Well Search NAPA-Van Horn**

Dear Scott Hummel,

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 Jennifer 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.



SGS North America Inc.
Environmental Services – Alaska Division
Project Manager

Justin Nelson
2019.03.15
09:39:30 -08'00'

Jennifer Dawkins
Project Manager
Jennifer.Dawkins@sgs.com

Date

Case Narrative

SGS Client: **Nortech**

SGS Project: **1199073**

Project Name/Site: **PFC Well Search NAPA-Van Horn**

Project Contact: **Scott Hummel**

Refer to sample receipt form for information on sample condition.

3790Schacht-01 (1199073001) PS

EPA 537- QSM 5.1 24 Compound List 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.

Print Date: 03/15/2019 8:39:46AM

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
██████████	1199073001	02/25/2019	03/01/2019	Water (Surface, Eff., Ground)

Method

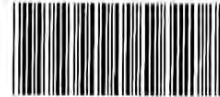
Method Description

Print Date: 03/15/2019 8:39:48AM



SGS North America Inc. CHAIN OF CUSTODY RECORD

1199073



Locations Nationwide: Alaska, Maryland, New Jersey, New York, North Carolina, Indiana, West Virginia, Kentucky

www.us.sgs.com

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Page 1 of 1

Section 1: CLIENT: NORTECH, CONTACT: Scott Hammel, PHONE NO: 907-452-5688, PROJECT NAME: NAPA-Van Horn, REPORTS TO: Scott Hammel, INVOICE TO: NORTECH

Section 2: Table with columns for #, CONTACT, TYPE, MATRIX CODE, PRESERVATIVE, and REMARKS/LOC ID. Includes handwritten entries for 'None' and 'PFCs by EPA 537'.

Section 2: Table with columns for RESERVED for lab use, SAMPLE IDENTIFICATION, DATE, TIME, MATRIX/MATRIX CODE. Includes handwritten entry 'DA-B' and a redacted sample ID.

Section 5: Relinquished By (1-4) with handwritten signatures and dates (2-28-19, 3/1/19).

Section 4: DOD Project? Yes No, Data Deliverable Requirements, Cooler ID, Requested Turnaround Time and/or Special Instructions, Temp Blank °C, Chain of Custody Seal.



1199073



FAIRBANKS SAMPLE RECEIPT FORM

Note: This form is to be completed by Fairbanks Receiving Staff for all samples

Review Criteria:	Condition:	Comments/Actions Taken
Were custody seals intact? Note # & location, if applicable. COC accompanied samples?	Yes No <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> Yes No N/A	<input checked="" type="checkbox"/> Exemption permitted if sampler hand carries/delivers.
Temperature blank compliant* (i.e., 0-6°C) If >6°C, were samples collected <8 hours ago? If <0°C, were all sample containers ice free? Cooler ID: _____ @ <u>212C</u> w/Therm. ID: <u>057</u> Cooler ID: _____ @ _____ w/Therm. ID: _____ Cooler ID: _____ @ _____ w/Therm. ID: _____ Cooler ID: _____ @ _____ w/Therm. ID: _____ Cooler ID: _____ @ _____ w/Therm. ID: _____ If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "COOLER TEMP" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note ambient () or chilled (). Please check one.	Yes No <input checked="" type="checkbox"/> N/A Yes No <input checked="" type="checkbox"/> N/A Yes No <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Exemption permitted if chilled & collected <8hrs ago <i>Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.</i>
Delivery Method: <input checked="" type="checkbox"/> Client (hand carried) Other: _____	Tracking/AB# : Or see attached Or <input checked="" type="checkbox"/> N/A	
→For samples received with payment, note amount (\$) and whether cash / check / CC (circle one) was received.		
Were samples in good condition (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other: _____	<input checked="" type="checkbox"/> Yes No N/A	<i>Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.</i>
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes No <input checked="" type="checkbox"/> N/A	
For RUSH/SHORT Hold Time, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No <input checked="" type="checkbox"/> N/A Yes No <input checked="" type="checkbox"/> N/A	
Additional notes (if applicable):		

Profile #: 362417

Note to Client: any "no" circled above indicates non-compliance with standard procedures and may impact data quality.



e-Sample Receipt Form

SGS Workorder #:

1199073



1 1 9 9 0 7 3

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1-F, 1-B
COC accompanied samples?	Yes	
<input type="checkbox"/> N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 3.6 °C Therm. ID: D56
		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	
<p>If samples received <u>without</u> a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "COOLER TEMP" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".</p> <p>Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.</p>		
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)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)	Yes	
Were proper containers (type/mass/volume/preservative***) used?	Yes	<input type="checkbox"/> N/A ***Exemption permitted for metals (e.g. 200.8/6020A).
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>
1199073001-A	No Preservative Required	OK			
1199073001-B	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.

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.

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

1199073

SGS Job Number: FA62039

Sampling Date: 02/25/19

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: **28**



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

A handwritten signature in black ink that reads "Caitlin Brice".

Caitlin Brice, M.S.
General Manager

Client Service contact: Andrea Colby 407-425-6700

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

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

Test results relate only to samples analyzed.

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Sample Summary

SGS North America, Inc

Job No: FA62039

1199073

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA62039-1	02/25/19	10:16 JS	03/05/19	AQ	Water	

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: SGS North America, Inc

Job No FA62039

Site: 1199073

Report Date 3/13/2019 11:38:37

1 Sample was collected on 02/25/2019 and received at SGS North America Inc - Orlando on 03/05/2019 properly preserved, at 3.6 Deg. C and intact. This sample received an SGS Orlando job number of FA62039. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Semi-volatiles By Method EPA 537M BY ID

Matrix: AQ **Batch ID:** OP74054

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA62023-2MS, FA62024-1DUP were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

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

RPD(s) for Duplicate for Perfluoropentanesulfonic acid are outside control limits for sample OP74054-DUP. Probable cause is due to sample non-homogeneity.

Matrix: AQ **Batch ID:** OP74068

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA62099-2MS, FA62099-2MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Sample(s) FA62039-1 have surrogates outside control limits.

FA62039-1 for 13C2-PFDoDA, 13C2-PFTeDA: Outside control limits.

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

Narrative prepared by:

Ariel Hartney, Client Services (*Signature on File*)

Summary of Hits

Job Number: FA62039
Account: SGS North America, Inc
Project: 1199073
Collected: 02/25/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

FA62039-1						
Perfluorooctanesulfonic acid		0.00516	0.0040		ug/l	EPA 537M BY ID

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: [REDACTED]		Date Sampled: 02/25/19
Lab Sample ID: FA62039-1		Date Received: 03/05/19
Matrix: AQ - Water		Percent Solids: n/a
Method: EPA 537M BY ID EPA 537 MOD		
Project: 1199073		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3Q1673.D	1	03/07/19 20:18	NAF	03/06/19 09:00	OP74054	S3Q46
Run #2	3Q1762.D	1	03/11/19 14:57	NAF	03/08/19 10:00	OP74068	S3Q48

Run #	Initial Volume	Final Volume
Run #1	250 ml	1.0 ml
Run #2	250 ml	1.0 ml

PFAS List

CAS No. Compound Result RL Units Q

PERFLUOROALKYLCARBOXYLIC ACIDS

375-22-4	Perfluorobutanoic acid	ND ^a	0.0080	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	ug/l	

PERFLUOROALKYLSULFONATES

375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0040	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.00516	0.0040	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND ^a	0.0040	ug/l	

PERFLUOROCTANESULFONAMIDES

754-91-6	PFOSA	ND	0.0040	ug/l	
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PERFLUOROCTANESULFONAMIDOACETIC ACIDS

2355-31-9	MeFOSAA	ND	0.020	ug/l	
2991-50-6	EtFOSAA	ND	0.020	ug/l	

FLUOROTELOMER SULFONATES

757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0080	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	ug/l	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: ██████████	Date Sampled: 02/25/19
Lab Sample ID: FA62039-1	Date Received: 03/05/19
Matrix: AQ - Water	Percent Solids: n/a
Method: EPA 537M BY ID EPA 537 MOD	
Project: 1199073	

4.1
4

PFAS List

CAS No.	Compound	Result	RL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	79%	87%	30-140%
	13C5-PFPeA	88%	91%	40-140%
	13C5-PFHxA	95%	94%	50-150%
	13C4-PFHpA	98%	94%	50-150%
	13C8-PFOA	112%	102%	50-150%
	13C9-PFNA	105%	95%	50-150%
	13C6-PFDA	91%	84%	50-150%
	13C7-PFUnDA	79%	60%	50-150%
	13C2-PFDoDA	66%	39% ^b	50-150%
	13C2-PFTeDA	52%	37% ^b	40-150%
	13C3-PFBS	84%	91%	50-150%
	13C3-PFHxS	83%	93%	50-150%
	13C8-PFOS	72%	74%	50-150%
	13C8-FOSA	67%	78%	30-140%
	d3-MeFOSAA	86%	67%	50-150%
	13C2-4:2FTS	99%	92%	50-150%
	13C2-6:2FTS	121%	103%	50-150%
	13C2-8:2FTS	99%	82%	50-150%

- (a) Result is from Run# 2
- (b) Outside control limits.

ND = Not detected
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SGS North America Inc.
CHAIN OF CUSTODY RECORD



Locations Nationwide

Alaska Florida
New Jersey Colorado
Texas North Carolina
Virginia Louisiana

www.us.sgs.com

FA62039

CLIENT: SGS North America Inc. - Alaska Division					SGS Reference: SGS, FL					Page 1 of 1	
CONTACT: Julie Shumway PHONE NO: (907) 562-2343					Additional Comments: All soils report out in dry weight unless otherwise requested.						
PROJECT NAME: 1199073		PWSID#:			C O N T A I N E R S	Preservative Used: NONE	EPA 837 - DSM 5.1 24 Compound List	MS	MSD	SGS lab #	Location ID
REPORTS TO:		NPDL#:									
INVOICE TO: SGS - Alaska		E-MAIL: Julie.Shumway@sgs.com			QUOTE #:		1199073				
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/MATRIX							
①	[REDACTED]	2/25/2019	10:16	Water	2	G =	X			1199073001	
Relinquished By: (1) <i>[Signature]</i>		Date	Time	Received By: <i>UPS</i>		DOD Project? NO Report to DL (J Flags)? NO Cooler ID:			Data Deliverable Requirements: Level 2 Report +DV EDD		
Relinquished By: (2) <i>UPS</i>		Date	Time	Received By:		Requested Turnaround Time and-or Special Instructions:					
Relinquished By: (3)		Date	Time	Received By:		Report all analyses for Soils/Waters in mg/L or mg/Kg, where possible					
Relinquished By: (4)		Date	Time	Received For Laboratory By: <i>1315</i>		Temp Blank °C: <i>3.6</i> or Ambient []			Chain of Custody Seal: (Circle) 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

1199073_PFC_03.04.19.xls

5.1
5



SGS Sample Receipt Summary

Job Number: FA62039

Client: SGS

Project: 1199073

Date / Time Received: 3/5/2019 1:15:00 PM

Delivery Method: UPS

Airbill #s: 1za8619w0166092034

Therm ID: <u>IR 1;</u>	Therm CF: <u>-0.2;</u>	# of Coolers: <u>1</u>
Cooler Temps (Raw Measured) °C: Cooler 1: (3.8);		
Cooler Temps (Corrected) °C: Cooler 1: (3.6);		

<u>Cooler Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Temp criteria achieved	<input checked="" type="checkbox"/>		<input type="checkbox"/>
4. Cooler temp verification	<u>IR Gun</u>		
5. Cooler media	<u>Ice (Bag)</u>		

<u>Trip Blank Information</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Trip Blank listed on COC	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<u>W</u>	<u>or</u>	<u>S</u>	<u>N/A</u>
3. Type Of TB Received	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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: SHAYLAP

Date: 3/5/2019 1:15:00 PM

Reviewer: _____

Date: _____

5.1
5

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

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74054-MB	3Q1656.D	1	03/07/19	NAF	03/06/19	OP74054	S3Q46

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	Compound	Result	RL	Units	Q
2706-90-3	Perfluoropentanoic acid	ND	0.0038	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0038	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0038	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0038	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0038	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0038	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0038	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0038	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0038	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0038	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0038	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0038	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0038	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0038	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0038	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0038	ug/l	
754-91-6	PFOSA	ND	0.0038	ug/l	
2355-31-9	MeFOSAA	ND	0.019	ug/l	
2991-50-6	EtFOSAA	ND	0.019	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.0077	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0077	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0077	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	92% 30-140%
	13C5-PFPeA	95% 40-140%
	13C5-PFHxA	103% 50-150%
	13C4-PFHpA	106% 50-150%
	13C8-PFOA	120% 50-150%
	13C9-PFNA	116% 50-150%
	13C6-PFDA	92% 50-150%
	13C7-PFUnDA	78% 50-150%
	13C2-PFDoDA	67% 50-150%
	13C2-PFTeDA	67% 40-150%

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Method Blank Summary

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74054-MB	3Q1656.D	1	03/07/19	NAF	03/06/19	OP74054	S3Q46

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	ID Standard Recoveries	Limits
	13C3-PFBS	95% 50-150%
	13C3-PFHxS	92% 50-150%
	13C8-PFOS	64% 50-150%
	13C8-FOSA	87% 30-140%
	d3-MeFOSAA	91% 50-150%
	13C2-4:2FTS	102% 50-150%
	13C2-6:2FTS	126% 50-150%
	13C2-8:2FTS	102% 50-150%

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Method Blank Summary

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74068-MB	3Q1751.D	1	03/11/19	NAF	03/08/19	OP74068	S3Q48

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	Compound	Result	RL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	99% 30-140%
	13C5-PFPeA	94% 40-140%
	13C5-PFHxA	96% 50-150%
	13C4-PFHpA	95% 50-150%
	13C8-PFOA	96% 50-150%
	13C9-PFNA	94% 50-150%
	13C6-PFDA	90% 50-150%
	13C7-PFUnDA	79% 50-150%
	13C2-PFDoDA	74% 50-150%
	13C2-PFTeDA	73% 40-150%
	13C3-PFBS	95% 50-150%
	13C3-PFHxS	100% 50-150%
	13C8-PFOS	96% 50-150%
	13C8-FOSA	92% 30-140%
	d3-MeFOSAA	80% 50-150%
	13C2-4:2FTS	89% 50-150%
	13C2-6:2FTS	91% 50-150%
	13C2-8:2FTS	84% 50-150%

Instrument Blank

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q46-IBLK	3Q1641.D	1	03/07/19	NAF	n/a	n/a	S3Q46

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA62039-1

CAS No.	Compound	Result	RL	Units	Q
2706-90-3	Perfluoropentanoic acid	ND	0.0080	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0080	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0080	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0080	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0080	ug/l	
754-91-6	PFOSA	ND	0.0080	ug/l	
2355-31-9	MeFOSAA	ND	0.040	ug/l	
2991-50-6	EtFOSAA	ND	0.040	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.016	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.016	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.016	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	96% 50-150%
	13C5-PFPeA	96% 50-150%
	13C5-PFHxA	104% 50-150%
	13C4-PFHpA	107% 50-150%
	13C8-PFOA	112% 50-150%
	13C9-PFNA	112% 50-150%
	13C6-PFDA	114% 50-150%
	13C7-PFUnDA	115% 50-150%
	13C2-PFDoDA	113% 50-150%
	13C2-PFTeDA	100% 50-150%

Instrument Blank

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q46-IBLK	3Q1641.D	1	03/07/19	NAF	n/a	n/a	S3Q46

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA62039-1

CAS No.	ID Standard Recoveries	Limits
	13C3-PFBS	99% 50-150%
	13C3-PFHxS	102% 50-150%
	13C8-PFOS	105% 50-150%
	13C8-FOSA	107% 50-150%
	d3-MeFOSAA	115% 50-150%
	13C2-4:2FTS	102% 50-150%
	13C2-6:2FTS	111% 50-150%
	13C2-8:2FTS	114% 50-150%

Instrument Blank

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q48-IBLK	3Q1747.D	1	03/11/19	NAF	n/a	n/a	S3Q48

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA62039-1

CAS No.	Compound	Result	RL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0080	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	102% 50-150%
	13C5-PFPeA	99% 50-150%
	13C5-PFHxA	100% 50-150%
	13C4-PFHpA	100% 50-150%
	13C8-PFOA	98% 50-150%
	13C9-PFNA	95% 50-150%
	13C6-PFDA	94% 50-150%
	13C7-PFUnDA	92% 50-150%
	13C2-PFDoDA	88% 50-150%
	13C2-PFTeDA	72% 50-150%
	13C3-PFBS	102% 50-150%
	13C3-PFHxS	106% 50-150%
	13C8-PFOS	104% 50-150%
	13C8-FOSA	99% 50-150%
	d3-MeFOSAA	92% 50-150%
	13C2-4:2FTS	93% 50-150%
	13C2-6:2FTS	92% 50-150%
	13C2-8:2FTS	89% 50-150%

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Instrument Blank

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q47-IBLK	3Q1710.D	1	03/08/19	NAF	n/a	n/a	S3Q47

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

OP74054-DUP, OP74054-MS

CAS No.	Compound	Result	RL	Units	Q
2706-90-3	Perfluoropentanoic acid	ND	0.0080	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0080	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0080	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0080	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0080	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0080	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0080	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0080	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0080	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0080	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0080	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0080	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0080	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0080	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0080	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0080	ug/l	
754-91-6	PFOSA	ND	0.0080	ug/l	
2355-31-9	MeFOSAA	ND	0.040	ug/l	
2991-50-6	EtFOSAA	ND	0.040	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.016	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.016	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.016	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	96% 50-150%
	13C5-PFPeA	96% 50-150%
	13C5-PFHxA	97% 50-150%
	13C4-PFHpA	98% 50-150%
	13C8-PFOA	99% 50-150%
	13C9-PFNA	99% 50-150%
	13C6-PFDA	104% 50-150%
	13C7-PFUnDA	100% 50-150%
	13C2-PFDoDA	97% 50-150%
	13C2-PFTeDA	81% 50-150%

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Instrument Blank

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S3Q47-IBLK	3Q1710.D	1	03/08/19	NAF	n/a	n/a	S3Q47

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

OP74054-DUP, OP74054-MS

CAS No.	ID Standard Recoveries	Limits
	13C3-PFBS	97% 50-150%
	13C3-PFHxS	97% 50-150%
	13C8-PFOS	97% 50-150%
	13C8-FOSA	99% 50-150%
	d3-MeFOSAA	97% 50-150%
	13C2-4:2FTS	90% 50-150%
	13C2-6:2FTS	92% 50-150%
	13C2-8:2FTS	93% 50-150%

Blank Spike Summary

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74054-BS	3Q1655.D	1	03/07/19	NAF	03/06/19	OP74054	S3Q46

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
2706-90-3	Perfluoropentanoic acid	0.0769	0.0717	93	70-130
307-24-4	Perfluorohexanoic acid	0.0769	0.0722	94	70-130
375-85-9	Perfluoroheptanoic acid	0.0769	0.0729	95	71-130
335-67-1	Perfluorooctanoic acid	0.0769	0.0743	97	74-130
375-95-1	Perfluorononanoic acid	0.0769	0.0723	94	76-130
335-76-2	Perfluorodecanoic acid	0.0769	0.0732	95	70-130
2058-94-8	Perfluoroundecanoic acid	0.0769	0.0706	92	70-130
307-55-1	Perfluorododecanoic acid	0.0769	0.0689	90	70-130
72629-94-8	Perfluorotridecanoic acid	0.0769	0.0675	88	70-139
376-06-7	Perfluorotetradecanoic acid	0.0769	0.0656	85	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0769	0.0727	95	73-130
2706-91-4	Perfluoropentanesulfonic acid	0.0769	0.0713	93	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0769	0.0737	96	74-130
375-92-8	Perfluoroheptanesulfonic acid	0.0769	0.0686	89	74-130
1763-23-1	Perfluorooctanesulfonic acid	0.0769	0.0707	92	70-130
68259-12-1	Perfluorononanesulfonic acid	0.0769	0.0548	71	70-130
754-91-6	PFOSA	0.0769	0.0753	98	70-131
2355-31-9	MeFOSAA	0.0769	0.0727	95	70-130
2991-50-6	EtFOSAA	0.0769	0.0586	76	70-130
757124-72-44:2	Fluorotelomer sulfonate	0.0769	0.0750	98	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.0769	0.0758	99	70-133
39108-34-4	8:2 Fluorotelomer sulfonate	0.0769	0.0775	101	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	91%	30-140%
	13C5-PFPeA	94%	40-140%
	13C5-PFHxA	102%	50-150%
	13C4-PFHpA	105%	50-150%
	13C8-PFOA	117%	50-150%
	13C9-PFNA	115%	50-150%
	13C6-PFDA	94%	50-150%
	13C7-PFUnDA	81%	50-150%
	13C2-PFDoDA	72%	50-150%
	13C2-PFTeDA	75%	40-150%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74054-BS	3Q1655.D	1	03/07/19	NAF	03/06/19	OP74054	S3Q46

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	ID Standard Recoveries	BSP	Limits
	13C3-PFBS	94%	50-150%
	13C3-PFHxS	93%	50-150%
	13C8-PFOS	73%	50-150%
	13C8-FOSA	91%	30-140%
	d3-MeFOSAA	90%	50-150%
	13C2-4:2FTS	107%	50-150%
	13C2-6:2FTS	130%	50-150%
	13C2-8:2FTS	108%	50-150%

* = Outside of Control Limits.

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Blank Spike Summary

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74068-BS	3Q1750.D	1	03/11/19	NAF	03/08/19	OP74068	S3Q48

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.0723	90	70-130
335-77-3	Perfluorodecanesulfonic acid	0.08	0.0716	90	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	93%	30-140%
	13C5-PFPeA	93%	40-140%
	13C5-PFHxA	97%	50-150%
	13C4-PFHpA	96%	50-150%
	13C8-PFOA	94%	50-150%
	13C9-PFNA	92%	50-150%
	13C6-PFDA	89%	50-150%
	13C7-PFUnDA	79%	50-150%
	13C2-PFDoDA	73%	50-150%
	13C2-PFTeDA	75%	40-150%
	13C3-PFBS	97%	50-150%
	13C3-PFHxS	102%	50-150%
	13C8-PFOS	98%	50-150%
	13C8-FOSA	90%	30-140%
	d3-MeFOSAA	78%	50-150%
	13C2-4:2FTS	96%	50-150%
	13C2-6:2FTS	94%	50-150%
	13C2-8:2FTS	90%	50-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74054-MS	3Q1731.D	1	03/08/19	NAF	03/06/19	OP74054	S3Q47
FA62023-2 ^a	3Q1730.D	1	03/08/19	NAF	03/06/19	OP74054	S3Q47

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	Compound	FA62023-2 ug/l	Spike Q ug/l	MS ug/l	MS %	Limits
2706-90-3	Perfluoropentanoic acid	0.00909	0.08	0.0862	96	70-130
307-24-4	Perfluorohexanoic acid	0.0133	0.08	0.0900	96	70-130
375-85-9	Perfluoroheptanoic acid	0.00391	0.08	0.0812	97	71-130
335-67-1	Perfluorooctanoic acid	0.00969	0.08	0.0870	97	74-130
375-95-1	Perfluorononanoic acid	0.00132	0.08	0.0766	94	76-130
335-76-2	Perfluorodecanoic acid	ND	0.08	0.0760	95	70-130
2058-94-8	Perfluoroundecanoic acid	ND	0.08	0.0701	88	70-130
307-55-1	Perfluorododecanoic acid	ND	0.08	0.0643	80	70-130
72629-94-8	Perfluorotridecanoic acid	ND	0.08	0.0737	92	70-139
376-06-7	Perfluorotetradecanoic acid	ND	0.08	0.0619	77	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0319	0.08	0.109	96	73-130
2706-91-4	Perfluoropentanesulfonic acid	ND	0.08	0.0765	96	70-130
355-46-4	Perfluorohexanesulfonic acid	0.00142	0.08	0.0791	97	74-130
375-92-8	Perfluoroheptanesulfonic acid	ND	0.08	0.0759	95	74-130
1763-23-1	Perfluorooctanesulfonic acid	0.00610	0.08	0.0789	91	70-130
68259-12-1	Perfluorononanesulfonic acid	ND	0.08	0.0507	63*	70-130
754-91-6	PFOSA	ND	0.08	0.0781	98	70-131
2355-31-9	MeFOSAA	ND	0.08	0.0735	92	70-130
2991-50-6	EtFOSAA	ND	0.08	0.0613	77	70-130
757124-72-44:2	Fluorotelomer sulfonate	ND	0.08	0.0799	100	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.08	0.0791	99	70-133
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.08	0.0798	100	70-130

CAS No.	ID Standard Recoveries	MS	FA62023-2	Limits
	13C4-PFBA	71%	74%	30-140%
	13C5-PFPeA	87%	86%	40-140%
	13C5-PFHxA	92%	93%	50-150%
	13C4-PFHpA	94%	96%	50-150%
	13C8-PFOA	103%	108%	50-150%
	13C9-PFNA	100%	104%	50-150%
	13C6-PFDA	89%	104%	50-150%
	13C7-PFUnDA	75%	92%	50-150%
	13C2-PFDoDA	59%	72%	50-150%
	13C2-PFTeDA	41%	50%	40-150%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74054-MS	3Q1731.D	1	03/08/19	NAF	03/06/19	OP74054	S3Q47
FA62023-2 ^a	3Q1730.D	1	03/08/19	NAF	03/06/19	OP74054	S3Q47

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	ID Standard Recoveries	MS	FA62023-2	Limits
	13C3-PFBS	88%	88%	50-150%
	13C3-PFHxS	90%	93%	50-150%
	13C8-PFOS	71%	84%	50-150%
	13C8-FOSA	67%	81%	30-140%
	d3-MeFOSAA	85%	95%	50-150%
	13C2-4:2FTS	102%	95%	50-150%
	13C2-6:2FTS	109%	108%	50-150%
	13C2-8:2FTS	113%	117%	50-150%

(a) Insufficient sample for re-extraction.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74068-MS	3Q1756.D	1	03/11/19	NAF	03/08/19	OP74068	S3Q48
OP74068-MSD	3Q1757.D	1	03/11/19	NAF	03/08/19	OP74068	S3Q48
FA62099-2	3Q1755.D	1	03/11/19	NAF	03/08/19	OP74068	S3Q48

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	Compound	FA62099-2 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	ND	0.0769	0.0672	87	0.0769	0.0632	82	6	70-130/30
335-77-3	Perfluorodecanesulfonic acid	ND	0.0769	0.0663	86	0.0769	0.0639	83	4	70-130/30

CAS No.	ID Standard Recoveries	MS	MSD	FA62099-2	Limits
	13C4-PFBA	116%	118%	103%	30-140%
	13C5-PFPeA	111%	112%	98%	40-140%
	13C5-PFHxA	112%	114%	101%	50-150%
	13C4-PFHpA	111%	112%	101%	50-150%
	13C8-PFOA	119%	120%	112%	50-150%
	13C9-PFNA	115%	112%	103%	50-150%
	13C6-PFDA	99%	96%	90%	50-150%
	13C7-PFUnDA	89%	89%	79%	50-150%
	13C2-PFDoDA	85%	86%	77%	50-150%
	13C2-PFTeDA	97%	90%	84%	40-150%
	13C3-PFBS	111%	113%	99%	50-150%
	13C3-PFHxS	114%	115%	102%	50-150%
	13C8-PFOS	99%	96%	84%	50-150%
	13C8-FOSA	94%	98%	84%	30-140%
	d3-MeFOSAA	92%	93%	83%	50-150%
	13C2-4:2FTS	111%	114%		50-150%
	13C2-6:2FTS	122%	122%	108%	50-150%
	13C2-8:2FTS	108%	102%	91%	50-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74054-DUP	3Q1737.D	2	03/08/19	NAF	03/06/19	OP74054	S3Q47
FA62024-1 ^a	3Q1736.D	2	03/08/19	NAF	03/06/19	OP74054	S3Q47

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	Compound	FA62024-1 ug/l	DUP Q	ug/l	Q	RPD	Limits
2706-90-3	Perfluoropentanoic acid	0.148		0.163		10	30
307-24-4	Perfluorohexanoic acid	0.382		0.424		10	30
375-85-9	Perfluoroheptanoic acid	0.0445		0.0494		10	30
335-67-1	Perfluorooctanoic acid	0.107		0.118		10	30
375-95-1	Perfluorononanoic acid	0.00237		0.00268	J	12	30
335-76-2	Perfluorodecanoic acid	ND		ND		nc	30
2058-94-8	Perfluoroundecanoic acid	ND		ND		nc	30
307-55-1	Perfluorododecanoic acid	ND		ND		nc	30
72629-94-8	Perfluorotridecanoic acid	ND		ND		nc	30
376-06-7	Perfluorotetradecanoic acid	ND		ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.166		0.186		11	30
2706-91-4	Perfluoropentanesulfonic acid	0.00397		0.00548	J	32*	30
355-46-4	Perfluorohexanesulfonic acid	0.0218		0.0221		1	30
375-92-8	Perfluoroheptanesulfonic acid	ND		ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0191		0.0188		2	30
68259-12-1	Perfluorononanesulfonic acid	ND		ND		nc	30
754-91-6	PFOSA	ND		ND		nc	30
2355-31-9	MeFOSAA	ND		ND		nc	30
2991-50-6	EtFOSAA	ND		ND		nc	30
757124-72-44:2	Fluorotelomer sulfonate	ND		ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0342		0.0341		0	30
39108-34-4	8:2 Fluorotelomer sulfonate	ND		ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FA62024-1	Limits
	13C4-PFBA	8%* ^c	10%* ^b	30-140%
	13C5-PFPeA	79%	76%	40-140%
	13C5-PFHxA	88%	85%	50-150%
	13C4-PFHpA	90%	87%	50-150%
	13C8-PFOA	97%	94%	50-150%
	13C9-PFNA	89%	86%	50-150%
	13C6-PFDA	86%	84%	50-150%
	13C7-PFUnDA	73%	69%	50-150%
	13C2-PFDoDA	66%	61%	50-150%
	13C2-PFTeDA	63%	52%	40-150%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA62039
Account: SGSAKA SGS North America, Inc
Project: 1199073

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP74054-DUP	3Q1737.D	2	03/08/19	NAF	03/06/19	OP74054	S3Q47
FA62024-1 ^a	3Q1736.D	2	03/08/19	NAF	03/06/19	OP74054	S3Q47

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62039-1

CAS No.	ID Standard Recoveries	DUP	FA62024-1	Limits
	13C3-PFBS	81%	79%	50-150%
	13C3-PFHxS	80%	79%	50-150%
	13C8-PFOS	71%	71%	50-150%
	13C8-FOSA	83%	69%	30-140%
	d3-MeFOSAA	74%	69%	50-150%
	13C2-4:2FTS	88%	85%	50-150%
	13C2-6:2FTS	108%	102%	50-150%
	13C2-8:2FTS	88%	86%	50-150%

- (a) Dilution required due to matrix interference.
- (b) Outside control limits due to matrix interference. Confirmed by batch QC.
- (c) Outside control limits.

* = Outside of Control Limits.