



## Laboratory Report of Analysis

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

Report Number: **1199592**

Client Project: **PFC Well Search2019NapaVanhorn**

Dear Julie Keener,

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 C. Ede

2019.08.20

08:02:25 -08'00'

Jennifer Dawkins  
Project Manager  
Jennifer.Dawkins@sgs.com

Date

## Case Narrative

SGS Client: **Nortech**  
SGS Project: **1199592**  
Project Name/Site: **PFC Well Search2019NapaVanhorn**  
Project Contact: **Julie Keener**

Refer to sample receipt form for information on sample condition.

**(1199592001) PS**

EPA 537 PFAS (list 24) 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: 08/19/2019 5:02:09PM

## Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
██████████	1199592001	08/01/2019	08/02/2019	Water (Surface, Eff., Ground)

Method

Method Description





e-Sample Receipt Form

SGS Workorder #:

1199592



1 1 9 9 5 9 2

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
<b>Chain of Custody / Temperature Requirements</b>		
Were Custody Seals intact? Note # & location	Yes	1F 1B
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
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 @ 3.3 °C Therm. ID: D55
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
<b>Holding Time / Documentation / Sample Condition Requirements</b>		
Note: Refer to form F-083 "Sample Guide" for specific holding times.		
Were samples received within holding time?	Yes	
Do samples match COC** (i.e., sample IDs, dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
Were proper containers (type/mass/volume/preservative***) used?	Yes	N/A ***Exemption permitted for metals (e.g,200.8/6020A).
<b>Volatile / LL-Hg Requirements</b>		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	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	
<b>Note to Client:</b> Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		



e-Sample Receipt Form FBK

SGS Workorder #:

1199592

1199592

Review Criteria		Condition (Yes, No, N/A)	Exceptions Noted below	
<b>Chain of Custody / Temperature Requirements</b>			<b>Yes</b>	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location		N/A		
COC accompanied samples?		Yes		
DOD: Were samples received in COC corresponding coolers?		N/A		
<input type="checkbox"/> **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 @ 5.9 °C	Therm. ID: D23
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?				
If <0°C, were sample containers ice free?				
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.				
<b>Holding Time / Documentation / Sample Condition Requirements</b>		Note: Refer to form F-083 "Sample Guide" for specific holding times.		
Do samples match COC** (i.e., sample IDs, dates/times collected)?		N/C		
**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 samples in good condition (no leaks/cracks/breakage)?		Yes		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)		Yes		
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		
For Rush/Short Hold Time, was RUSH/Short HT email sent?		N/A		
<b>Note to Client:</b> Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.				
Additional notes (if applicable):				
<b>SGS Profile #</b>	<b>364153</b>		364153	



### 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>
1199592001-A	No Preservative Required	OK			
1199592001-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.

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.

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**

**1199592**

**SGS Job Number: FA66729**

**Sampling Date: 08/01/19**

**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: 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*  
**Caitlin Brice, M.S.**  
**General Manager**

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

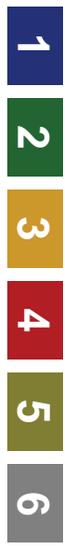
Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001)  
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),  
AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Test results relate only to samples analyzed.

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## Sample Summary

SGS North America, Inc

Job No: FA66729

1199592

Sample Number	Collected		Matrix			Client Sample ID
	Date	Time By	Received	Code	Type	
FA66729-1	08/01/19	12:02	08/06/19	AQ	Water	[REDACTED]

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** SGS North America, Inc

**Job No:** FA66729

**Site:** 1199592

**Report Date** 8/19/2019 1:29:58

1 Sample was collected on 08/01/2019 and received at SGS North America Inc - Orlando on 08/06/2019 properly preserved, at 2.2 Deg. C and intact. This Sample received an SGS Orlando job number of FA66729. 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:** OP76362

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA66702-3MS, FA66813-4DUP were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

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:** FA66729  
**Account:** SGS North America, Inc  
**Project:** 1199592  
**Collected:** 08/01/19



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FA66729-1						
Perfluorohexanoic acid		0.000939 J	0.0034	0.0017	ug/l	EPA 537M BY ID
Perfluorooctanoic acid		0.00117 J	0.0034	0.0017	ug/l	EPA 537M BY ID
Perfluorobutanesulfonic acid		0.00117 J	0.0034	0.0017	ug/l	EPA 537M BY ID
Perfluorohexanesulfonic acid		0.000908 J	0.0034	0.0017	ug/l	EPA 537M BY ID

Sample Results

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Report of Analysis

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# Report of Analysis

<b>Client Sample ID:</b>	[REDACTED]		
<b>Lab Sample ID:</b>	FA66729-1	<b>Date Sampled:</b>	08/01/19
<b>Matrix:</b>	AQ - Water	<b>Date Received:</b>	08/06/19
<b>Method:</b>	EPA 537M BY ID EPA 537 MOD	<b>Percent Solids:</b>	n/a
<b>Project:</b>	1199592		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2Q34350.D	1	08/16/19 19:54	MV	08/14/19 13:15	OP76362	S2Q540
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	1.0 ml
Run #2		

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

**PERFLUOROALKYLCARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	0.0034 U	0.0069	0.0034	0.0017	ug/l	
2706-90-3	Perfluoropentanoic acid	0.0017 U	0.0034	0.0017	0.0013	ug/l	
307-24-4	Perfluorohexanoic acid	0.000939	0.0034	0.0017	0.00086	ug/l	J
375-85-9	Perfluoroheptanoic acid	0.0017 U	0.0034	0.0017	0.00086	ug/l	
335-67-1	Perfluorooctanoic acid	0.00117	0.0034	0.0017	0.00086	ug/l	J
375-95-1	Perfluorononanoic acid	0.0017 U	0.0034	0.0017	0.00086	ug/l	
335-76-2	Perfluorodecanoic acid	0.0017 U	0.0034	0.0017	0.00086	ug/l	
2058-94-8	Perfluoroundecanoic acid	0.0017 U	0.0034	0.0017	0.00086	ug/l	
307-55-1	Perfluorododecanoic acid	0.0017 U	0.0034	0.0017	0.0013	ug/l	
72629-94-8	Perfluorotridecanoic acid	0.0017 U	0.0034	0.0017	0.00086	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.0017 U	0.0034	0.0017	0.00086	ug/l	

**PERFLUOROALKYLSULFONATES**

375-73-5	Perfluorobutanesulfonic acid	0.00117	0.0034	0.0017	0.00086	ug/l	J
2706-91-4	Perfluoropentanesulfonic acid	0.0017 U	0.0034	0.0017	0.00086	ug/l	
355-46-4	Perfluorohexanesulfonic acid	0.000908	0.0034	0.0017	0.00086	ug/l	J
375-92-8	Perfluoroheptanesulfonic acid	0.0017 U	0.0034	0.0017	0.00086	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	0.0017 U	0.0034	0.0017	0.0013	ug/l	
68259-12-1	Perfluorononanesulfonic acid	0.0017 U	0.0034	0.0017	0.00086	ug/l	
335-77-3	Perfluorodecanesulfonic acid	0.0017 U	0.0034	0.0017	0.00086	ug/l	

**PERFLUOROCTANESULFONAMIDES**

754-91-6	PFOSA	0.0017 U	0.0034	0.0017	0.00086	ug/l	
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**PERFLUOROCTANESULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	0.0069 U	0.017	0.0069	0.0034	ug/l	
2991-50-6	EtFOSAA	0.0069 U	0.017	0.0069	0.0034	ug/l	

**FLUOROTELOMER SULFONATES**

757124-72-4	4:2 Fluorotelomer sulfonate	0.0034 U	0.0069	0.0034	0.0017	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	0.0034 U	0.0069	0.0034	0.0017	ug/l	

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

4.1  
4

# Report of Analysis

<b>Client Sample ID:</b> ██████████			
<b>Lab Sample ID:</b> FA66729-1		<b>Date Sampled:</b> 08/01/19	
<b>Matrix:</b> AQ - Water		<b>Date Received:</b> 08/06/19	
<b>Method:</b> EPA 537M BY ID EPA 537 MOD		<b>Percent Solids:</b> n/a	
<b>Project:</b> 1199592			

4.1  
4

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
39108-34-4	8:2 Fluorotelomer sulfonate	0.0034 U	0.0069	0.0034	0.0017	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	85%		30-140%
	13C5-PFPeA	88%		40-140%
	13C5-PFHxA	88%		50-150%
	13C4-PFHpA	90%		50-150%
	13C8-PFOA	95%		50-150%
	13C9-PFNA	94%		50-150%
	13C6-PFDA	92%		50-150%
	13C7-PFUnDA	87%		50-150%
	13C2-PFDoDA	80%		50-150%
	13C2-PFTeDA	81%		40-150%
	13C3-PFBS	87%		50-150%
	13C3-PFHxS	88%		50-150%
	13C8-PFOS	90%		50-150%
	13C8-FOSA	84%		30-140%
	d3-MeFOSAA	94%		50-150%
	13C2-4:2FTS	88%		50-150%
	13C2-6:2FTS	95%		50-150%
	13C2-8:2FTS	88%		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

Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody





## MS Semi-volatiles

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## QC Data Summaries

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Includes the following where applicable:

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

# Method Blank Summary

**Job Number:** FA66729  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1199592

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP76362-MB	2Q34335.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA66729-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0015	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0015	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0015	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.020	0.0040	ug/l	
2991-50-6	EtFOSAA	ND	0.020	0.0040	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	115% 30-140%
	13C5-PFPeA	117% 40-140%
	13C5-PFHxA	119% 50-150%
	13C4-PFHpA	117% 50-150%
	13C8-PFOA	109% 50-150%
	13C9-PFNA	107% 50-150%
	13C6-PFDA	107% 50-150%
	13C7-PFUnDA	111% 50-150%

6.1.1  
6



## Method Blank Summary

**Job Number:** FA66729  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1199592

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP76362-MB	2Q34335.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA66729-1

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	106% 50-150%
	13C2-PFTeDA	109% 40-150%
	13C3-PFBS	115% 50-150%
	13C3-PFHxS	106% 50-150%
	13C8-PFOS	99% 50-150%
	13C8-FOSA	88% 30-140%
	d3-MeFOSAA	115% 50-150%
	13C2-4:2FTS	113% 50-150%
	13C2-6:2FTS	94% 50-150%
	13C2-8:2FTS	108% 50-150%

# Instrument Blank

**Job Number:** FA66729  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1199592

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q540-IBLK	2Q34312.D	1	08/16/19	MV	n/a	n/a	S2Q540

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA66729-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0015	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0015	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0015	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.020	0.0040	ug/l	
2991-50-6	EtFOSAA	ND	0.020	0.0040	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	95% 50-150%
	13C5-PFPeA	95% 50-150%
	13C5-PFHxA	96% 50-150%
	13C4-PFHpA	97% 50-150%
	13C8-PFOA	99% 50-150%
	13C9-PFNA	98% 50-150%
	13C6-PFDA	98% 50-150%
	13C7-PFUnDA	98% 50-150%

6.1.2  
6



# Instrument Blank

**Job Number:** FA66729  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1199592

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S2Q540-IBLK	2Q34312.D	1	08/16/19	MV	n/a	n/a	S2Q540

The QC reported here applies to the following samples:

Method: EPA 537M QSM5.1 B-15

FA66729-1

CAS No.	ID Standard Recoveries	Limits
	13C2-PFDoDA	97% 50-150%
	13C2-PFTeDA	97% 50-150%
	13C3-PFBS	96% 50-150%
	13C3-PFHxS	96% 50-150%
	13C8-PFOS	96% 50-150%
	13C8-FOSA	102% 50-150%
	d3-MeFOSAA	98% 50-150%
	13C2-4:2FTS	90% 50-150%
	13C2-6:2FTS	94% 50-150%
	13C2-8:2FTS	91% 50-150%

6.1.2  
6

# Blank Spike Summary

**Job Number:** FA66729  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1199592

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP76362-BS	2Q34334.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA66729-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.0852	107	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.0798	100	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.0832	104	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0816	102	71-130
335-67-1	Perfluorooctanoic acid	0.08	0.0831	104	74-130
375-95-1	Perfluorononanoic acid	0.08	0.0818	102	76-130
335-76-2	Perfluorodecanoic acid	0.08	0.0825	103	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0829	104	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0826	103	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0787	98	70-139
376-06-7	Perfluorotetradecanoic acid	0.08	0.0817	102	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0816	102	73-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.0835	104	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0831	104	74-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.0855	107	74-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0843	105	70-130
68259-12-1	Perfluorononanesulfonic acid	0.08	0.0796	100	70-130
335-77-3	Perfluorodecanesulfonic acid	0.08	0.0773	97	70-130
754-91-6	PFOSA	0.08	0.0841	105	70-131
2355-31-9	MeFOSAA	0.08	0.0816	102	70-130
2991-50-6	EtFOSAA	0.08	0.0776	97	70-130
757124-72-44:2	Fluorotelomer sulfonate	0.08	0.0833	104	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.0832	104	70-133
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.0850	106	70-130

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	104%	30-140%
	13C5-PFPeA	106%	40-140%
	13C5-PFHxA	105%	50-150%
	13C4-PFHpA	105%	50-150%
	13C8-PFOA	106%	50-150%
	13C9-PFNA	105%	50-150%
	13C6-PFDA	101%	50-150%
	13C7-PFUnDA	102%	50-150%

\* = Outside of Control Limits.

# Blank Spike Summary

**Job Number:** FA66729  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1199592

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP76362-BS	2Q34334.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA66729-1

CAS No.	ID Standard Recoveries	BSP	Limits
	13C2-PFDoDA	93%	50-150%
	13C2-PFTeDA	95%	40-150%
	13C3-PFBS	103%	50-150%
	13C3-PFHxS	103%	50-150%
	13C8-PFOS	97%	50-150%
	13C8-FOSA	94%	30-140%
	d3-MeFOSAA	106%	50-150%
	13C2-4:2FTS	106%	50-150%
	13C2-6:2FTS	106%	50-150%
	13C2-8:2FTS	109%	50-150%

\* = Outside of Control Limits.

# Matrix Spike Summary

**Job Number:** FA66729  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1199592

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP76362-MS	2Q34343.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540
FA66702-3	2Q34342.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA66729-1

CAS No.	Compound	FA66702-3 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	ND	0.0741	0.0823	111	70-130
2706-90-3	Perfluoropentanoic acid	ND	0.0741	0.0773	104	70-130
307-24-4	Perfluorohexanoic acid	ND	0.0741	0.0806	109	70-130
375-85-9	Perfluoroheptanoic acid	ND	0.0741	0.0791	107	71-130
335-67-1	Perfluorooctanoic acid	ND	0.0741	0.0802	108	74-130
375-95-1	Perfluorononanoic acid	ND	0.0741	0.0786	106	76-130
335-76-2	Perfluorodecanoic acid	ND	0.0741	0.0800	108	70-130
2058-94-8	Perfluoroundecanoic acid	ND	0.0741	0.0794	107	70-130
307-55-1	Perfluorododecanoic acid	ND	0.0741	0.0795	107	70-130
72629-94-8	Perfluorotridecanoic acid	ND	0.0741	0.0766	103	70-139
376-06-7	Perfluorotetradecanoic acid	ND	0.0741	0.0788	106	70-130
375-73-5	Perfluorobutanesulfonic acid	ND	0.0741	0.0797	108	73-130
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0741	0.0798	108	70-130
355-46-4	Perfluorohexanesulfonic acid	ND	0.0741	0.0796	107	74-130
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0741	0.0825	111	74-130
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0741	0.0772	104	70-130
68259-12-1	Perfluorononanesulfonic acid	ND	0.0741	0.0758	102	70-130
335-77-3	Perfluorodecanesulfonic acid	ND	0.0741	0.0728	98	70-130
754-91-6	PFOSA	ND	0.0741	0.0799	108	70-131
2355-31-9	MeFOSAA	ND	0.0741	0.0801	108	70-130
2991-50-6	EtFOSAA	ND	0.0741	0.0755	102	70-130
757124-72-44:2	Fluorotelomer sulfonate	ND	0.0741	0.0799	108	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0741	0.0794	107	70-133
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0741	0.0822	111	70-130

CAS No.	ID Standard Recoveries	MS	FA66702-3	Limits
	13C4-PFBA	102%	98%	30-140%
	13C5-PFPeA	104%	100%	40-140%
	13C5-PFHxA	104%	101%	50-150%
	13C4-PFHpA	103%	101%	50-150%
	13C8-PFOA	106%	105%	50-150%
	13C9-PFNA	105%	101%	50-150%
	13C6-PFDA	100%	97%	50-150%
	13C7-PFUnDA	98%	97%	50-150%

\* = Outside of Control Limits.

# Matrix Spike Summary

**Job Number:** FA66729  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1199592

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP76362-MS	2Q34343.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540
FA66702-3	2Q34342.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA66729-1

CAS No.	ID Standard Recoveries	MS	FA66702-3	Limits
	13C2-PFDoDA	89%	89%	50-150%
	13C2-PFTeDA	93%	90%	40-150%
	13C3-PFBS	102%	98%	50-150%
	13C3-PFHxS	103%	98%	50-150%
	13C8-PFOS	98%	94%	50-150%
	13C8-FOSA	97%	96%	30-140%
	d3-MeFOSAA	104%	101%	50-150%
	13C2-4:2FTS	106%	97%	50-150%
	13C2-6:2FTS	108%	101%	50-150%
	13C2-8:2FTS	104%	98%	50-150%

\* = Outside of Control Limits.

# Duplicate Summary

**Job Number:** FA66729  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1199592

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP76362-DUP	2Q34360.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540
FA66813-4	2Q34359.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA66729-1

CAS No.	Compound	FA66813-4		DUP		RPD	Limits
		ug/l	Q	ug/l	Q		
375-22-4	Perfluorobutanoic acid	0.00430	J	0.00388	J	10	30
2706-90-3	Perfluoropentanoic acid	0.00665		0.00612		8	30
307-24-4	Perfluorohexanoic acid	0.00614		0.00570		7	30
375-85-9	Perfluoroheptanoic acid	0.00336	J	0.00315	J	6	30
335-67-1	Perfluorooctanoic acid	0.00826		0.00760		8	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	0.00329	J	0.00321	J	2	30
2706-91-4	Perfluoropentanesulfonic acid	ND		ND		nc	30
355-46-4	Perfluorohexanesulfonic acid	0.00196	J	0.00180	J	9	30
375-92-8	Perfluoroheptanesulfonic acid	ND		ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.00640		0.00581		10	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	FA66813-4	Limits
	13C4-PFBA	97%	87%	30-140%
	13C5-PFPeA	98%	89%	40-140%
	13C5-PFHxA	100%	90%	50-150%
	13C4-PFHpA	101%	91%	50-150%
	13C8-PFOA	104%	95%	50-150%
	13C9-PFNA	99%	92%	50-150%
	13C6-PFDA	94%	87%	50-150%
	13C7-PFUnDA	94%	86%	50-150%

\* = Outside of Control Limits.

# Duplicate Summary

**Job Number:** FA66729  
**Account:** SGSAKA SGS North America, Inc  
**Project:** 1199592

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP76362-DUP	2Q34360.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540
FA66813-4	2Q34359.D	1	08/16/19	MV	08/14/19	OP76362	S2Q540

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA66729-1

CAS No.	ID Standard Recoveries	DUP	FA66813-4	Limits
	13C2-PFDoDA	90%	81%	50-150%
	13C2-PFTeDA	92%	82%	40-150%
	13C3-PFBS	98%	89%	50-150%
	13C3-PFHxS	98%	89%	50-150%
	13C8-PFOS	90%	84%	50-150%
	13C8-FOSA	93%	90%	30-140%
	d3-MeFOSAA	99%	90%	50-150%
	13C2-4:2FTS	97%	88%	50-150%
	13C2-6:2FTS	103%	94%	50-150%
	13C2-8:2FTS	93%	85%	50-150%

\* = Outside of Control Limits.