COMPLETE PFAS SAMPLING RESULTS

			Public Water System Source by Community													
Contaminant of Concern (ng/L)	ADEC Action Levels			Buckland	Deering	Deering Kiana		Kivalina	Kobuk	k Kotzebue		Noatak		Noorvik	Selawik	Shungnak
		2002 Well	1982 Well	Buckland River	Inmachuk River	Upper Well		Wulik River	Main Well	Devils Lake		Well #5	Well #6	Kobuk River	Selawik River	Kobuk River
PFOA	Combination of the analytes	0.31	0.36	ND	ND	ND	ND	ND	0.32	ND	ND	ND	ND	0.23	0.41	ND
PFOS	should not exceed 70 ng/L	ND	ND	ND	ND	ND	ND	ND	0.29	ND	ND	ND	ND	ND	0.43	ND
PFHpA		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFNA	No	ND	ND	ND	0.21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PFHxS	Action Levels	0.34	0.39	ND	ND	ND	ND	ND	ND	5.43	ND	ND	ND	ND	ND	ND
PFBS		0.27	0.28	ND	0.38	ND	ND	ND	ND	ND	3.82	ND	ND	ND	ND	ND

Detectable Concentration

ND = Not Detected

Results are "Not Detected" when the concentration is lower than the Detection Limit.

Meansurement Equivalents

1 ng/L = 1 ppt

One nanogram per liter equals one part per trillion

Contaminants Name and Acronym

Perfluorooctanoic Acid (PFOA)

Perfluorooctane Sulfonate (PFOS)

Perfluoroheptanoic Acid (PFHpA)

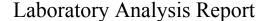
Perfluorononanoic Acid (PFNA)

Perfluorohexane Sulfonate (PFHxS)

Perfluorobutane Sulfonate (PFBS)

Presented are the complete PFAS sampling results from each public water system source in the Northwest Arctic Borough (2019). The Department of Environmental Conservation (ADEC) recommends drinking water samples check for 6 different PFAS contaminants. On the left are all six of the PFAS contaminant acronyms that were analyzed. The second table column shows the ADEC Action Levels which mirror the EPA Health Advisory Limit of 70 ng/L for the sum of PFOA and PFOS concentrations (PFOA and PFOS results are outlined red in the table). 11 communities were investigated and 15 different water sources were sampled.

According to ADEC's current health guidelines, all public water system sources in the Northwest Arctic Borough have safe PFAS levels.





Generic Maniilag Association

Work Order: 1195220

Kobuk/Carl L Snyder

Client: Maniilaq Association

Report Date: September 30, 2019

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO 17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification, and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

* The analyte has exceeded allowable regulatory or control limits.

! Surrogate out of control limits.

B Indicates the analyte is found in a blank associated with the sample.

CCV/CVA/CVB Continuing Calibration Verification

CCCV/CVC/CVCA/CVCB Closing Continuing Calibration Verification

CL Control Limit

DF Analytical Dilution Factor

DL Detection Limit (i.e., maximum method detection limit)

E The analyte result is above the calibrated range.

GT Greater Than

ICV Initial Calibration Verification

J The quantitation is an estimation.

LCS(D) Laboratory Control Spike (Duplicate)

LLQC/LLIQC Low Level Quantitation Check

LOD Limit of Detection (i.e., 1/2 of the LOQ)
LOQ Limit of Quantitation (i.e., reporting or practical quantitation limit)

LT Less Than
MB Method Blank

MS(D) Matrix Spike (Duplicate)

ND Indicates the analyte is not detected.

RPD Relative Percent Difference

U Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.

All DRO/RRO analyses are integrated per SOP.



SGS North America Inc. AIN OF CUSTODY RECORD

WWW.LIS.8QS.COM

pecific method and/or compound list: BTEX, REMARKS/LOC ID Data Deliverable Requirements: ANTACT BROKEN ABSENT Chain of Custody Seal: (Circle) analyses require 6 Please report PFOS, PFOA PFNA, PFHXS, PFHpA, and PFBS. The fallowing Aetals, PFAS Delivery Method: Hand Delivery | Commercal Delivery-Page (OTE: Requested Turnaround Time and/or Special Instructions: instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis. DOD Project? Yes No Temp Blank °C; 2 0 00 50 Preservative or Ambient [] Analysis* Section 4 Coolar ID: Received By: Charteste Sterrich EPA 537 - PFAS* Comp Received For Laboratory By: Grab (Mutti-Incre-mental) Section 3 250 という trester 2534 askt S Received By: Received By: となれたと かなら MATRIX MATHIX CODE Profile #: 362329 NSW 1664 9/4/19 3:40pm 9.05.198-20 TIME HH:WW 8:30 2.5 Time DATE mm/dd/yy 9-A-4-Date 94-19 ター・ぶ 6-4-6 9-7-B QUOTE #: PROJECT/ PWSID/ PERMIT#: Date Date E-MAIL: P.O. #: しるとがより SAMPLE IDENTIFICATION being wall grafte Dack i 2 well South May 12-CA 500 11 Ariv wer Souple? Relinquished By: (4) Relinquished By: (1) REPORTS TO: NVOICE TO: RESERVED for lab use CONTACT PROJECT CLIENT NAME Section 1 Section 2 Section 5

http://www.sgs.com/terms-and-conclitions

2 80x

SGS North America	200 W. Potter Dr., 3180	Anchorage, AK 99518 (ph) 190,	907-562-2343, (fax) 907-561-9970

0 Peger Rd. Ste.

Date
oickup
Slient

Time:

4/22/4

Date: Date: Date: Date:

d (DOT) or air carrier (IATA)

it pickup Date: Be sure to ask if client will ship by groun	☐ Deliver to client:	☑ Ship by/Air Carrier: AK Air Cargo	Airbill Number:	Date to ship by: 8/22/2019	Notes:	Kit request taken by:	Kit prepared by:	s) checked by:	Kit packed & shipped by:
□ Clien	a - 0001077			ă		Kit req	Ki	Kit (including lid tightness for pres'd bottles) checked by:	Kit packed
Anchorage, AK 99518 (ph) 190, Faltanks, AK Sample Kit Request 8907-562-2943, (fax) 907-567-99709 (ph) 907-474-	If not, please send a request for new profile build.	Zender Environmental	Phone #:	speterson@zendergroup.org	Project/Permit#:	Profile #:	Kotzebue, Alaska (OTZ)	c/o Zender Environmental	Sean Peterson (907) 854-0505
Anchorage, AK 907-562-2343, 1 5301	Does a Profile exist in LIMS?		/: Sean Peterson		e: Kobuk		Kot		attn: Sear
うろ	Does	Client Name:	Ordered By:	Email:	Project Name:	Quote #:		Delivery Address:	

_									
	Total		4	•					
	30 #	Bottles	0						
	Hold	Time	14 d						
	Preservative	Lot #							
		Bottle Lot #	•						
		Pres.	Trizma						
		Container Size & Type	Teflon Free HDPE						
*Required Items		Container (2 x 250 mL						
SKIT_Zender Environmental_Kobuk_2019-08-19		Analysis	EP						
Filename:		nples Matrix	DW						-
	lo.	səldu	2						

Samp

Pack for Shipping via *ground* (DOT) □ Total # includes bottles for % Solids Pack for Shipping via *air carrier* (IATA) □ Track all Lot#? (Required for DOD) Temperature Blank (*circle one:* 120-ml OR 500-ml) □ Foreign Soil

- Soil VOA Trip Blank Lot#:
- Water VOA Trip Blank Lot#: 524 VOA Trip Blank - Lot#:

Other Notes/Reminders for Kit Prep:

- Low Level Mercury Trip Blank- Lot#:
- Coolers
- **Bubble Wrap** Gel Ice
 - Labels
- **Custody Seals**
- SGS COCs Circle req'd forma

 Blank COC
- 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.)

1. Do not rinse container; be aware of any acid preservative in container.

Attention Client/Sampler:

- 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.
 - Fill out the Chain of Custody.
- Charges may be invoiced for bottles which are unused or improperly used. 5. Add frozen gel packs or ice to your cooler & pack to prevent breakage. If you have any questions concerning this sample kit, please contact your Project Manager for assistance. Thank you.

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



e-Sample Receipt Form

SGS Workorder #:

1195220



Davieus Onitaria		.,		F		Motori			<u> </u>
Review Criteria	Condition (Y	s, NO, N/A	11 -			Noted b			
Chain of Custody / Temperature Requi			N/A	Exemption permit	ted if	sampler ha	and c	arries/deliv	vers.
Were Custody Seals intact? Note # &	location Ye	2 Box							
COC accompanied sa	amples? Ye	S							
DOD: Were samples received in COC corresponding of	coolers? N/	Δ.							
N/A **Exemption permitted if			hours	ago, or for samples	s whe	re chillina i	is not	required	
Temperature blank compliant* (i.e., 0-6 °C afte		_		1	@		_	Therm. ID:	D30
oracaro siante compilante (noi, o o o dite		Cooler			@			Therm. ID:	
If samples received without a temperature blank, the "cooler temperature" will	be	_			-		_	Therm. ID:	
documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "ch		Cooler			@				
be noted if neither is available.		Cooler			@		_	Therm. ID:	
		Cooler	ID:		@		l _° C	Therm. ID:	
*If >6°C, were samples collected <8 hours	ago? N/	A							
If <0°C, were sample containers ice	e free? N/	4							
		1							
Note: Identify containers received at non-compliant temper	rature .								
Use form FS-0029 if more space is n									
Holding Time / Documentation / Sample Condition Ro	equirement	S Note: Re	efer to	form F-083 "Sample Gu	uide" fo	or specific ho	oldina	times.	
Were samples received within holding				22		1 220 710	9		
		7							
Do samples match COC** (i.e.,sample IDs,dates/times colle	ected)?	Backu) Well	samples arrived e	mpty	. Not for V	NO a	nalysis	
				p. 00 ai i i vod 0			. . u	,0.0.	
**Note: If times differ <1hr, record details & login per C									
***Note: If sample information on containers differs from COC, SGS will default to 0									
Were analytical requests clear? (i.e., method is specified for an		S							
with multiple option for analysis (Ex: BTEX, I	vietais)								
			N/A	***Exemption perr	nitted	for metals	(e.g.	,200.8/602	20A).
Were proper containers (type/mass/volume/preservative***)used? Ye	S							
Volatile / LL-Hg Req	uirement	s							
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with sar									
Were all water VOA vials free of headspace (i.e., bubbles ≤	·								
Were all soil VOAs field extracted with MeOH	·								
			ا ماد سا	propedures and ma		oot data	!!		
Note to Client: Any "No", answer above indicates no	n-compliand	e with sta	iuard	procedures and ma	ıy irnp	aci data qi	uality	•	
Additiona	al notes (if	applical	ole):						



Sample Containers and Preservatives

Container Id	<u>Preservative</u>	<u>Container</u>	Container Id	<u>Preservative</u>	<u>Container</u>
		<u>Condition</u>			<u>Condition</u>
1195220001-A	Trizma	OK			
1195220002-A	Trizma	ОК			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

- OK The container was received at an acceptable pH for the analysis requested.
- BU The container was received with headspace greater than 6mm.
- DM The container was received damaged.
- FR The container was received frozen and not usable for Bacteria or BOD analyses.
- IC The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
- NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
- PA The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
- PH The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added. QN Insufficient sample quantity provided.





FINAL LAB REPORT

1195220

31901572

30-Sep-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

Tamara Burkamper

tamara.morgan@sgs.com

Senior Project Manager

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Results reported relate only to the items tested.



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

 Client Sample ID
 Lab Sample ID
 Collected
 Received
 Matrix

 Main Well Sample
 31901572001
 09/04/2019 08:27
 09/10/2019 10:15
 Drinking Water



Case Narrative
Main Well Sample Surrogate recovery for d5-NEtFOSAA is low due to probable matrix interference demonstrated by extraction and analysis of sample Duplicate.



Results of Main Well Sample

Client Sample ID: Main Well Sample

Client Project ID: **1195220**Lab Sample ID: 31901572001-A
Lab Project ID: 31901572

Collection Date: 09/04/2019 08:27 Received Date: 09/10/2019 10:15

Matrix: Drinking Water

Solids (%):

Results by EPA 537 v1.1

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>DL</u>	LOQ/CL	<u>Units</u>	<u>DF</u>	Date Analyzed
PFHpA	ND	U	0.204	2.04	ng/L	1	09/26/2019 18:33
PFOA	0.319	J	0.204	2.04	ng/L	1	09/26/2019 18:33
PFNA	ND	U	0.204	2.04	ng/L	1	09/26/2019 18:33
PFBS	ND	U	0.204	2.04	ng/L	1	09/26/2019 18:33
PFHxS	ND	U	0.204	2.04	ng/L	1	09/26/2019 18:33
PFOS	0.292	J	0.204	2.04	ng/L	1	09/26/2019 18:33
Surrogates							
13C2-PFHxA	79.9			70.0-130	%	1	09/26/2019 18:33
13C2-PFDA	83.1			70.0-130	%	1	09/26/2019 18:33
d5-NEtFOSAA	65.4*			70.0-130	%	1	09/26/2019 18:33

Batch Information

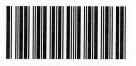
Analytical Batch: XLC1391
Analytical Method: EPA 537 v1.1

Instrument: TQS2
Analyst: FNS

Prep Batch: HXX2414

Prep Method: EPA 537 v1.1 Prep
Prep Date/Time: 09/17/2019 17:48
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

SGS North America Inc. **CHAIN OF CUSTODY RECORD**



Locations Nationwide

Alaska

Florida

New Jersey

Colorado

Texas Virginia North Carolina Louisiana

							3	319	- 31	901	5=	12		Virginia <u>www.u</u>	Louisiana <u>s.sgs.com</u>
CLIENT:	SGS North Ame	erica Inc Ala	ska Division		SG	S Refere	nce: 😑	HOK	*		5	GS	NC		
CONTACT:	Julie Shumway	PHONE NO:	(907) 50	62-2343	-				s: All soils report out in dry wei					ht unless	Page 1 of 1
PROJECT NAME:	1195220	PWSID#:			#	Preserv- ative Used:	TiZma								
REPORTS TO	: Julie Shumway	E-MAIL: Env.Alaska.	0 N T	TYPE C = COMP	PFOS										
INVOICE TO:	SGS - Alaska	QUOTE #: P.O. #: 1195220			A I N	G = GRAB MI = Multi	PFOA								
RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HHMM	MATRIX/ MATRIX CODE	E R S	Incre- mental Soils	EPA 537				MS	MSD	SGS lab#		Location ID
	Main Well Sample	09/04/2019	08:27:00	DW	2	GRA	Х						1195220001		
Relinquished	By: (1)	Date	Time	Received I	Ву:		DOD P Report f J- Rep	to DL	. (J FI	ags)?	NO NO	Data Deliverable Requirement			
Relinquished	Relinquished By: (2)		Time	Received I	Ву:					uest					Level 1 cial Instructions:
Relinquished	Ву: (3)	Date	Time	Received I	Ву:				Гетр Е		00-	D°	PFBS).	Custody Seal: (Circle)
Relinquished By: (4) Date 9/9/8			Time	Received I		For Laboratory By:			or Ambient []				[]	INTACT BROKEN ABSENT	

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

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

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client:	SGS-NA-AK	Work	Order No.:	31901572	
1.	x Shipped	Notes:	UPS Next Day A		
	Hand Delivered		1z A86 19W 01		
_					
2.	x COC Present on Receipt	-			
	No COC				
	Additional Transmittal Forms				
3.	v. Custody Tone on Container				
3.	x Custody Tape on Container				
	No Custody Tape				-
4.	x Samples Intact				
	Samples Broken / Leaking				
	Gamples Broken / Leaking				-
5.	x Chilled on Receipt Actual Temp.(s) in °C:	1.0	Therm	ometer ID#: IR/	Probo
	Ambient on Receipt	1.0	THEITH	ometer ib#. iit-	FFTODE
	Walk-in on Ice; Coming down to temp.				
	x Temperature Blank Present				
	WV samples-proxy not allowed				-
	vv v samples-proxy not allowed				-
6.	x_Sufficient Sample Submitted				
	Insufficient Sample Submitted				
		-			-
7.	Chlorine absent				-
	HNO3 < 2				
	HCL < 2				
		T.:			
	X Additional Preservatives verified (see notes)	Trizma			
8.	x_Received Within Holding Time				
-	Not Received Within Holding Time				
					-
9.	x_No Discrepancies Noted				-
	Discrepancies Noted				
	NCDENR notified of Discrepancies*				
					-
10.	No Headspace present in VOC vials	N/A			
	Headspace present in VOC vials >6mm				
Comments: _					
		*			-
	Inspec	cted and Log	gged in by: AMO		
			Date:	9/10/2019	