

Ahtna
Global, LLC

FINAL REPORT
TO THE
CITY OF GUSTAVUS
FOR
WATER SAMPLING
ON
JANUARY 15, 2019
AT



REPORTED:
FEBRUARY 2019

Purchase Order Number 19-189

Prepared For:

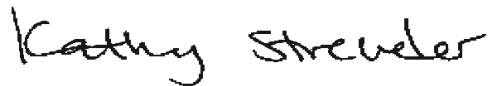
City of Gustavus
P.O. Box 1
Gustavus, Alaska
99826

Prepared By:

Ahtna Global, LLC
110 East 38th Avenue, Suite 200A
Anchorage, Alaska 99503

APPROVAL PAGE

This Report, for the January 15, 2019 Water Sampling at the [REDACTED] in Gustavus, Alaska, has been prepared for the City of Gustavus (COG) by Ahtna Global, LLC (AGL). The following people have prepared and/or reviewed and approved this Report:



Kathy Streveler
Ahtna Environmental, Inc.
Senior Project Manager



Emily Freitas
Ahtna Environmental, Inc.
Chemist

1.0 WATER SAMPLING REPORT

On January 15, 2019 AGL representative, Kathy Streveler, performed water sampling at the [REDACTED] in Gustavus, Alaska for the City of Gustavus under Purchase Order 19-189. Two water samples were collected from the property; one from the main house tap and one from the bath house well. Samples were analyzed by SGS North America EPA using Method 537 v1.1. Sample results were compared to Alaska Department of Environmental Conservation (ADEC) Technical Memorandum *Action Levels for PFAS in Water and Guidance on Sampling Groundwater and Drinking Water*, August 20, 2018 for the six listed PFAS compounds.

Water sample COG19-TAP1 was collected at the kitchen sink tap at the main Saracco residence. At the time of the sample collection the house was utilizing cistern water. The intent of this sample was to represent water currently being consumed by the residents, therefore, all filters and plumbing components were left “as-is” during the sampling event.

Water sample COG19-WELL1 was collected from the well at the bath house. The intent of this sample was to represent current groundwater conditions at the well location. This sample was collected at the hose bib. The filters were removed from the filter housings which were plumbed in before the hose bib. A duplicate sample for COG19-WELL1 was also analyzed and reported by the laboratory.

Both samples were analyzed for the six PFAS compounds regulated by the Alaska Department of Environmental Conservation (ADEC). These six PFAS compounds were compared to the most current applicable action levels.

Sample Results and Groundwater Cleanup Levels

Results of the two project samples and the duplicate sample are described below and presented in the following table. The method reporting limits for all samples were below the ADEC action levels for all six PFAS compounds.

- Results of the analysis conducted from the water at the main house tap, COG19-TAP1, indicate that one of the six PFAS compounds, PFOS, was detected but all were **below** the current ADEC action levels.
- Results of the analysis conducted from the bath house well, COG19-WELL1, indicate that all six of the PFAS compounds were present in the primary and duplicate samples. The concentration of five of the six PFAS compounds detected were **above** the current ADEC action levels. See table below for results. PFBS was the only compound detected and below the current ADEC action levels.

SAMPLE RESULTS AND CLEANUP LEVELS

Analyte	*Cleanup Level (ng/L, ppt)	COG19-TAP1 (ng/L, ppt)	COG19-WELL1 (ng/L, ppt)	COG19-WELL1 Duplicate (ng/L, ppt)
PFAS				
PFHpA		ND	16.8	15.8
PFHxS		ND	1480	1400
PFNA		ND	41.3	39.5
PFOA		ND	52.9	49.1
PFOS	70	2.06	11500	11400
PFBS	2000	ND	78	72

Notes: *Alaska Department of Environmental Conservation (ADEC) Technical Memorandum *Action Levels for PFAS in Water and Guidance on Sampling Groundwater and Drinking Water*, August 20, 2018

PFHpA	perfluoroheptanoic acid	PFOA	perfluorooctanoic acid
PFHxS	perfluorohexanesulfonic acid	PFOS	perfluorooctanesulfonic acid
PFNA	perfluorononanoic acid	PFBS	perfluorobutanesulfonic acid
ng/L	nanograms per liter	ppt	parts per trillion



GROUNDWATER SAMPLING FORM

PROJECT NUMBER: 21051

WELL NUMBER: _____

SHEET: (of (

PROJECT NAME	████████████████████	WELL CONDITION		NOMINAL DIAMETER	O.D.	I.D.	VOLUME (GAL/LIN FT)
CLIENT	City of Goshute	DAMAGE PRESENT		1"	1.315"	1.049"	0.04
DATE	11/5/18	DEPTH TO BASE (FROM TOC)		1.5"	1.9"	1.610"	0.11
AOC	Back house well	DEPTH TO WATER (FROM TOC)		2"	2.375"	2.067"	0.17
SCIENTIST	Kathy Stremmel	HEIGHT OF WATER COLUMN		3"	3.5"	3.068"	0.38
WEATHER/TEMPERATURE	cloudy 38°	WELL VOLUME		4"	4.5"	4.026"	0.66
WIND		3 WELL VOLUMES					

SAMPLING DATA

DEPTH OF PUMP INTAKE _____

SAMPLE COLLECTED WITH: Bailer Pump, Type: household Other, Specify: _____

MADE OF: Stainless Steel PVC Teflon Disposable LDPE Other, Specify: _____

SAMPLING DECON PROCEDURE: collected sample through hose bib. Rinsed well through sink.

SAMPLE DESCRIPTION: collected sample through hose bib + YSI samples

FIELD WATER QUALITY PARAMETERS

Began running H₂O min / psi at 10:10

Time	Purged Volume (Gal)	Purge Rate (ml/min)	Water Level	Draw Down (ft)	Temperature (°C)	Stabilization Requirements (3 must be stable)					Color	Odor
						Spec. Cond. (µS/cm) ^c	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)		
11:06	26.7	2.1			6.95	1409	1.53	6.91	95.3	-	clear	none
11:11	29.1				6.80	380	2.17	7.12	15.0	-		
11:13	30.0				6.23	377	4.09	7.16	9.5			
11:15	31.0				6.03	377	2.68	7.17	9.7			
11:18	32.4				6.04	377	3.01	7.17	11.3			
11:21	33.8				6.06	378	3.01	7.17	12.4			
11:25	sample collected											

ANALYTICAL SAMPLE INFORMATION

Sample ID	Time	Analytes	Sampling Notes:
COG19-WELL	11:25	<p style="text-align: center;">PFAS</p> DRO RRO GRO BTEX PAH VOCs PEST HERB	
_____	_____	DRO RRO GRO BTEX PAH VOCs PEST HERB	
_____	_____	DRO RRO GRO BTEX PAH VOCs PEST HERB	

**GROUNDWATER SAMPLING
FORM**

PROJECT NUMBER:
21051

WELL NUMBER:

SHEET:
1 of 1

PROJECT NAME	████████████████████	WELL CONDITION	NOMINAL DIAMETER	O.D.	I.D.	VOLUME (GAL/LIN FT)
CLIENT	<u>City of Gustavus</u>	DAMAGE PRESENT	1"	1.315"	1.049"	0.04
DATE	<u>1/15/19</u>	DEPTH TO BASE (FROM TOC)	1.5"	1.9"	1.610"	0.11
AOC	<u>Sarscco House Tap</u>	DEPTH TO WATER (FROM TOC)	2"	2.375"	2.067"	0.17
SCIENTIST	<u>Kathy Strevler</u>	HEIGHT OF WATER COLUMN	3"	3.5"	3.068"	0.38
WEATHER/TEMPERATURE	<u>cloudy/380</u>	WELL VOLUME	4"	4.5"	4.026"	0.66
WIND		3 WELL VOLUMES				

SAMPLING DATA

DEPTH OF PUMP INTAKE: Cistern water

SAMPLE COLLECTED WITH: Bailer Pump, Type: _____ Other, Specify: _____

MADE OF: Stainless Steel PVC Teflon Disposable LDPE Other, Specify: _____

SAMPLING PROCEDURE: Run hot + cold water to clear system

SAMPLE DESCRIPTION: clear no odor. Run water at 3.4 min/gallon. Cistern water took sample at tap through hot water heater

FIELD WATER QUALITY PARAMETERS

Begin running at 10:10
3.4 min

Time	Purged Volume (Gal)	Purge Rate (gpm)	Water Level	Draw Down (ft)	Temperature (°C)	Stabilization Requirements (3 must be stable)					Color	Odor
						Spec. Cond. (µS/cm) ^F	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)		
10:35	7.5	3.4	-	-	37.11	182	2.14	6.84	175	-	clear	none
10:39	8.5	" "	-	-	41.88	161	6.71	8.20	156	-	clear	none
10:44	9.9	" "	-	-	42.02	161	7.41	8.45	142	-		
10:48	11.1	" "	-	-	42.03	161	6.88	8.47	155	-		
10:54	12.9	" "	-	-	42.05	161	6.89	8.50	156	-		
10:56	<u>collected sample</u>											

ANALYTICAL SAMPLE INFORMATION

Sample ID	Time	Analytes	Sampling Notes:
<u>COG19-TAP1</u>	<u>10:56</u>	<u>PFAS</u> DRO RRO GRO BTEX PAH VOCs PEST HERB	
		DRO RRO GRO BTEX PAH VOCs PEST HERB	
		DRO RRO GRO BTEX PAH VOCs PEST HERB	



SGS North America Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide

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

www.us.sgs.com

CLIENT: <i>Altna Global, LLC</i>					Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.					Page <u>1</u> of <u>1</u>						
Section 1	CONTACT: <i>Kathy Staveler</i> PHONE NO: <i>(907) 723-9662</i>				Section 3		Preservative									
	PROJECT NAME: <i>City of Gustavus</i> PROJECT PWSID/ PERMIT#:				# C O N T A I N E R S	Type C = COMP G = GRAB M = Multi Incremental Soils	TRIZ MA	PPAS 537								
	REPORTS TO: <i>Kathy Stueder</i> E-MAIL: <i>kathylochman@gmail.com</i>															
	INVOICE TO: <i>Altna Global, LLC</i> QUOTE#: P.O. #:															
RESERVED for lab use																
Section 2	SAMPLE IDENTIFICATION				DATE mm/dd/yy		TIME HH:MM		MATRIX/ MATRIX CODE				REMARKS/ LOC ID			
	<i>COG19-TAPI</i>				<i>1/15/19</i>		<i>10:56</i>		<i>WA</i>				<i>2</i>		<i>Standard</i>	
	<i>COG19-WELL</i>				<i>1/15/19</i>		<i>11:25</i>		<i>WA</i>				<i>2</i>		<i>Standard</i>	
	<i>Field Blank</i>															
Section 5	Relinquished By: (1) <i>Kathy Staveler</i>			Date <i>1/15/19</i>		Time <i>14:00</i>		Received By:					Section 4 DOD Project? Yes No		Data Deliverable Requirements:	
	Relinquished By: (2)			Date		Time		Received By:					Cooler ID: <i>City of Gustavus</i>			
	Relinquished By: (3)			Date		Time		Received By:					Requested Turnaround Time and/or Special Instructions: <i>Standard</i>			
	Relinquished By: (4)			Date		Time		Received For Laboratory By:					Temp Blank °C: or Ambient []		Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT	
(See attached Sample Receipt Form)										(See attached Sample Receipt Form)		(See attached Sample Receipt Form)				

Attachment 1 to SOP 101

Daily PFAS Protocol Checklist

Date: 11/5/19 Installation Name: [REDACTED]

Weather (temp./precipitation): 38/Foggy Investigation Area: home tap + both house well

Field Clothing and PPE:

- Field crew in compliance with Tables 1-1 to 1-4 in SOP 101
- Field crew has not used fabric softener on clothing
- Field crew has not used cosmetics, moisturizers, hand cream, or other related products on exposed body parts this morning
- Field crew has not applied unacceptable sunscreen or insect repellent

- Alconox and Liquinox to be used as decontamination materials
none used

Food Considerations:

- No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area or field vehicles

Field Equipment:

- No Teflon® containing materials on-site
- All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- No waterproof field books or pens/markers on-site
- No plastic clipboards, binders, or spiral hard cover notebooks on-site
- No adhesives (Post-It Notes) on-site
- Coolers filled with regular ice only. No chemical (blue) ice packs in possession. *Get ice in Ziplock bag as instructed by SAS*

Sample Containers:

- All sample containers made of HDPE or polypropylene. Samples are not stored in containers made of LDPE
- Caps are lined or unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- For personnel in direct contact with samples and/or sampling equipment, wet weather gear made of vinyl, polyurethane, PVC, wax or rubber-coated materials only

Equipment Decontamination:

- "PFAS-free" water on-site for decontamination of sample equipment

If any applicable boxes cannot be checked, the Field Team Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the investigation area or removal of worker from the site until in compliance. Repeated failure to comply with PFAS sample protocols will result in the permanent removal of worker(s) from the investigation area.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

SGS instructed to use gel use, but
to place in Ziploc bags, instead
of regular ice.

Field Team Lead Name: Kathy Streveler

Field Team Lead Signature: Kathy Streveler Time: 10:00 4/15/19



Laboratory Report of Analysis

To: Ahtna Global Services

(907)723-9662

Report Number: **1190274**

Client Project: **21051 City of Gustavus**

Dear Kathy Streveler,

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

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

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

Sincerely,
SGS North America Inc.

Justin Nelson
Project Manager
Justin.Nelson@sgs.com

Date

Case Narrative

SGS Client: **Ahtna Global Services**
SGS Project: **1190274**
Project Name/Site: **21051 City of Gustavus**
Project Contact: **Kathy Streveler**

Refer to sample receipt form for information on sample condition.

COG19-TAP1 (1190274001) PS

PFAS 537 was analyzed by SGS of Wilmington, NC.

*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: 02/13/2019 11:00:56AM

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
COG19-TAP1	1190274001	01/15/2019	01/17/2019	Water (Surface, Eff., Ground)
COG19-WELL1	1190274002	01/15/2019	01/17/2019	Water (Surface, Eff., Ground)
Field Blank	1190274003	01/15/2019	01/17/2019	Water (Surface, Eff., Ground)

Method

Method Description

Print Date: 02/13/2019 11:01:00AM



Section 1

CLIENT: Altna Global, LLC

CONTACT: Kathy Streveler PHONE NO: (907) 723-9662

PROJECT NAME: City of Gustavus PROJECT/PWSID/PERMIT#:

REPORTS TO: Kathy Streveler E-MAIL: kathylochman@gmail.com

INVOICE TO: Altna Global, LLC QUOTE#: P.O. #:

Section 3

CONTAINERS

Type: C = COMP, G = GRAB, MI = Multi Incremental Soils

TRIZ MA

PFAS 537

Preservative

REMARKS/LOC ID

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/MATRIX CODE	#	Type	TRIZ	MA	PFAS	537	REMARKS/LOC ID
①A-B	COG19-TAPI	1/15/19	10:56	WA	2	G	X				Standard
②A-B	COG19-WELL	1/15/19	11:25	WA	2	G	X				Standard
③A-B	Field Blank										

Section 4

DOD Project? Yes No

Data Deliverable Requirements:

Cooler ID: City of Gustavus

Requested Turnaround Time and/or Special Instructions: Standard

Temp Blank °C: 1.2 D53 Chain of Custody Seal: (Circle) INTACT 2-F BROKEN ABSENT

or Ambient []

(See attached Sample Receipt Form) (See attached Sample Receipt Form)

Section 5

Relinquished By: (1) Kathy Streveler Date: 1/15/19 Time: 14:00 Received By:

Relinquished By: (2) Date: Time: Received By:

Relinquished By: (3) Date: Time: Received By:

Relinquished By: (4) Date: 1/17/19 Time: 1144 Received For Laboratory By: Emily M. [Signature] cm 5

1190274



SGS North America Inc.

200 W. Potter Dr., 3180 Peger Rd. Ste.
 Anchorage, AK 99518 (ph) 190, Fairbanks, AK
 907-562-2343, (fax) 907-561-99709 (ph) 907-474-
 5301 8656

Sample Kit Request

Client pickup Date:

1/10/2019

Time:

09:00

Be sure to ask if client will ship by ground (DOT) or air carrier (IATA)

Deliver to client:

Ship by/Air Carrier:

Airbill Number:

Date to ship by:

Notes:

Kit request taken by: JAN

Date: January 9, 2019

Kit prepared by:

Date:

Kit (including lid tightness for pres'd bottles) checked by:

Date:

Kit packed & shipped by:

Date:

Does a Profile exist in LIMS? If not, please send a request for new profile build.

Client Name: Ahtna Environmental

Ordered By: Kathy Lochman Streveler Phone #:

Email: kstreveler@ahna.net

Project Name: City of Gustavus Project/Permit#:

Quote #: 363510 Profile #:

Delivery Address:

Filename: SKIT_Ahtna Environmental_City of Gustavus_2019-01- *Required Items

No.	Matrix	Analysis	Container Size & Type		Pres.	Bottle Lot #	Preservative Lot #	Hold Time	# QC Bottles	Total Bottles
4	DW	EPA 537 - PFCs	2 x 250 mL	Teflon free HDPE	TRIZMA			28 d	0	8
1	Water	EPA 537 - PFC Field Blank	2 x 125	Teflon free HDPE	None			14 d	0	2

- Pack for Shipping via **ground** (DOT)
- Pack for Shipping via **air carrier** (IATA)
- Temperature Blank (**circle one:** 120-ml OR 500-ml)
- Soil VOA Trip Blank - Lot#:
- Water VOA Trip Blank - Lot#:
- 524 VOA Trip Blank - Lot#:
- Low Level Mercury Trip Blank- Lot#:
- Coolers
- Gel Ice
- Bubble Wrap
- Labels
- Custody Seals
- SGS COCs - **Circle req'd forma** Blank COC DW COC COC initiated by PM (attached)
- Send additional instructions/documents (**Note to PM:** Be sure to attach copy of requested form.)
- Total # includes bottles for % Solids
- Track all Lot#? (Required for DOD)
- Foreign Soil

Other Notes/Reminders for Kit Prep:
 1 x 250 mL Bottle PFC Free water for Field Blank

- Attention Client/Sampler:**
1. Do not rinse container; be aware of any acid preservative in container.
 2. Fill container, but do not overfill (except volatile waters).
 3. Label the container with your sample ID as well as the date/time of collection.
 4. Fill out the Chain of Custody.
 5. Add frozen gel packs or ice to your cooler & pack to prevent breakage.
- Charges may be invoiced for bottles which are unused or improperly used. If you have any questions concerning this sample kit, please contact your Project Manager for assistance. Thank you.**

***This will email a copy of this form for confirmation to the client email and save the form to the network. This should not be**



e-Sample Receipt Form

SGS Workorder #:

1190274



1 1 9 0 2 7 4

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	2F
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: City of Gustavus @ 1.2 °C Therm. ID: D53
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	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>
1190274001-A	No Preservative Required	OK			
1190274001-B	No Preservative Required	OK			
1190274002-A	No Preservative Required	OK			
1190274002-B	No Preservative Required	OK			
1190274003-A	No Preservative Required	OK			
1190274003-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.



FINAL LAB REPORT

1190274-Revised

31900121

13-Feb-2019

Prepared by

SGS NORTH AMERICA

Prepared for

SGS North America Inc.

Julie Shumway

200 W. Potter Dr.

Anchorage, AK 99518

Phone: 907-562-2343

Email: julie.shumway@sgs.com

This report is approved by

Jeannie Milholland

jeannie.milholland@sgs.com

QA Manager

This document is issued by the Company under its General Conditions of Service accessible at https://www.sgs.com/en/terms_and_conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

SGS remains committed to serving you in the most effective manner. Should you have any questions or need additional information and technical support, please do not hesitate to contact us.

The management and staff of SGS welcomes customer feedback, both positive and negative, as we continually improve our services. Please visit our web site at www.sgs.com/ultratrace and click on the 'Email Us' link or go to our survey at https://www.surveymonkey.com/r/SGSAP_VoiceOfCustomer?sm=1fJ7v53XMdpUSBSUalhp2w%3d%3d. Thank you for choosing SGS.

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SGS CERTIFICATIONS

Arkansas	88-0682
California (ELAP)	ELAP Cert #2914
CLIA	34D1013708
Connecticut	PH-0258
USDA Soil Permit	P330-17-00055
American Association for Laboratory Accreditation (A2LA)	2726.01 (ISO 17025:2005, 2009 TNI, DoD ELAP QSM 5.0)
Florida DOH	E87634
Louisiana DEQ	4115
Louisiana DOH	LA180027
Maine	2016028
Massachusetts	M-NC919
Minnesota (Primary NELAP For Method 23)	1179213
Mississippi	Reciprocity
Nebraska	NE-OS-33-17
New Hampshire	208317 & 208517
New Jersey	NC100
New York	11685
North Carolina DEQ	481
North Dakota	R-197
Oregon	NC200002
Pennsylvania	68-03675
South Carolina	99029002
Texas	T104704260
US Coast Guard	16714/159.317/SGS
Virginia	9502
Washington	C913
West Virginia	293

Rev. 13-Mar-2018

Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < DL)
J	Estimated Concentration.
E	Amount detected is greater than the Upper Calibration Limit
TIC	Tentatively Identified Compound
ND	Not Detected
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1	Mis-identified peak
M2	Software did not integrate peak
M3	Incorrect baseline construction (i.e. not all of peak included; two peaks integrated as one)
M4	Pattern integration required (i.e. DRO, GRO, PCB, Toxaphene and Technical Chlordane)
M5	Other - Explained in case narrative

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
COG19-TAP1	31900121001	01/15/2019 10:56	01/23/2019 10:05	Drinking Water
COG19-WELL1	31900121002	01/15/2019 11:25	01/23/2019 10:05	Drinking Water
Field Blank	31900121003	01/15/2019 10:56	01/23/2019 10:05	Drinking Water

Case Narrative

COG19-WELL1

10X Dilution performed to bring PFHxA and PFHxS within calibration range

High concentration of native PFOS is causing signal suppression of 13C4-PFOS resulting in low recoveries. These low recoveries are raising the corresponding surrogate (13C2-PFDA) recoveries.

PFOS levels are outside the range of the analyte calibration. Results are being reported "as-is" per client request.

COG19-WELL1(224659DUP)

10X Dilution performed to bring PFHxA and PFHxS within calibration range

High concentration of native PFOS is causing signal suppression of 13C4-PFOS resulting in low recoveries. These low recoveries are raising the corresponding surrogate (13C2-PFDA) recoveries.

PFOS levels are outside the range of the analyte calibration. Results are being reported "as-is" per client request.

Final Lab Report revised to include results for PFBS.

Detectable Results Summary

Client Sample ID: **COG19-TAP1**

Lab Sample ID: 31900121001-A

EPA 537 v1.1

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Qualifier</u>
PFOS	2.06	ng/L	

Client Sample ID: **COG19-WELL1**

Lab Sample ID: 31900121002-A

EPA 537 v1.1

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Qualifier</u>
PFHpA	16.8	ng/L	
PFOA	52.9	ng/L	
PFNA	41.3	ng/L	
PFBS	78.0	ng/L	
PFHxS	1480	ng/L	
PFOS	11500	ng/L	

Parameter Cross Reference

SURROGATE

<u>PARAMETER</u>	<u>CASNO</u>	<u>FULL_NAME</u>
13C2-PFHxA	13CPFHXA	13C2-Perfluoro-n-hexanoic Acid
13C2-PFDA	13CPFDA	13C2-PerFluorodecanoic Acid
d5-NEtFOSAA	1265205-97-7	d5-N-ethyl-perfluoro-1-octanesulfonamidoacetic

REGULAR

<u>PARAMETER</u>	<u>CASNO</u>	<u>FULL_NAME</u>
PFHpA	375-85-9	Perfluoro-n-heptanoic Acid
PFOA	335-67-1	Perfluoro-n-octanoic Acid
PFNA	375-95-1	Perfluoro-n-nonanoic Acid
PFBS	375-73-5	Perfluorobutanesulfonic Acid
PFHxS	355-46-4	Perfluorohexanesulfonic Acid
PFOS	1763-23-1	Perfluorooctanesulfonic Acid

Results of COG19-TAP1

Client Sample ID: **COG19-TAP1**
 Client Project ID: **1190274**
 Lab Sample ID: 31900121001-A
 Lab Project ID: 31900121

Collection Date: 01/15/2019 10:56
 Received Date: 01/23/2019 10:05
 Matrix: Drinking Water
 Solids (%):

Results by EPA 537 v1.1

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
PFHpA	ND	U	0.189	1.89	ng/L	1	01/24/2019 18:28
PFOA	ND	U	0.189	1.89	ng/L	1	01/24/2019 18:28
PFNA	ND	U	0.189	1.89	ng/L	1	01/24/2019 18:28
PFBS	ND	U	0.189	1.89	ng/L	1	01/24/2019 18:28
PFHxS	ND	U	0.189	1.89	ng/L	1	01/24/2019 18:28
PFOS	2.06		0.189	1.89	ng/L	1	01/24/2019 18:28
Surrogates							
13C2-PFHxA	97.6			70.0-130	%	1	01/24/2019 18:28
13C2-PFDA	106			70.0-130	%	1	01/24/2019 18:28
d5-NEtFOSAA	90.8			70.0-130	%	1	01/24/2019 18:28

Batch Information

Analytical Batch: **XLC1261**
 Analytical Method: **EPA 537 v1.1**
 Instrument: **TQS1**
 Analyst: **ADM**

Prep Batch: **HXX2284**
 Prep Method: **EPA 537 v1.1 Prep**
 Prep Date/Time: **01/24/2019 15:38**
 Prep Initial Wt./Vol.: **265 mL**
 Prep Extract Vol: **1 mL**

Results of COG19-WELL1

Client Sample ID: **COG19-WELL1**
 Client Project ID: **1190274**
 Lab Sample ID: 31900121002-A
 Lab Project ID: 31900121

Collection Date: 01/15/2019 11:25
 Received Date: 01/23/2019 10:05
 Matrix: Drinking Water
 Solids (%):

Results by EPA 537 v1.1

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
PFHpA	16.8		0.196	1.96	ng/L	1	01/24/2019 19:30
PFOA	52.9		0.196	1.96	ng/L	1	01/24/2019 19:30
PFNA	41.3		0.196	1.96	ng/L	1	01/24/2019 19:30
PFBS	78.0		0.196	1.96	ng/L	1	01/24/2019 19:30
PFHxS	1480		1.96	19.6	ng/L	10	01/25/2019 13:29
PFOS	11500	E	0.196	1.96	ng/L	1	01/24/2019 19:30
Surrogates							
13C2-PFHxA	90.6			70.0-130	%	1	01/24/2019 19:30
13C2-PFDA	346*			70.0-130	%	1	01/24/2019 19:30
d5-NEtFOSAA	83.3			70.0-130	%	1	01/24/2019 19:30

Batch Information

Analytical Batch: **XLC1261**
 Analytical Method: **EPA 537 v1.1**
 Instrument: **TQS1**
 Analyst: **ADM**

Prep Batch: **HXX2284**
 Prep Method: **EPA 537 v1.1 Prep**
 Prep Date/Time: **01/24/2019 15:38**
 Prep Initial Wt./Vol.: **255 mL**
 Prep Extract Vol: **1 mL**

Analytical Batch: **XLC1262**
 Analytical Method: **EPA 537 v1.1**
 Instrument: **TQS1**
 Analyst: **ADM**

Prep Batch: **HXX2284**
 Prep Method: **EPA 537 v1.1 Prep**
 Prep Date/Time: **01/24/2019 15:38**
 Prep Initial Wt./Vol.: **255 mL**
 Prep Extract Vol: **1 mL**

Results of Field Blank

Client Sample ID: **Field Blank**
 Client Project ID: **1190274**
 Lab Sample ID: 31900121003-A
 Lab Project ID: 31900121

Collection Date: 01/15/2019 10:56
 Received Date: 01/23/2019 10:05
 Matrix: Drinking Water
 Solids (%):

Results by EPA 537 v1.1

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
PFHpA	ND	U	0.189	1.89	ng/L	1	01/24/2019 20:33
PFOA	ND	U	0.189	1.89	ng/L	1	01/24/2019 20:33
PFNA	ND	U	0.189	1.89	ng/L	1	01/24/2019 20:33
PFBS	ND	U	0.189	1.89	ng/L	1	01/24/2019 20:33
PFHxS	ND	U	0.189	1.89	ng/L	1	01/24/2019 20:33
PFOS	ND	U	0.189	1.89	ng/L	1	01/24/2019 20:33
Surrogates							
13C2-PFHxA	113			70.0-130	%	1	01/24/2019 20:33
13C2-PFDA	110			70.0-130	%	1	01/24/2019 20:33
d5-NEtFOSAA	109			70.0-130	%	1	01/24/2019 20:33

Batch Information

Analytical Batch: **XLC1261**
 Analytical Method: **EPA 537 v1.1**
 Instrument: **TQS1**
 Analyst: **ADM**

Prep Batch: **HXX2284**
 Prep Method: **EPA 537 v1.1 Prep**
 Prep Date/Time: **01/24/2019 15:38**
 Prep Initial Wt./Vol.: **265 mL**
 Prep Extract Vol: **1 mL**

Batch Summary

Analytical Method: EPA 537 v1.1

Prep Method: EPA 537 v1.1 Prep

Prep Batch: HXX2284

Prep Date: 01/24/2019 15:38

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Analysis Date</u>	<u>Analytical Batch</u>	<u>Instrument</u>	<u>Analyst</u>
MB for HBN 146335 [HXX/2284]	224677	01/24/2019 17:26	XLC1261	TQS1	ADM
LCS for HBN 146335 [HXX/2284]	224678	01/24/2019 17:57	XLC1261	TQS1	ADM
COG19-TAP1(224658MS)	224679	01/24/2019 18:59	XLC1261	TQS1	ADM
COG19-WELL1(224659DUP)	224680	01/24/2019 20:01	XLC1261	TQS1	ADM
COG19-WELL1(224659DUP)	224680	01/25/2019 14:00	XLC1262	TQS1	ADM
COG19-TAP1	31900121001	01/24/2019 18:28	XLC1261	TQS1	ADM
COG19-WELL1	31900121002	01/24/2019 19:30	XLC1261	TQS1	ADM
COG19-WELL1	31900121002	01/25/2019 13:29	XLC1262	TQS1	ADM
Field Blank	31900121003	01/24/2019 20:33	XLC1261	TQS1	ADM

Method Blank

Blank ID: MB for HBN 146335 [HXX/2284]
 Blank Lab ID: 224677
 QC for Samples:
 31900121001, 31900121002, 31900121003

Matrix: Water

Results by EPA 537 v1.1

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>
PFHpA	ND	U	0.200	2.00	ng/L	1
PFOA	ND	U	0.200	2.00	ng/L	1
PFNA	ND	U	0.200	2.00	ng/L	1
PFBS	ND	U	0.200	2.00	ng/L	1
PFHxS	ND	U	0.200	2.00	ng/L	1
PFOS	ND	U	0.200	2.00	ng/L	1
Surrogates						
13C2-PFHxA	107			70.0-130	%	1
13C2-PFDA	102			70.0-130	%	1
d5-NEtFOSAA	101			70.0-130	%	1

Batch Information

Analytical Batch: XLC1261
 Analytical Method: EPA 537 v1.1
 Instrument: TQS1
 Analyst: ADM

Prep Batch: HXX2284
 Prep Method: EPA 537 v1.1 Prep
 Prep Date/Time: 1/24/2019 3:38:01PM
 Prep Initial Wt./Vol.: 250 mL
 Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 146335 [HXX/2284]
 Blank Spike Lab ID: 224678
 Date Analyzed: 01/24/2019 17:57

Matrix: Water

QC for Samples: 31900121001, 31900121002, 31900121003

Results by EPA 537 v1.1

Parameter	Blank Spike (ng/L)			CL
	Spike	Result	Rec (%)	
PFHpA	100	95.0	95	70.0-130
PFOA	100	96.7	96.7	70.0-130
PFNA	100	107	107	70.0-130
PFBS	88.6	86.1	97.1	70.0-130
PFHxS	91.2	85.6	93.9	70.0-130
PFOS	92.6	92.3	99.6	70.0-130
Surrogates				
13C2-PFHxA			97	70.0-130
13C2-PFDA			95	70.0-130
d5-NEtFOSAA			93	70.0-130

Batch Information

Analytical Batch: **XLC1261**
 Analytical Method: **EPA 537 v1.1**
 Instrument: **TQS1**
 Analyst: **ADM**

Prep Batch: **HXX2284**
 Prep Method: **EPA 537 v1.1 Prep**
 Prep Date/Time: **01/24/2019 15:38**
 Spike Init Wt./Vol.: **250 mL** Extract Vol: **1 mL**
 Dupe Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 31900121001 (COG19-TAP1)
 MS Sample ID: 224679
 MSD Sample ID:
 QC for Samples: 31900121001, 31900121002, 31900121003

Analysis Date: 01/24/2019 18:28
 Analysis Date: 01/24/2019 18:59
 Analysis Date:
 Matrix: Drinking Water

Results by EPA 537 v1.1

Parameter	Sample	Matrix Spike (ng/L)			Spike Duplicate (ng/L)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
PFHpA	ND	96.2	93.7	97.5				70.0-130		
PFOA	ND	96.2	96.7	101				70.0-130		
PFNA	ND	96.2	96.1	99.9				70.0-130		
PFBS	ND	85.2	81.8	96				70.0-130		
PFHxS	ND	87.7	81.7	93.2				70.0-130		
PFOS	2.06	89.0	82.7	90.6				70.0-130		
Surrogates										
13C2-PFHxA				95.1				70.0-130		
13C2-PFDA				103				70.0-130		
d5-NEtFOSAA				86.1				70.0-130		

Batch Information

Analytical Batch: **XLC1261**
 Analytical Method: **EPA 537 v1.1**
 Instrument: **TQS1**
 Analyst: **ADM**

Prep Batch: **HXX2284**
 Prep Method: **EPA 537 v1.1 Prep**
 Prep Date/Time: **01/24/2019 15:38**
 MS Init Wt./Vol.: **260 mL** Extract Vol.: **1 mL**
 MSD Init Wt./Vol.: Extract Vol.:

Duplicate Sample Summary

Original Sample ID: 31900121002
 Duplicate Sample ID: 224680

Analysis Date: 01/24/2019 19:30
 Analysis Date: 01/24/2019 20:01
 Matrix: Drinking Water

QC for Samples: 31900121001, 31900121002, 31900121003

Results by EPA 537 v1.1

<u>PARAMETER</u>	<u>Original (ng/L)</u>	<u>Qual</u>	<u>Duplicate (ng/L)</u>	<u>Qual</u>	<u>RPD (%)</u>	<u>RPD CL</u>
PFHpA	16.8		15.8		6.1	30.00
PFOA	52.9		49.1		7.5	30.00
PFNA	41.3		39.5		4.5	30.00
PFBS	78.0		72.0		8.0	30.00
PFHxS	1480		1400		5.6	30.00
PFOS	11500	E	11400	E	0.87	30.00
Surrogates						
13C2-PFHxA	90.6		96.0		5.8	30.00
13C2-PFDA	346*		320*		7.7	30.00
d5-NEtFOSAA	83.3		78.6		5.9	30.00

Batch Information

Analytical Batch: XLC1261
 Analytical Method: EPA 537 v1.1
 Instrument: TQS1
 Analyst: ADM

Prep Batch: HXX2284
 Prep Method: EPA 537 v1.1 Prep
 Prep Date/Time: 01/24/2019 15:38



SGS North America Inc.
CHAIN OF CUSTODY RECORD



1 1 9 0 2 7 4

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: <u>31900121</u> SGS Wilmington, NC					Page 1 of 2		
CONTACT: Julie Shumway PHONE NO: (907) 562-2343					Additional Comments: All soils report out in dry weight unless otherwise requested.							
PROJECT NAME: 1190274 PWSID#: NPDL#: E-MAIL: Julie.Shumway@sgs.com					C O N T A I N E R S	Preservative Used: TRIZMA	TYPE C = COMP G = GRAB Multi Incremental Soils	PFAS 537*	MS	MSD	SGS lab #	Location ID
INVOICE TO: SGS - Alaska QUOTE #: P.O. #: 1190274												
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/MATRIX								
	COG19-TAP1	1/15/2019	10:56	DW								
	COG19-WELL1	1/15/2019	11:25	DW	2	X					1190274001	
	Field Blank	1/15/2019	10:56	DW	2	X					1190274002	
					2	X					1190274003	
Relinquished By: (1) <i>[Signature]</i> Date: 1/21/19 Time: 0920 Received By:					DOD Project? No Report to DL (J Flags)? Yes Cooler ID:					Data Deliverable Requirements: Level 2 Report + SGS DV		
Relinquished By: (2) Date: Time: Received By:					Requested Turnaround Time and-or Special Instructions:							
Relinquished By: (3) Date: Time: Received By:					*PFOA, PFOA, PFHpA, PFHxS, PFNA Report all analyses for Soils/Waters in mg/L or mg/Kg, where possible							
Relinquished By: (4) Date: 1/23/19 Time: 10:05 Received For Laboratory By: <i>Ashley Owens</i>					Temp Blank °C: 2.2° 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

REVIEWED *NSW*

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **SGS-NA-AK**

Work Order No.: **31900121**

- | | | | |
|-----|--|------------------|-----------|
| 1. | <input checked="" type="checkbox"/> Shipped
<input type="checkbox"/> Hand Delivered | Notes: | |
| 2. | <input checked="" type="checkbox"/> COC Present on Receipt
<input type="checkbox"/> No COC
<input type="checkbox"/> Additional Transmittal Forms | | |
| 3. | <input checked="" type="checkbox"/> Custody Tape on Container
<input type="checkbox"/> No Custody Tape | | |
| 4. | <input checked="" type="checkbox"/> Samples Intact
<input type="checkbox"/> Samples Broken / Leaking | | |
| 5. | <input checked="" type="checkbox"/> Chilled on Receipt Actual Temp.(s) in °C: 2.2
<input type="checkbox"/> Ambient on Receipt
<input type="checkbox"/> Walk-in on Ice; Coming down to temp.
<input checked="" type="checkbox"/> Temperature Blank Present
<input type="checkbox"/> WV samples-proxy not allowed | Thermometer ID#: | IR4-Probe |
| 6. | <input checked="" type="checkbox"/> Sufficient Sample Submitted
<input type="checkbox"/> Insufficient Sample Submitted | | |
| 7. | <input type="checkbox"/> Chlorine absent
<input type="checkbox"/> HNO3 < 2
<input type="checkbox"/> HCL < 2
<input type="checkbox"/> Additional Preservatives verified (see notes) | N/A | |
| 8. | <input checked="" type="checkbox"/> Received Within Holding Time
<input type="checkbox"/> Not Received Within Holding Time | | |
| 9. | <input type="checkbox"/> No Discrepancies Noted
<input checked="" type="checkbox"/> Discrepancies Noted
<input type="checkbox"/> NCDENR notified of Discrepancies* | * | |
| 10. | <input type="checkbox"/> No Headspace present in VOC vials
<input type="checkbox"/> Headspace present in VOC vials >6mm | N/A | |

Comments: _____

* = Sample -003 is not 250mL. (2)-120cc bottles submitted. Field Blank bottles do not appear to have been

prepped by SGS-ILM.

Inspected and Logged in by: AMO

Date: 1/23/2019