



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

April 22, 2019

NORTECH, Inc.

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Fairbanks, AK 99709
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5438 Shaune Drive
Suite B
Juneau, AK 99801
907.586.6813
907.586.6819 Fax

www.nortechengr.com

RE: Spring 2019 - PFAS Groundwater Results

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.

The sum concentration of regulated PFAS compounds Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic Acid (PFOA) was 0.0216 micrograms per liter ($\mu\text{g/L}$). This combined result is below the current LHA.

The Environmental Protection Agency (EPA) and Alaska Department of Environmental Conservation (ADEC) have set an LHA level of 0.070 $\mu\text{g/L}$. The LHA of 0.070 $\mu\text{g/L}$ 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: 1199068



Laboratory Report of Analysis

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

Report Number: **1199068**

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.

Alaska Division Technical Director

Stephen Ede

2019.03.19

13:42:31 -08'00'

Jennifer Dawkins
Project Manager
Jennifer.Dawkins@sgs.com

Date

Case Narrative

SGS Client: **Nortech**
SGS Project: **1199068**
Project Name/Site: **PFC- Well Search NAPA-Van Horn**
Project Contact: **Scott Hummel**

Refer to sample receipt form for information on sample condition.

1 (1199068001) 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: 03/19/2019 11:52:47AM

Sample Summary

| <u>Client Sample ID</u> | <u>Lab Sample ID</u> | <u>Collected</u> | <u>Received</u> | <u>Matrix</u> |
|-------------------------|----------------------|------------------|-----------------|-------------------------------|
| ██████████ 1-1 | 1199068001 | 02/26/2019 | 03/01/2019 | Water (Surface, Eff., Ground) |

Method

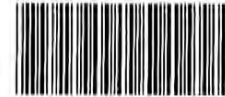
Method Description

Print Date: 03/19/2019 11:52:50AM



SGS North America Inc.
CHAIN OF CUSTODY RECORD

1199068



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

www.us.sgs.com

| | | | | | | | | | | | | | | | | | | |
|----------------------|---------------------------------|-----------------------|--|--------|------------------------------------------------------------------------------------------------|--------------------------------------|---------------------|----------------|------|------------------------------------|--------------------------------------------------------|------------------------------------|---------------------|--|--------------------------------|--------------|--|-----------------|
| CLIENT: Nortech | | | | | Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis. | | | | | | | | | | Page 1 of 1 | | | |
| Section 1 | CONTACT: Scott Hummel | | | | | PHONE NO: 907-452-5688 | | | | | Section 3 | | | | | Preservative | | |
| | PROJECT NAME: PFC - well search | | | | | PROJECT/ PWSID/ PERMIT#: 17-1001 | | | | | # | | | | | | | |
| | REPORTS TO: Scott Hummel | | | | | E-MAIL: scott.hummel@nortech.eng.com | | | | | Type | | | | | | | |
| | INVOICE TO: Nortech | | | | | QUOTE #: 17-1001 | | | | | PFCs by EPA 537 | | | | | | | |
| Section 2 | RESERVED for lab use | SAMPLE IDENTIFICATION | | | DATE mm/dd/yy | TIME HH:MM | MATRIX/ MATRIX CODE | CONCENTRATIONS | Type | | | | | | | | | REMARKS/ LOC ID |
| | DA-B | [REDACTED] | | | 2-26-19 | 10:55 | water | 2 grab | X | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| Section 5 | Relinquished By: (1) | | | | Date | Time | Received By: | | | | Section 4 | | DOD Project? Yes No | | Data Deliverable Requirements: | | | |
| | [Signature] | | | | 2-28-19 | 1530 | [Signature] | | | | | | | | | | | |
| | Relinquished By: (2) | | | | Date | Time | Received By: | | | | Requested Turnaround Time and/or Special Instructions: | | | | | | | |
| | [Signature] | | | | 2-28-19 | 1600 | | | | | Std TAT Please run same list as 2018 WO# 1189850 | | | | | | | |
| Relinquished By: (3) | | | | Date | Time | Received By: | | | | Temp Blank °C: 2.3°C | | Chain of Custody Seal: (Circle) | | | | | | |
| Relinquished By: (4) | | | | Date | Time | Received For Laboratory By: | | | | or Ambient [] | | INTACT BROKEN ABSENT | | | | | | |
| | | | | 3/1/19 | 1010 | [Signature] | | | | (See attached Sample Receipt Form) | | (See attached Sample Receipt Form) | | | | | | |

ARC-3.6
D56
CS-1F/1B



e-Sample Receipt Form

SGS Workorder #:

1199068



1 1 9 9 0 6 8

| 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 | |
| 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 | |
| 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". | | |
| 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)? | 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 | 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> |
|---------------------|--------------------------|----------------------------|---------------------|---------------------|----------------------------|
| 1199068001-A | No Preservative Required | OK | | | |
| 1199068001-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 that 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

1199068

SGS Job Number: FA62042

Sampling Date: 02/26/19

Report to:

andrea.colby@sgs.com

Total number of pages in report: **22**



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.

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: FA62042

1199068

| Sample Number | Collected | | Matrix Received | Code Type | Client Sample ID |
|---------------|-----------|----------|-----------------|-----------|------------------|
| | Date | Time By | | | |
| FA62042-1 | 02/26/19 | 10:55 JS | 03/05/19 | AQ Water | |

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: SGS North America, Inc

Job No FA62042

Site: 1199068

Report Date 3/11/2019 11:35:01

1 Sample was collected on 02/26/2019 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 FA62042. 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: OP74055

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA62041-1MS, FA62042-1DUP were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Blank Spike Recovery(s) for Perfluorodecanesulfonic acid are outside control limits.

OP74055-BS for Perfluorodecanesulfonic acid: Sporadic marginal failure.

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

RPD(s) for Duplicate for Perfluorooctanoic acid are outside control limits for sample OP74055-DUP. Probable cause is due to sample non-homogeneity.

FA62042-1 for Perfluorodecanesulfonic acid: Associated BS recovery 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: FA62042
Account: SGS North America, Inc
Project: 1199068
Collected: 02/26/19



| Lab Sample ID | Client Sample ID | Result/ Qual | RL | MDL | Units | Method |
|------------------------------|------------------|-----------------|--------|-----|-------|----------------|
| FA62042-1 | | | | | | |
| Perfluorohexanesulfonic acid | | 0.00641 | 0.0038 | | ug/l | EPA 537M BY ID |

Sample Results

Report of Analysis

Report of Analysis

| | |
|-------------------------------------------|--------------------------------|
| Client Sample ID: [REDACTED] | Date Sampled: 02/26/19 |
| Lab Sample ID: FA62042-1 | Date Received: 03/05/19 |
| Matrix: AQ - Water | Percent Solids: n/a |
| Method: EPA 537M BY ID EPA 537 MOD | |
| Project: 1199068 | |

| Run # | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|--------|----------|----|----------------|-----|----------------|------------|------------------|
| Run #1 | 3Q1689.D | 1 | 03/08/19 00:19 | NAF | 03/06/19 09:30 | OP74055 | S3Q46 |
| Run #2 | | | | | | | |

| Run # | Initial Volume | Final Volume |
|--------|----------------|--------------|
| Run #1 | 260 ml | 1.0 ml |
| Run #2 | | |

PFAS List

| CAS No. | Compound | Result | RL | Units | Q |
|----------------------------------------------|-------------------------------------------|---------|--------|-------|---|
| PERFLUOROALKYLCARBOXYLIC ACIDS | | | | | |
| 375-22-4 | Perfluorobutanoic acid | ND | 0.0077 | ug/l | |
| 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 | |
| PERFLUOROALKYLSULFONATES | | | | | |
| 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 | 0.00641 | 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 | |
| 335-77-3 | Perfluorodecanesulfonic acid ^a | ND | 0.0038 | ug/l | |
| PERFLUOROCTANESULFONAMIDES | | | | | |
| 754-91-6 | PFOSA | ND | 0.0038 | ug/l | |
| PERFLUOROCTANESULFONAMIDOACETIC ACIDS | | | | | |
| 2355-31-9 | MeFOSAA | ND | 0.019 | ug/l | |
| 2991-50-6 | EtFOSAA | ND | 0.019 | ug/l | |
| FLUOROTELOMER SULFONATES | | | | | |
| 757124-72-4 | 4:2 Fluorotelomer sulfonate | ND | 0.0077 | ug/l | |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | ND | 0.0077 | 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: 02/26/19 |
| Lab Sample ID: FA62042-1 | | Date Received: 03/05/19 |
| Matrix: AQ - Water | | Percent Solids: n/a |
| Method: EPA 537M BY ID EPA 537 MOD | | |
| Project: 1199068 | | |

4.1
4

PFAS List

| CAS No. | Compound | Result | RL | Units | Q |
|------------|-----------------------------|--------|--------|-------|---|
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | ND | 0.0077 | ug/l | |

| CAS No. | ID Standard Recoveries | Run# 1 | Run# 2 | Limits |
|---------|------------------------|--------|--------|---------|
| | 13C4-PFBA | 86% | | 30-140% |
| | 13C5-PFPeA | 91% | | 40-140% |
| | 13C5-PFHxA | 99% | | 50-150% |
| | 13C4-PFHpA | 103% | | 50-150% |
| | 13C8-PFOA | 118% | | 50-150% |
| | 13C9-PFNA | 117% | | 50-150% |
| | 13C6-PFDA | 100% | | 50-150% |
| | 13C7-PFUnDA | 94% | | 50-150% |
| | 13C2-PFDoDA | 85% | | 50-150% |
| | 13C2-PFTeDA | 90% | | 40-150% |
| | 13C3-PFBS | 90% | | 50-150% |
| | 13C3-PFHxS | 89% | | 50-150% |
| | 13C8-PFOS | 78% | | 50-150% |
| | 13C8-FOSA | 90% | | 30-140% |
| | d3-MeFOSAA | 98% | | 50-150% |
| | 13C2-4:2FTS | 101% | | 50-150% |
| | 13C2-6:2FTS | 128% | | 50-150% |
| | 13C2-8:2FTS | 108% | | 50-150% |

(a) Associated BS recovery 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

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SGS North America Inc.
CHAIN OF CUSTODY RECORD



1 1 9 9 0 6 8

FA62042

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, 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: 1199068 | | PWSID#: | | C O N T A I N E R S | Preservative Used: | NO/NE | EPA 817 - DSM 51 24 (Compound Lab) | MS | MSD | SGS lab # | Location ID |
| REPORTS TO: | | NPDL#: | | | | | | | | | |
| E-MAIL: Julie.Shumway@sgs.com | | | | | | | | | | | |
| INVOICE TO: SGS - Alaska | | QUOTE #: | | | | | | | | | |
| P.O. #: 1199068 | | | | | | | | | | | |
| RESERVED for lab use | SAMPLE IDENTIFICATION | DATE mm/dd/yy | TIME HHMM | MATRIX/MATRIX | # | G = | X | | | 1199068001 | |
| | | 2/26/2019 | 10:55 | Water | 2 | G = | X | | | | |
| Relinquished By: (1) <i>[Signature]</i> | | Date | Time | Received By: | DOD Project? NO Report to DL (J Flags)? NO | | | Data Deliverable Requirements: | | | |
| Relinquished By: (2) <i>VPS</i> | | 3/4/2019 | 11:15 | <i>VPS</i> | Cooler ID: | | | Level 2 Report +DV EDD | | | |
| Relinquished By: (3) | | Date | Time | Received By: | Requested Turnaround Time and-or Special Instructions: | | | | | | |
| Relinquished By: (4) | | Date | Time | Received For Laboratory By: <i>Peruff</i> | Report all analyses for Soils/Waters in mg/L or mg/Kg, where possible | | | Chain of Custody Seal: (Circle) | | | |
| | | | | 3/5/19 | Temp Blank °C: <i>3.6</i> | | | INTACT <input type="checkbox"/> BROKEN <input type="checkbox"/> ABSENT <input type="checkbox"/> | | | |
| | | | | 1315 | or Ambient [] | | | | | | |

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

http://www.sgs.com/terms_and_conditions.htm

1199068_PFC_03.04.19.xls

5.1
5

FA62042: Chain of Custody
Page 1 of 2



SGS Sample Receipt Summary

Job Number: FA62042

Client: SGS ALASKA

Project: 1199068

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>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"/> |

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

Comments

SM001 Rev. Date 05/24/17 Technician: PETERH 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: FA62042
Account: SGSAKA SGS North America, Inc
Project: 1199068

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|------------|----------|----|----------|-----|-----------|------------|------------------|
| OP74055-MB | 3Q1686.D | 1 | 03/07/19 | NAF | 03/06/19 | OP74055 | S3Q46 |

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62042-1

| CAS No. | Compound | Result | RL | Units | Q |
|----------------|-------------------------------|---------|--------|-------|---|
| 375-22-4 | Perfluorobutanoic acid | 0.00464 | 0.0080 | ug/l | J |
| 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 | |
| 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 | ND | 0.0040 | ug/l | |
| 68259-12-1 | Perfluorononanesulfonic acid | ND | 0.0040 | ug/l | |
| 335-77-3 | Perfluorodecanesulfonic acid | ND | 0.0040 | ug/l | |
| 754-91-6 | PFOSA | ND | 0.0040 | ug/l | |
| 2355-31-9 | MeFOSAA | ND | 0.020 | ug/l | |
| 2991-50-6 | EtFOSAA | ND | 0.020 | ug/l | |
| 757124-72-44:2 | Fluorotelomer sulfonate | ND | 0.0080 | ug/l | |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | ND | 0.0080 | ug/l | |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | ND | 0.0080 | ug/l | |

| CAS No. | ID Standard Recoveries | Limits |
|---------|------------------------|--------------|
| | 13C4-PFBA | 89% 30-140% |
| | 13C5-PFPeA | 91% 40-140% |
| | 13C5-PFHxA | 100% 50-150% |
| | 13C4-PFHpA | 103% 50-150% |
| | 13C8-PFOA | 117% 50-150% |
| | 13C9-PFNA | 115% 50-150% |
| | 13C6-PFDA | 90% 50-150% |
| | 13C7-PFUnDA | 77% 50-150% |

6.1.1
6



Method Blank Summary

Job Number: FA62042
Account: SGSAKA SGS North America, Inc
Project: 1199068

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|------------|----------|----|----------|-----|-----------|------------|------------------|
| OP74055-MB | 3Q1686.D | 1 | 03/07/19 | NAF | 03/06/19 | OP74055 | S3Q46 |

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62042-1

| CAS No. | ID Standard Recoveries | Limits |
|---------|------------------------|--------------|
| | 13C2-PFDoDA | 65% 50-150% |
| | 13C2-PFTeDA | 65% 40-150% |
| | 13C3-PFBS | 90% 50-150% |
| | 13C3-PFHxS | 88% 50-150% |
| | 13C8-PFOS | 62% 50-150% |
| | 13C8-FOSA | 84% 30-140% |
| | d3-MeFOSAA | 88% 50-150% |
| | 13C2-4:2FTS | 99% 50-150% |
| | 13C2-6:2FTS | 124% 50-150% |
| | 13C2-8:2FTS | 102% 50-150% |

Instrument Blank

Job Number: FA62042
Account: SGSAKA SGS North America, Inc
Project: 1199068

| 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

FA62042-1

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

6.1.2
6



Instrument Blank

Job Number: FA62042
Account: SGSAKA SGS North America, Inc
Project: 1199068

| 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

FA62042-1

| CAS No. | ID Standard Recoveries | Limits |
|---------|------------------------|--------------|
| | 13C2-PFDoDA | 113% 50-150% |
| | 13C2-PFTeDA | 100% 50-150% |
| | 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% |

Blank Spike Summary

Job Number: FA62042
Account: SGSAKA SGS North America, Inc
Project: 1199068

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|------------|----------|----|----------|-----|-----------|------------|------------------|
| OP74055-BS | 3Q1685.D | 1 | 03/07/19 | NAF | 03/06/19 | OP74055 | S3Q46 |

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62042-1

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|----------------|-------------------------------|------------|----------|-------|--------|
| 375-22-4 | Perfluorobutanoic acid | 0.08 | 0.0789 | 99 | 70-130 |
| 2706-90-3 | Perfluoropentanoic acid | 0.08 | 0.0748 | 94 | 70-130 |
| 307-24-4 | Perfluorohexanoic acid | 0.08 | 0.0753 | 94 | 70-130 |
| 375-85-9 | Perfluoroheptanoic acid | 0.08 | 0.0762 | 95 | 71-130 |
| 335-67-1 | Perfluorooctanoic acid | 0.08 | 0.0771 | 96 | 74-130 |
| 375-95-1 | Perfluorononanoic acid | 0.08 | 0.0751 | 94 | 76-130 |
| 335-76-2 | Perfluorodecanoic acid | 0.08 | 0.0751 | 94 | 70-130 |
| 2058-94-8 | Perfluoroundecanoic acid | 0.08 | 0.0737 | 92 | 70-130 |
| 307-55-1 | Perfluorododecanoic acid | 0.08 | 0.0716 | 90 | 70-130 |
| 72629-94-8 | Perfluorotridecanoic acid | 0.08 | 0.0689 | 86 | 70-139 |
| 376-06-7 | Perfluorotetradecanoic acid | 0.08 | 0.0682 | 85 | 70-130 |
| 375-73-5 | Perfluorobutanesulfonic acid | 0.08 | 0.0741 | 93 | 73-130 |
| 2706-91-4 | Perfluoropentanesulfonic acid | 0.08 | 0.0709 | 89 | 70-130 |
| 355-46-4 | Perfluorohexanesulfonic acid | 0.08 | 0.0752 | 94 | 74-130 |
| 375-92-8 | Perfluoroheptanesulfonic acid | 0.08 | 0.0721 | 90 | 74-130 |
| 1763-23-1 | Perfluorooctanesulfonic acid | 0.08 | 0.0747 | 93 | 70-130 |
| 68259-12-1 | Perfluorononanesulfonic acid | 0.08 | 0.0564 | 71 | 70-130 |
| 335-77-3 | Perfluorodecanesulfonic acid | 0.08 | 0.0425 | 53* a | 70-130 |
| 754-91-6 | PFOSA | 0.08 | 0.0787 | 98 | 70-131 |
| 2355-31-9 | MeFOSAA | 0.08 | 0.0789 | 99 | 70-130 |
| 2991-50-6 | EtFOSAA | 0.08 | 0.0627 | 78 | 70-130 |
| 757124-72-44:2 | Fluorotelomer sulfonate | 0.08 | 0.0773 | 97 | 70-130 |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | 0.08 | 0.0796 | 100 | 70-133 |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | 0.08 | 0.0781 | 98 | 70-130 |

| CAS No. | ID Standard Recoveries | BSP | Limits |
|---------|------------------------|------|---------|
| | 13C4-PFBA | 91% | 30-140% |
| | 13C5-PFPeA | 94% | 40-140% |
| | 13C5-PFHxA | 98% | 50-150% |
| | 13C4-PFHpA | 100% | 50-150% |
| | 13C8-PFOA | 114% | 50-150% |
| | 13C9-PFNA | 113% | 50-150% |
| | 13C6-PFDA | 92% | 50-150% |
| | 13C7-PFUnDA | 80% | 50-150% |

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA62042
Account: SGSAKA SGS North America, Inc
Project: 1199068

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|------------|----------|----|----------|-----|-----------|------------|------------------|
| OP74055-BS | 3Q1685.D | 1 | 03/07/19 | NAF | 03/06/19 | OP74055 | S3Q46 |

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62042-1

| CAS No. | ID Standard Recoveries | BSP | Limits |
|---------|------------------------|------|---------|
| | 13C2-PFDoDA | 70% | 50-150% |
| | 13C2-PFTeDA | 74% | 40-150% |
| | 13C3-PFBS | 94% | 50-150% |
| | 13C3-PFHxS | 90% | 50-150% |
| | 13C8-PFOS | 70% | 50-150% |
| | 13C8-FOSA | 88% | 30-140% |
| | d3-MeFOSAA | 89% | 50-150% |
| | 13C2-4:2FTS | 104% | 50-150% |
| | 13C2-6:2FTS | 127% | 50-150% |
| | 13C2-8:2FTS | 105% | 50-150% |

(a) Sporadic marginal failure.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FA62042
Account: SGSAKA SGS North America, Inc
Project: 1199068

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|------------------------|----------|----|----------|-----|-----------|------------|------------------|
| OP74055-MS | 3Q1688.D | 1 | 03/08/19 | NAF | 03/06/19 | OP74055 | S3Q46 |
| FA62041-1 ^a | 3Q1687.D | 1 | 03/07/19 | NAF | 03/06/19 | OP74055 | S3Q46 |

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62042-1

| CAS No. | Compound | FA62041-1 ug/l | Spike Q | MS ug/l | MS % | Limits | |
|----------------|-------------------------------|-------------------|------------|------------|---------|--------|--------|
| 375-22-4 | Perfluorobutanoic acid | 0.00198 | B | 0.0769 | 0.0694 | 88 | 70-130 |
| 2706-90-3 | Perfluoropentanoic acid | 0.00223 | | 0.0769 | 0.0681 | 86 | 70-130 |
| 307-24-4 | Perfluorohexanoic acid | 0.00226 | | 0.0769 | 0.0689 | 87 | 70-130 |
| 375-85-9 | Perfluoroheptanoic acid | 0.00119 | | 0.0769 | 0.0680 | 87 | 71-130 |
| 335-67-1 | Perfluorooctanoic acid | 0.00155 | | 0.0769 | 0.0695 | 88 | 74-130 |
| 375-95-1 | Perfluorononanoic acid | ND | | 0.0769 | 0.0670 | 87 | 76-130 |
| 335-76-2 | Perfluorodecanoic acid | ND | | 0.0769 | 0.0677 | 88 | 70-130 |
| 2058-94-8 | Perfluoroundecanoic acid | ND | | 0.0769 | 0.0681 | 89 | 70-130 |
| 307-55-1 | Perfluorododecanoic acid | ND | | 0.0769 | 0.0671 | 87 | 70-130 |
| 72629-94-8 | Perfluorotridecanoic acid | ND | | 0.0769 | 0.0748 | 97 | 70-139 |
| 376-06-7 | Perfluorotetradecanoic acid | ND | | 0.0769 | 0.0678 | 88 | 70-130 |
| 375-73-5 | Perfluorobutanesulfonic acid | ND | | 0.0769 | 0.0671 | 87 | 73-130 |
| 2706-91-4 | Perfluoropentanesulfonic acid | ND | | 0.0769 | 0.0662 | 86 | 70-130 |
| 355-46-4 | Perfluorohexanesulfonic acid | 0.00150 | | 0.0769 | 0.0686 | 87 | 74-130 |
| 375-92-8 | Perfluoroheptanesulfonic acid | ND | | 0.0769 | 0.0681 | 89 | 74-130 |
| 1763-23-1 | Perfluorooctanesulfonic acid | 0.00172 | | 0.0769 | 0.0670 | 85 | 70-130 |
| 68259-12-1 | Perfluorononanesulfonic acid | ND | | 0.0769 | 0.0583 | 76 | 70-130 |
| 335-77-3 | Perfluorodecanesulfonic acid | ND | | 0.0769 | 0.0472 | 61* | 70-130 |
| 754-91-6 | PFOSA | ND | | 0.0769 | 0.0699 | 91 | 70-131 |
| 2355-31-9 | MeFOSAA | ND | | 0.0769 | 0.0702 | 91 | 70-130 |
| 2991-50-6 | EtFOSAA | ND | | 0.0769 | 0.0604 | 79 | 70-130 |
| 757124-72-44:2 | Fluorotelomer sulfonate | ND | | 0.0769 | 0.0694 | 90 | 70-130 |
| 27619-97-2 | 6:2 Fluorotelomer sulfonate | ND | | 0.0769 | 0.0706 | 92 | 70-133 |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | ND | | 0.0769 | 0.0697 | 91 | 70-130 |

| CAS No. | ID Standard Recoveries | MS | FA62041-1 | Limits |
|---------|------------------------|------|-----------|---------|
| | 13C4-PFBA | 88% | 86% | 30-140% |
| | 13C5-PFPeA | 93% | 92% | 40-140% |
| | 13C5-PFHxA | 99% | 100% | 50-150% |
| | 13C4-PFHpA | 102% | 105% | 50-150% |
| | 13C8-PFOA | 112% | 120% | 50-150% |
| | 13C9-PFNA | 111% | 117% | 50-150% |
| | 13C6-PFDA | 97% | 102% | 50-150% |
| | 13C7-PFUnDA | 90% | 93% | 50-150% |

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FA62042
Account: SGSAKA SGS North America, Inc
Project: 1199068

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|------------------------|----------|----|----------|-----|-----------|------------|------------------|
| OP74055-MS | 3Q1688.D | 1 | 03/08/19 | NAF | 03/06/19 | OP74055 | S3Q46 |
| FA62041-1 ^a | 3Q1687.D | 1 | 03/07/19 | NAF | 03/06/19 | OP74055 | S3Q46 |

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62042-1

| CAS No. | ID Standard Recoveries | MS | FA62041-1 | Limits |
|---------|------------------------|------|-----------|---------|
| | 13C2-PFDoDA | 82% | 84% | 50-150% |
| | 13C2-PFTeDA | 83% | 87% | 40-150% |
| | 13C3-PFBS | 90% | 91% | 50-150% |
| | 13C3-PFHxS | 89% | 91% | 50-150% |
| | 13C8-PFOS | 80% | 82% | 50-150% |
| | 13C8-FOSA | 87% | 89% | 30-140% |
| | d3-MeFOSAA | 95% | 100% | 50-150% |
| | 13C2-4:2FTS | 106% | 103% | 50-150% |
| | 13C2-6:2FTS | 127% | 128% | 50-150% |
| | 13C2-8:2FTS | 108% | 108% | 50-150% |

(a) Insufficient sample for re-extraction.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA62042
Account: SGSAKA SGS North America, Inc
Project: 1199068

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|-------------|----------|----|----------|-----|-----------|------------|------------------|
| OP74055-DUP | 3Q1690.D | 1 | 03/08/19 | NAF | 03/06/19 | OP74055 | S3Q46 |
| FA62042-1 | 3Q1689.D | 1 | 03/08/19 | NAF | 03/06/19 | OP74055 | S3Q46 |

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62042-1

| CAS No. | Compound | FA62042-1 | | Q | RPD | Limits |
|----------------|-------------------------------|-----------|----------|---|------|--------|
| | | ug/l | DUP ug/l | | | |
| 375-22-4 | Perfluorobutanoic acid | ND | ND | | nc | 30 |
| 2706-90-3 | Perfluoropentanoic acid | ND | ND | | nc | 30 |
| 307-24-4 | Perfluorohexanoic acid | 0.00193 | 0.00193 | J | 0 | 30 |
| 375-85-9 | Perfluoroheptanoic acid | ND | ND | | nc | 30 |
| 335-67-1 | Perfluorooctanoic acid | 0.000964 | ND | | 200* | 30 |
| 375-95-1 | Perfluorononanoic acid | ND | ND | | nc | 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 | 0.00313 | 0.00316 | J | 1 | 30 |
| 2706-91-4 | Perfluoropentanesulfonic acid | 0.00275 | 0.00274 | J | 0 | 30 |
| 355-46-4 | Perfluorohexanesulfonic acid | 0.00641 | 0.00647 | | 1 | 30 |
| 375-92-8 | Perfluoroheptanesulfonic acid | ND | ND | | nc | 30 |
| 1763-23-1 | Perfluorooctanesulfonic acid | 0.00221 | 0.00234 | J | 6 | 30 |
| 68259-12-1 | Perfluorononanesulfonic acid | ND | ND | | nc | 30 |
| 335-77-3 | Perfluorodecanesulfonic 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 | ND | ND | | nc | 30 |
| 39108-34-4 | 8:2 Fluorotelomer sulfonate | ND | ND | | nc | 30 |

| CAS No. | ID Standard Recoveries | DUP | FA62042-1 | Limits |
|---------|------------------------|------|-----------|---------|
| | 13C4-PFBA | 88% | 86% | 30-140% |
| | 13C5-PFPeA | 94% | 91% | 40-140% |
| | 13C5-PFHxA | 103% | 99% | 50-150% |
| | 13C4-PFHpA | 106% | 103% | 50-150% |
| | 13C8-PFOA | 120% | 118% | 50-150% |
| | 13C9-PFNA | 117% | 117% | 50-150% |
| | 13C6-PFDA | 98% | 100% | 50-150% |
| | 13C7-PFUnDA | 93% | 94% | 50-150% |

* = Outside of Control Limits.

Duplicate Summary

Job Number: FA62042
Account: SGSAKA SGS North America, Inc
Project: 1199068

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|-------------|----------|----|----------|-----|-----------|------------|------------------|
| OP74055-DUP | 3Q1690.D | 1 | 03/08/19 | NAF | 03/06/19 | OP74055 | S3Q46 |
| FA62042-1 | 3Q1689.D | 1 | 03/08/19 | NAF | 03/06/19 | OP74055 | S3Q46 |

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA62042-1

| CAS No. | ID Standard Recoveries | DUP | FA62042-1 | Limits |
|---------|------------------------|------|-----------|---------|
| | 13C2-PFDoDA | 85% | 85% | 50-150% |
| | 13C2-PFTeDA | 96% | 90% | 40-150% |
| | 13C3-PFBS | 92% | 90% | 50-150% |
| | 13C3-PFHxS | 89% | 89% | 50-150% |
| | 13C8-PFOS | 73% | 78% | 50-150% |
| | 13C8-FOSA | 89% | 90% | 30-140% |
| | d3-MeFOSAA | 96% | 98% | 50-150% |
| | 13C2-4:2FTS | 106% | 101% | 50-150% |
| | 13C2-6:2FTS | 130% | 128% | 50-150% |
| | 13C2-8:2FTS | 106% | 108% | 50-150% |

* = Outside of Control Limits.